air pollution control district
SANTA BARBARA COUNTY

DRAFT

PERMIT to OPERATE 8010-R11
and
PART 70 OPERATING PERMIT 8011

E&B Natural Resources Management Corporation
South Cuyama Internal Combustion Engines and Microturbine

South Cuyama State Designated Oilfield
3 miles Southwest of New Cuyama

OPERATOR

E&B Natural Resources Management Corporation

OWNERSHIP

E&B Natural Resources Management Corporation

Santa Barbara County
Air Pollution Control District

June 2023

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Abbreviations/Acronyms

AOS	Alternative Operating Scenario
AP-42	USEPA's *Compilation of Emission Factors*
API	American Petroleum Institute
ASTM	American Society for Testing Materials
BACT	Best Available Control Technology
bpd	barrels per day (1 barrel = 42 gallons)
CAM	compliance assurance monitoring
CEMS	continuous emissions monitoring
District	Santa Barbara County Air Pollution Control District
dscf	dry standard cubic foot
E&B	E&B Natural Resources Management Corporation
EU	emission unit
°F	degree Fahrenheit
FID	facility ID number
FUMP	Fuel Use Monitoring Plan
gal	gallon
GHG	greenhouse gases
gr	grain
Hallador	Hallador Production Company, the previous operator
HAP	hazardous air pollutant (as defined by CAAA, Section 112(b))
H_2S	hydrogen sulfide
I&M	inspection & maintenance
l	liter
lb	pound
lbs/day	pounds per day
lbs/hr	pounds per hour
LACT	Lease Automatic Custody Transfer
LPG	liquid petroleum gas
M	mega (million)
MACT	Maximum Achievable Control Technology
MM	million
MW	molecular weight
NEI	net emissions increase
NG	natural gas
NGL	natural gas liquid
NOV	Notice of Violation
NSCR	Non-Selective Catalytic Reduction
NSPS	New Source Performance Standards
O_2	oxygen
PERP	Portable Engine Registration Program
ppm(vd or w)	parts per million (volume dry or weight)
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PRD	pressure relief device
PTO	Permit to Operate
RACT	Reasonably Available Control Technology
ROC	reactive organic compounds, same as "VOC" as used in this permit
RVP	Reid vapor pressure
scf	standard cubic foot
scfd (or scfm)	standard cubic feet per day (or per minute)
SIP	State Implementation Plan
SSID	stationary source ID number
STP	standard temperature (60°F) and pressure (29.92 inches of mercury)
THC	Total hydrocarbons
tpy, TPY	tons per year
TVP	true vapor pressure
USEPA	United States Environmental Protection Agency
VE	visible emissions
VOC	volatile organic compounds, also known as "ROC" throughout California
VRS	vapor recovery system

1.0 Introduction

1.1 Purpose

General: The Santa Barbara County Air Pollution Control District (District) is responsible for implementing all applicable federal, state and local air pollution requirements which affect any stationary source of air pollution in Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 61, 63, 68, 70 and 82. The State regulations may be found in the California Health & Safety Code, Division 26, Section 39000 *et seq*. The applicable local regulations can be found in the District's Rules and Regulations. This is a combined permitting action that covers both the Federal Part 70 permit (*Part 70 Operating Permit 8010*) as well as the State Operating Permit (*Permit to Operate 8010-R11*).

Santa Barbara County is designated as a non-attainment area for the state PM_{10} and Ozone ambient air quality standard.

Part 70 Permitting: The initial Part 70 permit for the E&B Natural Resources Management Corporation's (E&B) Internal Combustion Engines was issued January 28, 1998 in accordance with the requirements of the District's Part 70 operating permit program. This permit is the seventh renewal of the Part 70 permit, and may include additional applicable requirements and associated compliance assurance conditions. This permit also incorporates any Part 70 minor modifications since the last renewal, and is being issued as a combined Part 70 and District reevaluation permit. The internal combustion engines and the microturbine are a part of the E&B stationary source, which is a major source for VOC[1], NO_X and CO. Conditions listed in this permit are based on federally-enforceable rules and requirements. Sections 9.A, 9.B and 9.C of this permit are enforceable by the District, the USEPA and the public since these sections are federally-enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally-enforceable.

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

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

[1] VOC as defined in Regulation XIII has the same meaning as reactive organic compounds as defined in Rule 102. "ROC" is used in this document, but where used in the context of the Part 70 regulation, it means "VOC".

1.2 Facility Overview

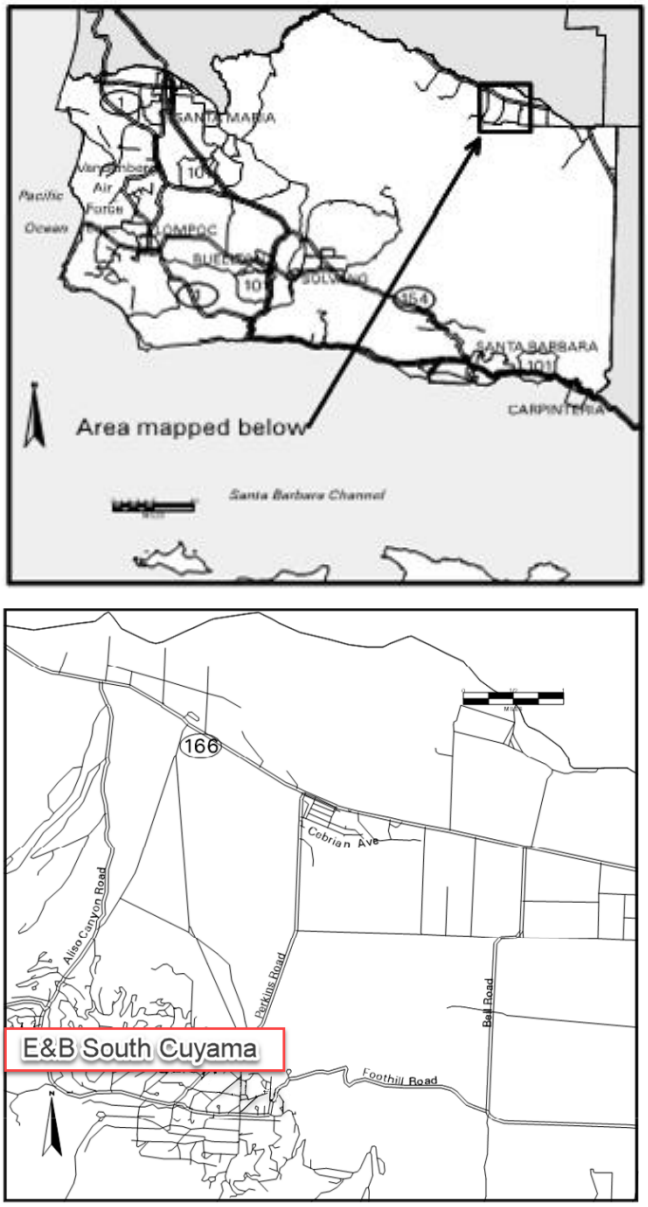
1.2.1 Facility Overview: E&B Natural Resources Management Corporation (E&B) is the sole owner and operator of the South Cuyama Stationary Source, which includes the internal combustion engines and a microturbine.

E&B Natural Resources Management Corporation
1600 Norris Road
Bakersfield, CA 93308

The South Cuyama Stationary Source, located at the South Cuyama State Designated Oilfield, is 3 miles southwest of the town of New Cuyama. For District regulatory purposes, the facility location is in the Northern Zone of Santa Barbara County[2]. Figure 1.1 shows the location of the facility.

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

Figure 1.1 - Location Map for South Cuyama Stationary Source



The E&B-South Cuyama Stationary Source (SSID 1073) was constructed in the late 1940's and consists of the following facilities:

- South Cuyama Unit and Gas Station (FID 1074)
- Gas Plant 10 (FID 3202)
- Internal Combustion Engines and Microturbine (FID 8916)

The source consists of oil and gas wells and tank farms where oil is separated from gas and water. The oil is sold and shipped via pipeline from the lease. Produced water is reinjected into the formation. Gas Plant 10 removes sulfur compounds, carbon dioxide, nitrogen, and water from the gas and strips out the NGLs. The NGLs are piped to Tank Farm #6 and blended with the produced oil. Dry gas is used for fuel, with residual gas sold to the utility or reinjected into one of the gas injection wells. This permit covers only the internal combustion engines (ICEs) and the microturbine at the facility. The oil and gas production and separation equipment, as well as the gas station at the SCU, is permitted under PTO 7250. The E&B Gas Plant is permitted under PTO 9136.

1.2.2 Facility Permit Overview: Table 1.1 provides a summary of the permitting history for this facility :

Table 1.1 - Permit History

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC 14822	08/17/16	Remove and replace the microturbine.
PTO Mod 8010-06	06/02/17	Remove source testing requirements for two controlled limited use engines (IDs 006395 & 006396) and allow the use of a portable analyzer.
ATC 14871	03/14/2017	Install a second microturbine.
Pt70 PTO 8010-R10	6/19/2020	Permit renewal.

1.3 Emission Sources

Emissions from the South Cuyama Unit ICEs come in part from field-gas-fired ICE exhaust, diesel-fired ICE exhaust, exhaust from one gas fired microturbine and fugitive emissions associated with the microturbine. Section 4 of the permit provides the District's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit and also lists the potential emissions from non-permitted emission units.

The emission sources consist of nineteen (19) internal combustion engines and one microturbine. The ten engines listed below are subject to this permit. Nine engines have been depermitted but remain on site. See the Equipment List (Attachment 10.5) for a complete listing of all engines.

- One unmodified field gas-fired, rich-burn, non-cyclic engine not subject to Rule 333 (W-40)
- Four derated field gas-fired, rich-burn, non-cyclic engines not subject to Rule 333 (MM-1, MM-3, MM-22, W-37)
- One controlled field gas-fired, rich-burn, non-cyclic engines controlled with NSCR and subject to Rule 333 (B-6)

- Two controlled field gas-fired, rich-burn, non-cyclic engines controlled with NSCR served by an air/fuel ratio controller and not subject to the Rule 333 emission limits (W-42, B-5)

- One controlled field gas-fired, lean-burn, non-cyclic engine, controlled with lean burn and ignition timing retard and not subject to Rule 333 (HRA #11)

- One uncontrolled, emergency backup, diesel-fired, engine that drives a firewater pump, not subject to Rule 333 (D-2)

- One 3.161 MMBtu/hour microturbine fired on tail gas from Gas Plant 10 and field gas.

1.4 Emission Control Overview

Four of the five ICEs that are rated greater than 50 hp utilize air quality emission controls. Two engines are operated less than 200 hours per year and are exempt from Rule 333 control. The emission controls employed by these ICEs at the facility include:

- Non-selective catalytic reduction (NSCR) is used by one controlled rich-burn non-cyclic ICEs.

- Non-selective catalytic reduction (NSCR) coupled with an air/fuel ratio controller is used by two controlled rich-burn non-cyclic ICEs.

- Ignition timing retard is used to control NO_X emissions from the Clark HRA #11 compressor to levels stipulated by District Rule 333 or lower. This compressor is permitted to operate no more than 24 hrs/year and thus is not subject to Rule 333. The permittee agreed to keep the controls in place so a net emission increase will not be generated.

- Compliance with the fuel sulfur content levels stipulated by District Rule 311 to restrict SO_X emissions to low levels by use of natural gas with less than 796 ppm sulfur as H_2S.

1.5 Offsets/Emission Reduction Credit Overview

1.5.1 Decision of Issuance (DOI) 0033 created NO_X, ROC, and CO ERCs from the electrification of the Clark #12 HRA-6T integral gas compressor engine. The original Clark #12 unit included a compressor, powered by a 792 bhp piston Clark model #HRA-6T ICE. The ICE portion of the Clark #12 unit was replaced with a 600 hp, 1,180 RPM, electric motor. This project created the ERCs listed below.

NO_X = 7.37 tpy
ROC = 41.40 tpy
CO = 27.31 tpy

1.5.2 Decision of Issuance (DOI) 0061 was issued to create NO_X, ROC, and CO ERCs from the electrification of four water injection pumps: two at the Machader and two at the Perkins site. E&B subsequently decided to electrify only two of these engines, therefore DOI 0061-01 was issued and superseded DOI 0061. See Section 1.5.3 below. The ERCs listed below were those originally proposed.

NO_X = 0.231 tpy
ROC = 0.061 tpy
CO = 3.363 tpy

1.5.3 Decision of Issuance (DOI) 0061-01 created NO_X, ROC, and CO ERCs from the electrification of two water injection pumps: one at the Machader and one at the Perkins site. Historically, four engines were used in the pumping process (two at each site). As requested in the application, the following two engines previously used to drive the injection pumps have been maintained on permit as controlled standby engines with no more than 200 hours per year of operations: Buda B-5 (ID# 006396, Machader); Waukesha W-42 (ID# 006395, Perkins). With the exception of these standby engine operations, emissions were reduced due to the electrification of the water injection pumping process. This DOI superseded DOI 0061 which did not include any stand-by engine use. This project created the ERCs listed below.

NO_X = 0.174 tpy
ROC = 0.000 tpy
CO = 0.330 tpy

1.5.4 Decision of Issuance (DOI) 0061-02 modified DOI 0061-01 by changing which engines were removed and which remained in stand by service. Waukesha engine W-42 (IDs# 006395) and Buda engine B-5 (ID# 006396) remained in service and are limited to 200 hours of operation each. Waukesha Engines W-12 and W-11 (IDs# 006394 & 006393) were permanently removed from service. This DOI superseded DOI 0061-01. This project created the ERCs listed below.

NO_X = 0.174 tpy
ROC = 0.000 tpy
CO = 0.330 tpy

1.5.5 Decision of Issuance (DOI) 0086 created ROC ERCs by filling in twenty well cellars at the South Cuyama Unit. The well cellars were permanently removed, but the wells remain active.

1.5.6 The installation of a second microturbine, permitted under ATC 14871, triggered offset requirements for NO_X and ROC. E&B provided ERCs for this project.

1.6 Part 70 Operating Permit Overview

1.6.1 Federally-enforceable Requirements: All federally-enforceable requirements are listed in 40 CFR Part 70.2 (Definitions) under "applicable requirements." These include all SIP-approved District Rules, all conditions in the District-issued Authority to Construct permits, and all conditions applicable to major sources under federally promulgated rules and regulations. All these requirements are enforceable by the public under CAAA. (*See Tables 3.1 and 3.2 for a list of federally-enforceable requirements.*)

1.6.2 Insignificant Emissions Units: Insignificant emission units are defined under District Rule 1301 as any regulated air pollutant emitted from the unit, excluding Hazardous Air Pollutants (HAPs), that are less than 2 tons per year based on the unit's potential to emit and any HAP regulated under section 112(g) of the Clean Air Act that does not exceed 0.5 ton per year based on the unit's potential to emit. Insignificant activities must be listed in the Part 70 application with supporting calculations. Applicable requirements may apply to insignificant units. (*See Section 5.6 and Table 5.4 for the Insignificant Emissions Units list*).

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

1.6.4 Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally-enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the District. Permit shields cannot be indiscriminately granted with respect to all federal requirements. E&B has not made a request for a permit shield.

1.6.5 Alternate Operating Scenarios (AOS): A major source may be permitted to operate under different operating scenarios, if appropriate descriptions of such scenarios are included in its Part 70 permit application and if such operations are allowed under federally-enforceable rules.

E&B requested that a 5 ppmv H_2S content of the field natural gas it uses to fire most of the ICEs be considered *de minimis*. This does not qualify as an AOS.

E&B also requested that the permit contain an AOS-based condition allowing the changing out and moving of equipment without a permit. This does not qualify as an AOS since a specific operating scenario was not identified, and since changing out and moving equipment is subject to federally-enforceable NSR permitting requirements.

In summary, no Alternate Operating Scenarios are included in this permit.

1.6.6 Compliance Certification: Part 70 permittees must certify compliance with all applicable federally-enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually March 1st or on a more frequent schedule specified in the permit. A "responsible official" of the owner/operator company whose name and address is listed prominently in the Part 70 permit signs each certification. (*see Section 1.6.9 below)*

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

1.6.8 MACT/HAPs: Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology (MACT), where applicable. The federal PTE for HAP emissions from a source is computed to determine MACT or any other rule applicability.

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

Frank Ronkese (Chief Financial Officer)
E&B Natural Resources Management Corporation
1600 Norris Road
Bakersfield, CA 93308

2.0 Process Description

2.1 Process Summary

Produced crude is processed at Tank Farms 6 and 18, transferred via the individual LACTs and sent via the pipeline to E&B's Cuyama Pump Station. The crude is metered through a LACT at the pump station before it is loaded via a loading rack to the tanker truck for delivery to the refinery. Produced water is reinjected into the formation. Gas Plant 10 removes sulfur compounds, carbon dioxide, nitrogen, and water from the gas and strips out the NGLs. The dry gas stream is used as fuel, re-injected, and/or sold. The natural gas liquids (NGLs) are piped to Tank Farm #6 and blended with the produced oil.

The ICEs drive pumps and compressors used throughout the process. This permit covers the ICEs and one natural gas-fired microturbine. A full description of the South Cuyama Unit is provided in PTO 7250 and for Gas Plant 10 in PTO 9136.

2.1.1 Unmodified Engine Not Subject to Rule 333: One (1) natural gas-fired, rich-burn, non-cyclic ICE (Device ID# 6338) is rated below 50 hp and is not required to meet Rule 333 emission limits.

2.1.2 Derated Engines Not Subject to Rule 333: Four (4) of the field-gas-fired rich burn ICEs (Device ID# 6348, 6350, 6363 & 6384) are equipped with orifice plates to derate them to below 50 hp. Derating is not considered to be an emission control. These engines are not subject to Rule 333.

2.1.3 Controlled Engines Subject to Rule 333: There is three (3) controlled engine at this facility that is subject to Rule 333:

One (1) engine is a natural gas-fired, rich-burn, non-cyclic engine (Device ID# 6397) that uses Non-Selective Catalytic Reduction (NSCR) in the form of Johnson Mathey or CSI catalysts to control NO_X exhaust emissions.

Two (2) of the engines are natural gas-fired, rich-burn, non-cyclic engines (Device ID# 6395 & 6396) that use NSCR in the form of Johnson Mathey or CSI catalysts served by a Omnitek air/fuel ratio controller to control NO_X exhaust emissions. Operation of these engines is limited to 50 hours per quarter and 200 hours per year.

2.1.4 Controlled Engine, Not Subject to Rule 333: One (1), gas fired lean-burn, non-cyclic ICE (Device ID# 6402) is a lean burn unit achieving emission control through lean burn technology and ignition timing retard. This engine is limited to less than 200 hrs/year and thus is not subject to Rule 333 emission standards.

2.1.5 Uncontrolled Emergency Diesel-fired Engine Not Subject to Rule 333: One (1) uncontrolled, diesel-fired internal combustion engine (Device ID# 8285) used to drive a firewater pump. It is exempt from Rule 333 control because of a permitted operating limit for testing and maintenance less than 200 hrs/year. This engine is subject to the California Diesel Internal Combustion Engine Airborne Air Toxic Control Measure for stationary diesel engines.

2.1.6 Gas Fired 250 kW Microturbine: One microturbine (ID# 389118) is fired on tail gas from Gas Plant 10 and/or field gas. The microturbine has a peak load heat input of 3.161 MMBtu/hr and produces electricity for use at this stationary source. The microturbine is not subject to Rule 333.

2.2 Support Systems

Support units at the South Cuyama Unit are covered in PTO 7250 (oil field operations and the gas station) and PTO 9136 (Gas Plant 10).

2.3 Maintenance/Degreasing Activities

2.3.1 Paints and Coatings: Intermittent surface coating operations are conducted throughout the facility for occasional structural and equipment maintenance needs, including architectural coating. Coating use can range from small to large annual volumes depending on the facility maintenance schedule. Normally only touch-up and equipment labeling or tagging is performed. All architectural coatings used are in compliance with District Rule 323.1.

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

2.4 Other Processes

2.5.1 Unplanned Activities/Emissions: E&B does not anticipate or foresee any circumstances that would require use of special equipment and result in excess emissions.

2.5 Detailed Process Equipment Listing

Refer to Table 5.1-1 for a complete listing of all permitted ICEs.

3.0 Regulatory Review

3.1 Rule Exemptions Claimed

- District Rule 202 (*Exemptions to Rule 201*): Rule 202.D.6 requires E&B to maintain a record of each *de minimis* change, which shall include emission calculations demonstrating that each physical change meets the criteria listed in the Rule. Such records shall be made available to the District upon request. As of December 2022, the *de minimis* total at the E&B South Cuyama Stationary Source is 12.704 lbs ROC/day.

- District Rule 202 (*Exemptions to Rule 201*): The following equipment are exempt from the requirements to obtain a District permit. An exemption from permit, however, does not grant relief from any applicable prohibitory rule unless specifically exempted by that prohibitory rule. (see Attachment 10.5 of this permit for a complete equipment list, including exempt equipment):

  a. Standby Generator ICE (Waukesha F1197, E&B ID# W-17, 195 hp) (Rule 202.F.1.d).

  Note: Non-ICE items exempt from permit are covered in PTO's 7250 and 9136.

- District Rule 333 (*Control of Emissions from Reciprocating Internal Combustion Engines*): The microturbine is not reciprocating internal combustion engine, so it is not subject to this rule.

- Two spark ignited engines ID# 006395, a Waukesha F1197 (W-42) and ID# 006396, a Buda/6MO-672 (B-5), are each operated less than 200 hours/year and are exempt from control per Rule 333.B.2.

3.2 Compliance with Applicable Federal Rules and Regulations

3.2.1 40 CFR Parts 51/52 {New Source Review (Nonattainment Area Review and Prevention of Significant Deterioration}: The South Cuyama Unit was constructed and permitted prior to the applicability of these regulations. However, in 1992 and 1993, the previous operator applied to modify its ICEs to implement emission controls required by District Rule 333. Because the net emission increase from the stationary source was not above applicable thresholds, New Source Review was not triggered. Compliance with District Regulation VIII (*New Source Review*), ensures that future modifications to the facility will comply with these regulations.

3.2.2 40 CFR Part 60 {New Source Performance Standards}: Subpart GG and Subpart KKKK apply to gas turbines with a heat input at peak load of 10 MMBtu/hr or greater. The microturbine has a heat input at peak load of 3.161 MMBtu/hr each, thus is not subject to either Subpart.

Subpart IIII applies to owners and operators of stationary compression ignition engines that are constructed, modified, or reconstructed after July 11, 2005. The compression ignition engines at this facility were installed before July 11, 2005, therefore this Subpart does not apply.

Subpart JJJJ applies to owners and operators of stationary spark ignited engines that are constructed, modified, or reconstructed after June 12, 2006. The spark ignited engines at this facility have not been constructed, modified, or reconstructed since June 12, 2006, therefore this Subpart does not apply.

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

3.2.4 40 CFR Part 63 {MACT}: On June 17, 1999, EPA promulgated Subpart HH, the *National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage*. This facility currently is not subject to the provisions of this Subpart. The previous operator submitted information in July 2000 indicating its source is exempt from the requirements of MACT based on its 'black oil' production per section 63.760(e)(1) of the subpart. On October 20, 2000 the District issued a letter to the previous operator approving this exemption.

3.2.5 40 CFR Part 63 {*MACT Standards Subpart ZZZZ}:* The revised National Emission Standard for Hazardous Air Pollutants (NESHAP) for reciprocating internal combustion engines (RICE) was published in the Federal Register on January 18, 2008. An affected source under the NESHAP is any existing, new, or reconstructed stationary RICE located at a major source or area source.

Subpart ZZZZ applies to owners and operators of stationary reciprocating IC engines (RICE). For area sources of HAP emissions, stationary RICE are existing if construction or reconstruction commenced before June 12, 2006. Since all RICE at this facility commenced construction before June 12, 2006, they are considered existing for the purpose of this Subpart.

Existing Emergency Stationary Compression Ignition RICE. Existing compression ignition RICE at area sources of HAP emissions must comply with the applicable emission and operating limits. Emission limits are not established for existing CI RICE located at area sources of HAP Emissions. Operating requirements for Emergency CI RICE are:

(1) Change the oil and filter every 500 hours of operation or annually, whichever comes first;

(2) Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

(3) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Existing Spark Ignition RICE ≤ 500 Horsepower. Existing spark ignited RICE at area sources of HAP emissions must comply with the applicable emission and operating limits. Emission limits are not established for existing 4-stroke rich burn RICE ≤ 500 horsepower rating located at area sources of HAP emissions. However, the operator of the engine must follow the maintenance schedule specified in Table 2d, Item #10 of the RICE NESHAP which are:

(4) Change the oil and filter every 1,440 hours of operation or annually, whichever comes first;

(5) Inspect the spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and

(6) Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

Existing Spark Ignition RICE > 500 Horsepower. Only one engine at this stationary source, the 792 bhp Clark 11 compressor (ID 006402), is subject to the emission limits is Subpart ZZZZ of the RICE NESHAP. On September 19, 2013, E&B filed the application for PTO Mod 8010-05 to limit the operating hours of Clark 11 (ID 006402) to no more than 24 hours/year. Four-stroke lean burn engines subject to Subpart ZZZZ that operate 24 hours/year or less are not required to install an oxidation catalyst on the engine. However, the operator of the engine must follow the maintenance schedule specified in Table 2d, Item #5 of the RICE NESHAP.

The Clark compressor is subject to the following operating requirements for existing four stroke lean burn stationary RICE rated greater than 500 bhp, limited to 24 hours or less per year, and located at area sources of HAP emissions:

(7) Change the oil and filter every 500 hours of operation or annually, whichever comes first;

(8) Inspect the spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

(9) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

3.2.6 40 CFR Part 64 {*Compliance Assurance Monitoring*}: This rule became effective on April 22, 1998. Compliance with this rule is required during the first permit renewal or the next significant permit revision for sources that had initial Part 70 applications deemed complete before April 22, 1998. This rule affects emission units at the source subject to a federally-enforceable emission limit or standard that use a control device to comply with the emission standard, and either pre-control or post-control emissions exceed the Part 70 source emission thresholds. Compliance with this rule was evaluated and it was determined that no emission units at this facility are currently subject to CAM due to the fact that only one engine has a pre-control emission potential greater than 100 tons/year, however it is inherently controlled through timing retard and not a "control device".

3.27 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to the South Cuyama Unit. Table 3.1 lists the federally-enforceable District promulgated rules that are "generic" and apply to the South Cuyama Unit. Table 3.2 lists the federally-enforceable District promulgated rules that are "unit-specific" that apply to the South Cuyama Unit. These tables are based on data available from the District's files and from E&B's Part 70 Operating Permit renewal application. These tables include the adoption dates of the rules.

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

3.3 Compliance with Applicable State Rules and Regulations

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

3.3.2 California Administrative Code Title 17 Sub-Chapter 6, Sections 92000 through 92530: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at the South Cuyama Unit are required to conform to these standards. Compliance will be assessed through onsite inspections. These standards are District-enforceable only. However, CAC Title 17 does not preempt enforcement of any SIP-approved rule that may be applicable to abrasive blasting activities.

3.3.3 Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition (CI) Engines (CCR Section 93115, Title 17): This ATCM applies for all stationary diesel-fueled engines rated over 50 brake horsepower (bhp) at this facility. On March 17, 2005, District Rule 202 was revised to remove the compression-ignited engine (e.g. diesel) permit exemption for units rated over 50 bhp to allow the District to implement the State's ATCM for Stationary Compression Ignition Engines. Compliance shall be assessed through onsite inspections, and required fuel, recordkeeping, reporting, and monitoring requirements outlined in the ATCM.

3.3.4 Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater (CCR Section 93116, Title 17): This ATCM applies for all portable diesel-fueled engines rated over 50 brake horsepower (bhp) at this facility. On March 17, 2005, District Rule 202 was revised to remove the compression-ignited engine (e.g. diesel) permit exemption for units rated over 50 bhp to allow the District to implement the State's ATCM for Stationary Compression Ignition Engines. Compliance shall be assessed through onsite inspections, and required fuel, recordkeeping, reporting, and monitoring requirements outlined in the ATCM.

3.3.5 Distributed Generation Regulation: This regulation applies to distributed generation equipment that is exempt from District permits. The microturbine is subject to permit, thus is exempt from this regulation.

3.3.6 Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (CCR Title 17, Section 95665 et. Seq.): On October 1, 2017, the California Air Resources Board (CARB) finalized this regulation, which establishes greenhouse gas emission standards for crude oil, condensate, and produced water separation and storage facilities. This facility is subject to the provisions of this regulation. There are no tanks or separators at this facility. This facility does not utilize circulation tanks for well stimulation treatments, centrifugal natural gas compressors, natural gas powered pneumatic devices or pumps, natural gas only wells, or well casing vents, and is therefore not subject to the CARB regulation standards and requirements for these equipment and processes.

The Clark HRA #11 compressor is a reciprocating natural gas compressor; however, it is limited to no more than 24 hours of operation per year and therefore exempt from the provisions of the Regulation per Section 95668.(c).(2).(A), which exempts reciprocating natural gas compressors that operate less than 200 hours per year.

3.4 Compliance with Applicable Local Rules and Regulations

3.4.1 Applicability Tables: Tables 3.1 and 3.2 list the federally-enforceable District rules. Table 3.3 lists the non-federally-enforceable District rules that apply to the South Cuyama internal combustion engines and the microturbine.

3.4.2 Rules Requiring Further Discussion: During the last three years onsite inspections of this facility have taken place on a routine basis. This section provides a detailed discussion regarding the applicability of and compliance with certain rules.

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

Rule 210 (*Fees*): Pursuant to Rule 201.G, District permits are reevaluated every three years. This includes the re-issuance of the underlying permit to operate. Also included are the PTO fees. The fees for this facility are based the District Rule 210, Fee Schedule A. This rule is not federally-enforceable. Attachment 10.3 presents the fee calculations for the reevaluated permit.

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

Rule 302 (*Visible Emissions*): This rule prohibits the discharge from any single source any air contaminants for which a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of one on the Ringlemann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of one on the Ringlemann Chart. Sources subject to this rule include the flare and all diesel-fired piston internal combustion engines at the facility. Improperly maintained diesel engines have the potential to violate this rule. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules, and through quarterly visible emission inspections per the *Visible Emissions* condition of this permit.

Rule 303 (*Nuisance*): Rule 303 prohibits any source from discharging such quantities of air contaminants or other material in violation of Section 41700 of the Health and Safety Code which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety or any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. Compliance with this rule is assessed through the District's enforcement staff's complaint response program. Based on the source's location, the potential for public nuisance is small.

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

Rule 309 (*Specific Contaminants*): Under Section "A", no source may discharge sulfur compounds and combustion contaminants in excess of 0.2-percent as SO_2 (by volume) and 0.3 gr/scf (at 12% CO2) respectively. Sulfur emissions due to the combustion of sweet gas (generally less than 796 ppmv sulfur as H_2S) will comply with the SO_2 limit.

Rule 310 (*Odorous Organic Compounds*): This rule prohibits the discharge of H_2S and organic sulfides that result in a ground level impact beyond the property boundary in excess of either 0.06 ppmv averaged over 3 minutes and 0.03 ppmv averaged over 1 hour.

Rule 311 (*Sulfur Content of Fuels*): This rule limits the sulfur content of fuels combusted at the South Cuyama Unit to 0.5% (by wt.) for liquid fuels and 50 gr/100 scf (calculated as H_2S) {or 796 ppmvd} for gaseous fuels. Sulfur content (calculated as H_2S) of the natural gas used as fuel by E&B usually contains no more than 4 ppmvd. In addition, E&B is required to provide the District annually with measured data on sulfur content of fuel used, liquid or gaseous.

Rule 317 (*Organic Solvent*): This rule sets specific prohibitions against the usage of both photochemically and non-photochemically reactive organic solvents (40 lb/day and 3,000 lb/day respectively). Solvents may be used at the E&B facilities during normal operations for degreasing by wipe cleaning and for use in paints and coatings in maintenance operations. There is the potential to exceed the limits under Section B.2 during significant surface coating activities. To demonstrate compliance with this rule, E&B is required to maintain detailed daily solvent usage records (along with the solvent's MSDS) and submit them annually to the District. See note below Rule 324 discussion.

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

Rule 322 (*Metal Surface Coating Thinner and Reducer*): This rule prohibits the use of photochemically reactive solvents for use as thinners or reducers in metal surface coatings. E&B is required to maintain records to ensure compliance with this rule. See note below Rule 324 discussion.

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

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

Note: District solvent rules (317, 322, 323.1, & 324) are applicable to this stationary source. The compliance requirements for these rules are contained in PTO 7250, and are applicable to the solvent use on equipment covered by this permit.

Rule 330 (*Surface Coating of Metal Parts and Products*): This rule sets standards for many types of coatings applied to metal parts and products. In addition to the ROC standards, this rule sets operating standards for application of the coatings, labeling and recordkeeping. Compliance with this rule will be demonstrated through inspections and recordkeeping.

Rule 333 (*Control of Emissions from Reciprocating IC Engines*): IC engine Device ID# 6397 at the South Cuyama Stationary Source is subject to all provisions of this rule. The Clark #11 compressor (Device ID# 6402) is subject only to Sections D.1, D.2, J.3 (Recordkeeping) and

K (Compliance Schedule). The permit exempt standby engine (E&B ID# W-17) is subject to Section B.2's 200 hr/year and hour meter requirements. Rule 333.D stipulates NO_X, ROC and CO emission standards for gas-fired IC engines and NO_X emission standard for diesel-fired IC engines. Rule 333.E requires all engines subject to this rule to be operated per a District-approved inspection and maintenance plan which includes quarterly NO_X emissions monitoring. In addition, Rule 333.G requires biennial source testing, and Rule 333.H specifies recordkeeping of engine operations and maintenance including control equipment maintenance.

The District approved the June 9, 1994 update to the *ICE Inspection and Maintenance Plan* for the engines on June 29, 1994.

The District approved the September 16, 1993 update to the *Fuel Use Monitoring Plan* for the engines on March 24, 1994.

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

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

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

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

c. Is not the result of improper maintenance;

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

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

Note: District solvent rules (317, 322, 323.1, & 324) are applicable to the stationary source. The compliance requirements for these rules are contained in PTO 7250, and are applicable to the solvent use on equipment covered by this permit.

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

3.5 Compliance History

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

3.5.1 Facility Inspections: Since the previous permit renewal, District inspections of this facility were conducted on March 18, 2021 and April 20, 2022. These inspection reports inspections were reviewed as part of the permit renewal process. There were no compliance issues contained in these reports.

3.5.2 Enforcement Actions: There have been no enforcement actions issued to this facility since issuance of the previous permit renewal.

3.5.3 Variances/Significant Hearing Board Actions: There have been no variances or hearing board actions associated with this facility since issuance of the previous permit renewal.

Table 3.1 - Generic Federally-Enforceable District Rules

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 101: Compliance by Existing Installations	All emission units	Emission of pollutants	June 21, 2012
RULE 102: Definitions	All emission units	Emission of pollutants	August 25, 2016
RULE 103: Severability	All emission units	Emission of pollutants	October 23, 1978
RULE 201: Permits Required	All emission units	Emission of pollutants	June 21, 2012
RULE 202: Exemptions to Rule 201	Applicable emission units, as listed in form 1302-H of the Part 70 application.	Insignificant activities/emissions, per size/rating/function	August 25, 2016
RULE 203: Transfer	All emission units	Change of ownership	April 17, 1997
RULE 204: Applications	All emission units	Addition of new equipment of modification to existing equipment.	August 25, 2016
RULE 205: Standards for Granting Permits	All emission units	Emission of pollutants	April 17, 1997
RULE 206: Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules	October 15, 1991
RULE 207: Denial of Applications	All emission units	Applicability of relevant Rules	October 23, 1978
RULE 208: Action on Applications – Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment of modification to existing equipment.	April 17, 1997
RULE 212: Emission Statements	All emission units	Administrative	October 20, 1992
RULE 301: Circumvention	All emission units	Any pollutant emission	October 23, 1978

Generic Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 302: Visible Emissions	All emission units	Particulate matter emissions	June 1981
RULE 303: Nuisance	All emission units	Emissions that can injure, damage or offend.	October 23, 1978
RULE 304: Particulate Matter – Northern Zone	Each PM Source	Emissions of PM in effluent gas	October 23, 1978
RULE 309: Specific Contaminants	All emission units	Combustion contaminant emission	October 23, 1978
Rule 310: Odorous Organic Sulfides	All emission units	Combustion contaminant emission	October 23, 1978
RULE 311: Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur	October 23, 1978
RULE 317: Organic Solvents	Emission units using solvents	Solvent used in process operations.	October 23, 1978
RULE 321: Solvent Cleaning Operations	Emission units using solvents.	Solvent used in process operations.	June 21, 2012
RULE 322: Metal Surface Coating Thinner and Reducer	Emission units using solvents.	Solvent used in process operations.	October 23, 1978
RULE 323.1: Architectural Coatings	Paints used in maintenance and surface coating activities.	Application of architectural coatings.	January 1, 2015
RULE 324: Disposal and Evaporation of Solvents	Emission units using solvents.	Solvent used in process operations.	October 23, 1978
RULE 353: Adhesives and Sealants	Emission units using adhesives and solvents.	Adhesives and sealants used in process operations.	June 21, 2012
RULE 505.A, B1, D: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.	October 23, 1978
RULE 603: Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	E&B South Cuyama is a major source.	June 15, 1981
RULE 810: Federal Prevention of Significant Deterioration	New or modified emission units	Major modifications	June 20, 2013
REGULATION VIII: New Source Review	All emission units	Addition of new equipment of modification to existing equipment. Applications to generate ERC Certificates.	August 25, 2016
REGULATION XIII (RULES 1301-1305): Part 70 Operating Permits	All emission units	E&B South Cuyama is a major source.	January 18, 2001

Table 3.2 - Unit-Specific Federally-Enforceable District Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 331: Fugitive Emissions Inspection & Maintenance	Components (valves, fittings, pumps, compressors, hatches, sight glasses, meters, pressure relief devices, etc.) used to handle oil and gas.	Components emit fugitive ROCs.	Dec 10, 1991
RULE 333: Control of emissions from Reciprocating Internal Combustion Engines	All engines with a rated break horsepower of 50 or greater.	Engines used in the production and processing of oil and natural gas.	June 19, 2008

Table 3.3 - Non-Federally-Enforceable District Rules

Requirement	Affected Emission Units	Basis for Applicability	Adoption Date
RULE 210: Fees	All emission units	Administrative	March 17, 2005
RULE 212: Emission Statements	All emission units	Administrative	October 20, 1992
RULE 310: Odorous Organic Sulfides	All emission units	Emission of organic sulfides	October 23, 1978
RULES 501-504: Variance Rules	All emission units	Administrative	October 23, 1978
RULE 505.B2, B3, C, E, F, G: Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.	August 4, 1978
RULES 506-519: Variance Rules	All emission units	Administrative	August 14, 1978

4.0 Engineering Analysis

4.1 General

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

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

A review and analysis of material balances, potential breakdown scenarios, and design considerations for safety and system reliability were not performed due to the lack of any regulatory mandate. Unless noted otherwise, default ROC/THC reactivity profiles from the District's document titled "*VOC/ROC Emission Factors and Reactivities for Common Source Types*" dated 7/13/98 (ver. 1.1) were used to determine the non-methane, non-ethane fraction of THC.

4.2 Internal Combustion Engines

4.2.1 **Reciprocating Internal Combustion Engines**: The stationary combustion sources at the South Cuyama Stationary Source consist of nine (9) field-gas-fired, piston IC engines to drive pumping units and compressors, and one (1) diesel-fired, piston IC engine (Device ID# 8285) to drive a firewater pump.

Four (4) engines are emission controlled:

One (1) (Device ID# 6397) is rich burn and uses Non-Selective Catalytic Reduction (NSCR) for NO_X control. The unit is a Buda engine.

Two (2) (Device ID# 6395 & 6396) are rich burn and use Non-Selective Catalytic Reduction (NSCR) for NO_X control and are each equipped with an air/fuel ratio controller. One is a 195 hp Waukesha F1197 engine and one is a 135 hp Buda 6MO-672.

One (1) controlled engine, Clark #11 (Device ID# 6402), is a lean burn compressor and uses ignition timing retard to achieve emission control. Its operation is limited to less than 24 hrs/year. Per Rule 333.B.2, is subject only to Sections D.1, D.2, J.3 (Recordkeeping) and K (Compliance Schedule).

One (1) diesel-fired engine is uncontrolled. The five (5) remaining ICEs are uncontrolled, gas-fired, rich burn units.

Emission factors for ROC, CO, and PM emissions are based on Rule 333, USEPA AP-42 and District Hearing Board values.

A. Gas-Fired, Rich Burn, Non-Cyclic ICEs

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

where: ER = Emission rate (lb/period)
EF = Pollutant specific emission factor (lb/MMBtu)
SCFPP = gas flow rate per operating period (scf/period)
HHV = gas higher heating values (1050 Btu/scf)

Emission Factors (EF) for Uncontrolled Gas Engines Not Subject to Rule 333

Pollutant	Emission Factor	Units	Notes
NO_X	1.905	lb/MMBtu	1.a
ROC	0.103	lb/MMBtu	1.a
CO	1.600	lb/MMBtu	1.a
PM_{10}	0.010	lb/MMBtu	1.a
$PM_{2.5}$	0.010	lb/MMBtu	1.a
SO_X as SO_2	0.128 = (0.169)(ppmv) / HHV	lb/MMBtu	2

Emission Factors (EF) for Controlled Gas Engines Subject to Rule 333.D.1

Pollutant	Emission Factor	Units	Notes
NO_X	0.190	lb/MMBtu	1.b
ROC	0.830	lb/MMBtu	1.b
CO	10.100	lb/MMBtu	1.b
PM_{10}	0.0100	lb/MMBtu	1.b, 3
$PM_{2.5}$	0.0100	lb/MMBtu	1.b, 3
SO_X as SO_2	0.128 = (0.169)(ppmv) / HHV	lb/MMBtu	2

Notes for both tables above:

1.a. District Permit Guidance Document for Reciprocating ICEs dated January 27, 1998, page 6, Table 3.6-1, which values are from AP-42 and District Hearing Board dictated gas-fired engine emission factors.

1.b. District Permit Guidance Document for Reciprocating ICEs dated January 27, 1998, page 7, Table 3.6-3, which values are from AP-42 gas-fired engine EFs based on Rule 333.D.1 rich-burn limits, i.e. 50 ppmv NO_X, 4500 ppmv CO, and 250 ppmv ROC at 15% excess oxygen.

2. Based on mass balance of sulfur in gaseous fuel and limit of 796 ppmv S.

3. $PM/PM_{10}/PM_{2.5}$ mass ratio = 1.0

B. Gas-Fired, Lean Burn, Non-Cyclic ICEs

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

where: ER = Emission rate (lb/period)
EF = Pollutant specific emission factor (lb/MMBtu)
SCFPP = gas flow rate per operating period (scf/period)
HHV = gas higher heating values (1050 Btu/scf)

Emission Factors (EF) for Controlled Compressor Clark #11 Not Subject to Rule 333

Pollutant	Emission factor (PTO 9129)	Units	Notes
NO_X	0.460	lb/MMBtu	1
ROC	2.500	lb/MMBtu	1
CO	10.100	lb/MMBtu	1
PM_{10}	0.046	lb/MMBtu	1
$PM_{2.5}$	0.046	lb/MMBtu	1
SO_X as SO_2	0.128 = (0.169)(ppmv) / HHV	lb/MMBtu	2

Table Notes:

1. District Permit Guidance Document for Reciprocating ICEs dated January 27, 1998, page 7, Table 3.6-3, which values are from AP-42 gas-fired engine EFs based on Rule 333.D.2 lean-burn limits, i.e. 125 ppmv NO_X, 4,500 ppmv CO, and 750 ppmv ROC at 15% excess oxygen.
2. Based on mass balance of sulfur in gaseous fuel.
3. $PM/PM_{10}/PM_{2.5}$ mass ratio = 1.0

C. Diesel Fired Internal Combustion Engines

Emissions are determined by the following equations:

lb/day = Engine Rating (bhp) * EF (g/bhp-hr) * Daily Hours (hr/day) * (lb/453.6 g)
tpy = Engine Rating (bhp) * EF (g/bhp-hr) * Annual Hours (hr/yr) * (lb/453.6 g) * (ton/2000 lb)

The emission factors (EF) were chosen based on each engine's rating and age

Emission factors (EF) for diesel-fired ICEs not subject to Rule 333

Pollutant	Emission factor	units	Notes
NO_X	14.060	g/bhp-hour	1
ROC	1.120	g/bhp-hour	2, 6
CO	3.030	g/bhp-hour	3
SO_X	0.0055	g/bhp-hour	4
PM_{10}	1.000	g/bhp-hour	5, 7
$PM_{2.5}$	1.000	g/bhp-hour	5, 7

Notes:

1. NO_X emission factors are based on the EPA Tier 0 Factors.
2. ROC emission factors are based on the EPA Tier 0 Factors.
3. CO emission factors are based on the EPA Tier 0 Factors.
4. SO_X emission factors are based on the EPA Tier 0 Factors for 15 ppm sulfur diesel.
5. PM_{10} emission factors are based on the EPA Tier 0 Factors.
6. ROC/THC ratio = 1.0
7. $PM/PM_{10}/PM_{2.5}$ mass ratio = 1.0

D. Gas Microturbine

Emission Factors (EF) for the Gas Fired Microturbine

Pollutant	Emission factor	units	Notes
NO_X	0.034	lb/MMBtu	1, 5
ROC	0.033	lb/MMBtu	2, 5
CO	0.116	lb/MMBtu	2, 5
SO_X	0.014	lb/MMBtu	4, 5
PM_{10}	0.012	lb/MMBtu	3, 5
$PM_{2.5}$	0.012	lb/MMBtu	3, 5

Notes:
1. NO_X emission factor from permit application
2 ROC and CO emission factors for Items from 2002 Source Test Data
3. PM emission factors per: AP-42 Table 3.1-2b
4. SO_X emissions based on mass balance of sulfur in gaseous fuel.
5. All emission factors are higher heating value (HHV) based.
6. $PM/PM_{10}/PM_{2.5}$ mass ratio = 1.0

4.2.2 Fugitive Hydrocarbon Emissions*:* Emissions of reactive organic compounds from the valves and connections in gas service associated with the microturbine have been quantified using emission factors pursuant to District P&P 6100.061 (Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition). The component leak-path was counted consistent with P&P 6100.061. This leak-path count is not the same as the "component" count required by District Rule 331.

The calculation methodology for the fugitive emissions is:

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

where:

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

4.3 BACT / NSPS / NESHAP / MACT

To date the ICEs at the South Cuyama Unit are not subject to Best Available Control Technology (BACT) provisions of the District. In 1992 and 1993, the previous operator modified ICE (Device ID# 6395 - 6397) to implement Rule 333.D. The Rule 333 limits are less strict than BACT. The ICE modifications did not increase emissions and so did not result in New Source Review. There is no New Source Performance Standard that applies to the ICEs covered by this permit. NESHAP ZZZZ establishes operating and performance requirements for existing IC engines. Non-ICE modifications are covered in PTOs 7250 and 9136.

4.4 CEMS/Process Monitoring/CAM

4.4.1 CEMS: There are no CEMS at this facility.

4.4.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the use of process monitoring systems. Examples of these monitors include:

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

- Meters recording volume of gas processed at plant inlet.
- Meters recording use of gaseous fuel for combustion devices per the District-approved FUMP.
- Recorder for IC engine process parameters per the District-approved FUMP.
- Meter recording hourly use for the Clark #11 compressor (Device ID# 6402).

To implement the above calibration and maintenance requirements the previous operator submitted a *Process Monitor Calibration and Maintenance Plan* Dated 06/08/12) that has been approved by the District. This Plan takes into consideration manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance was not available, the recommendations of comparable equipment manufacturers and good engineering judgment was utilized.

4.4.3 CAM: E&B ICEs are not subject to the USEPA's Compliance Assurance Monitoring (CAM) rule (40 CFR 64) requirements because none of the engines equipped with a control device emits more than 100 tons/year of NO_X or ROC, or 100 tons/year of CO. This is based on both pre-control and post-control emissions.

4.5 Source Testing / Sampling

Source testing and sampling are required in order to ensure compliance with permitted emission limits, prohibitory rules, control measures and the assumptions that form the basis for issuing operating permits.

The Rule 333 emission limitations for Device ID 6397 shall be verified through biennial source testing and Rule 333 quarterly inspections. The Rule 333 emission limits for Device IDs 6395 and 6396 shall be verified through quarterly inspections with a portable emissions analyzer. Process monitors used to ensure compliance are: (a) equipment recording volume of gas processed; (b) equipment recording gaseous fuel use; (c) IC engine process parameter recorders (e.g., air/fuel ratio controller recorder); and (d) IC engine operation logs required under District Rule 333.

The microturbine must be source tested if requested by the District. The microturbine is equipped with one fuel meter to measure tail gas used and one meter to measure field gas used.

At a minimum, E&B shall sample, monitor, or analyze as applicable the process streams below on a periodic basis, pursuant to District Rules and standards:

- Fuel Gas: An existing Southern California Gas Company H_2S gas analyzer is primarily used to monitor the H_2S content of processed field gas combusted in fuel burning equipment. Daily H_2S colorimetric gas tube tests are used when the Southern California Gas analyzer is down or registering alarm conditions. An annual total sulfur analysis by ASTM D-1072 or other method approved by the District is required for both the field gas and the tail gas.

- Diesel Fuel: Analysis for fuel sulfur content, *annually*.

- Piston IC Engines: Monitor fuel pressure, engine speed (rpm) and jacket water temperature for the compressor engines at Gas Plant 10 pursuant to the District approved *IC Engine Inspection and Maintenance Plan*.

All sampling and analyses are required to be performed according to District approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. It is important that all sampling and analysis be traceable by chain of custody procedures. Diesel fuel sulfur content may be determined instead by certified statement of the supplier of diesel traceable to the diesel-burning ICE.

4.6 Part 70 Engineering Review: Hazardous Air Pollutant Emissions

Hazardous air pollutant emissions from the different categories of emission units at the E&B South Cuyama internal combustion engines are based on emission factors listed in USEPA AP-42. Where no emission factors are available, the HAP fractions from the ARB VOC Speciation Manual – Second Edition (August 1991) are used in conjunction with the ROC emission factor for the equipment item in question.

The HAP emission factors are listed in Table 5.5-1. Potential HAP emissions from the facility are computed and listed in Table 5.5-2. These totals are estimates only, they are not limitations.

5.0 Emissions

5.1 General

Section 5.2 details the permitted emissions for each emissions unit. Section 5.3 details the overall permitted emissions for the facility based on reasonable worst-case scenarios using the potential-to-emit for each emissions unit. Section 5.4 provides the federal potential to emit calculation using the definition of potential to emit used in Rule 1301. Section 5.5 provides the estimated HAP emissions from the facility. Section 5.6 (if applicable) provides the estimated emissions from permit exempt equipment and also serves as the Part 70 list of insignificant emissions. The District uses a computer database to accurately track the emissions from a facility. Attachment 10.1 contains the District's documentation for the information entered into that database.

5.2 Permitted Emission Limits - Emission Units

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

- Nitrogen Oxides (NO_X) [3]
- Reactive Organic Compounds (ROC)
- Carbon Monoxide (CO)
- Sulfur Oxides (SO_X) [4]
- Particulate Matter (PM) [5]
- Particulate Matter smaller than 10 microns (PM_{10})
- Particulate Matter smaller than 2.5 microns ($PM_{2.5}$)
- Greenhouse Gases (GHG as CO_2e)

[3] Calculated and reported as nitrogen dioxide (NO_2)

[4] Calculated and reported as sulfur dioxide (SO_2)

[5] Calculated and reported as all particulate matter smaller than 100 μm

Permitted emissions are calculated for both short term (daily) and long term (annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachments 10.1 and 10.2 respectively. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Table 5.1-3 shows the permitted short-term and permitted long-term emissions for each unit or operation. In the table, the last column indicates whether the emission limits are federally-enforceable. Those emissions limits that are federally-enforceable are indicated by the symbol "FE". Those emissions limits that are District-only enforceable are indicated by the symbol "A".

5.3 Permitted Emission Limits - Facility Totals

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

Daily Scenario:

- Nine (9) gas fired IC engines and one microturbine operate 24 hrs/day.
- Fugitive hydrocarbon emissions associated with the microturbines.

Annual Scenario:

- Six (6) gas-fired IC engines operating 8,760 hrs/year;
- Two (2) gas-fired IC engines (Device ID# 6395 &6396) operating no more than 50 hours per quarter and 200 hours per year.
- One (1) controlled gas fired compressor (Clark #11 Device ID# 6402) operating no more than 24 hours per quarter and 24 hours per year.
- One (1) diesel fired firewater pump ICE (Device ID# 8285) operating no more than 20 hours per year for maintenance and testing with no limitation for emergency use.
- One (1) microturbine (ID# 389118) operating 8,760 hrs/year.
- Fugitive hydrocarbon emissions associated with the microturbine.

5.4 Part 70: Federal Potential to Emit for the Facility

Table 5.3 lists the federal Part 70 potential to emit. All project emissions, except fugitive emissions, are counted in the federal definition of potential to emit. The EPA published the Tailoring Rule on June 3, 2010 to establish the applicability criteria for permitting requirements for greenhouse gas (GHG) emissions. The GHG PTE of the facility has been calculated in order to implement the requirements of the Tailoring Rule.

5.5 Part 70: Hazardous Air Pollutant Emissions for the Facility

Hazardous air pollutants (HAP) emission factors, for each type of emissions unit, are listed in Table 5.5-1. Potential HAP emissions, based on the worst-case scenario, are shown in Table 5.5-2.

5.6 Exempt Emission Sources/Part 70 Insignificant Emissions

Equipment/activities exempt pursuant to Rule 202 include small ICEs and ICEs with specific operation limitations. This facility includes the following District permit-exempt and Part 70 insignificant ICEs with emissions:

a. Standby generator ICE (Waukesha F1197, E&B ID# W-17, 195 hp) per Rule 202.F.1.d.

In addition, *insignificant activities* such as maintenance operations using paints and coatings contribute to the facility emissions. Table 5.4 lists the exempt emissions units and the expected emissions.

Table 5.1-1
E&B South Cuyama Unit Part70/Permit to Operate 8010 - R11
Operating Equipment Description for Internal Combustion Engines (ICEs)

Facility ID #: 08916

Engine Count	APCD Device ID#	Emissions Unit Make & Model	Engine Use	E&B ID	Engine Specifications: Fuel	% Sulfur by volume	Size	Units	BHP limited by	BSFC Btu/bhp-hr	Heat Input & Usage Data (in MMBtu): Hourly	Annual	Load	Max. Load Schedule: hr	day	qtr	year
Unmodified Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333																	
1	006338	Waukesha 180GBK	compressor	W-40	FNG	0.0796	24.0	hp	nameplate	9,100	0.218	1,913	1.0	1	24	2,190	8,760
Derated Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333																	
2	006348	MM 336	lift pump	MM-1	FNG	0.0796	46.3	hp	orifice plate at 1.30 inches	9,800	0.454	3,975	1.0	1	24	2,190	8,760
3	006350	MM 336	lift pump	MM-3	FNG	0.0796	46.3	hp	orifice plate at 1.30 inches	9,800	0.454	3,975	1.0	1	24	2,190	8,760
4	006363	MM 336	pump	MM-22	FNG	0.0796	46.3	hp	orifice plate at 1.30 inches	9,800	0.454	3,975	1.0	1	24	2,190	8,760
5	006384	Waukesha 145	lift pump	W-37	FNG	0.0796	49.5	hp	orifice plate at 0.922 inches	9,100	0.450	3,946	1.0	1	24	2,190	8,760
Controlled Natural Gas-Fired, Rich Burn, Noncyclic ICEs (e, f)																	
6	006395	Waukesha F1197 (j)	pump	W-42	FNG	0.0796	195.0	hp	nameplate/NSCR Cat	9,100	1.775	355	1.0	1	24	50	200
7	006396	Buda/6MO-672 (j)	WW injection	B-5	FNG	0.0796	135.0	hp	nameplate/NSCR Cat	9,100	1.229	246	1.0	1	24	50	200
8	006397	Buda/6MO	pump	B-6	FNG	0.0796	174.0	hp	nameplate/NSCR Cat	9,100	1.583	13,871	1.0	1	24	2,190	8,760
Controlled Gas-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333 (g)																	
9	006402	Clark HRA-6T	gas compressor HRA #11		FNG	0.0796	792.0	hp	nameplt/retarded lean burn	8,460	6.700	161	1.0	1	24	24	24
Uncontrolled Diesel-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333 (i)																	
10	008285	Caterpillar 3306	firewater pump	D-2	D		240.0	hp	nameplate	7,500	1.800	36	1.0	1	20	20	20
Gas Fired Microturbine																	
11	389118	Microturbine	generator		FNG		250	kW	nameplate		3.161	27,690	1.0	1	24	2,190	8,760
	115152	Fugitive Emissions									N/A	N/A	N/A	1	24	2,190	8,760
		Totals					1,748.4	hp			18.28	60,142					

Footnotes:

a. Fuel: FNG means field natural gas, D means diesel.
b. BSFC means brake-specific fuel consumption.
c. BHP limited by "orifice plate" means intake manifold orifice plate at the indicated diameter in inches, "nameplate" means limited by manufacturer; "retarded lean bn" means lean burn with retarded ignition timing.
d. Fuel HHV is 1,050 Btu/scf for NG, 140,000 Btu/gal for D.
e. NSCR Cat means a catalytic converter using a noble metal catalyst.
f. Engine is subject to Rule 333.D.1.
g. Engine is subject to Rule 333.D.2 per PTO 8910.
h. SCC for all natural gas-fired ICEs is 20200202; for the diesel-fired ICEs the SCC is 20200102.
i. The Clark #11 compressor and the diesel firewater pump are subject only to Rule 333 Sections D.1, D.2, J.3 (Recordkeeping) and K (Compliance Schedule) because they operate less than 200 hours/year.
j. Controlled with an Air/Fuel Ratio Controller

Table 5.1-2
E&B South Cuyama Unit Part 70 / Permit to Operate 8010 - R11
Equipment Emission Factors for ICEs

Engine Count	APCD Device ID#	Emissions Unit Make & Model	E&B ID #	Emission Factors in pounds of Pollutant per MMBtu NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG	EF Units	References
Unmodified Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333												
1	006338	Waukesha 180GBK	W-40	1.905	0.103	1.600	0.136	0.010	0.010	117.10	lb/MMBtu	
Derated Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333												
2	006348	MM 336	MM-1	1.905	0.103	1.600	0.136	0.010	0.010	117.10	lb/MMBtu	
3	006350	MM 336	MM-3	1.905	0.103	1.600	0.136	0.010	0.010	117.10	lb/MMBtu	
4	006363	MM 336	MM-22	1.905	0.103	1.600	0.136	0.010	0.010	117.10	lb/MMBtu	
5	006384	Waukesha 145	W-37	1.905	0.103	1.600	0.136	0.010	0.010	117.10	lb/MMBtu	
Controlled Natural Gas-Fired, Rich Burn, Noncyclic ICEs												
6	006395	Waukesha F1197	W-42	0.190	0.830	10.100	0.136	0.010	0.010	117.10	lb/MMBtu	
7	006396	Buda/6MO-672	B-5	0.190	0.830	10.100	0.136	0.010	0.010	117.10	lb/MMBtu	
8	006397	Buda/6MO	B-6	0.190	0.830	10.100	0.136	0.010	0.010	117.10	lb/MMBtu	
Controlled Gas-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333												
9	006402	Clark HRA-6T	HRA #11	0.460	2.500	10.100	0.136	0.010	0.010	117.10	lb/MMBtu	
Uncontrolled Diesel-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333												
10	008285	Caterpillar 3306	D-2	14.060	1.120	3.030	0.0055	1.000	1.000	556.60	g/bhp-hr	
Gas Fired Microturbine												
11	389118	Microturbine		0.034	0.033	0.116	0.014	0.012	0.012	117.10	lb/MMBtu	
	115152	Fugitive Hydrocarbons		See Attached Worksheets for Emission Factors								

Table 5.1-3
E&B South Cuyama Unit Part 70 / Permit to Operate 8010 - R11
Hourly and Daily Emissions

Engine Count	APCD Device ID#	Emissions Unit Make & Model	E&B ID #	NO_X lbs/hr	NO_X lbs/day	ROC lbs/hr	ROC lbs/day	CO lbs/hr	CO lbs/day	SO_X lbs/hr	SO_X lbs/day	PM_{10} lbs/hr	PM_{10} lbs/day	$PM_{2.5}$ lbs/hr	$PM_{2.5}$ lbs/day	GHG lbs/hr	GHG lbs/day	Federal Enforceability and its Basis
Unmodified Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333																		
1	006338	Waukesha 180GBK	W-40	0.42	9.99	0.02	0.54	0.35	8.39	0.03	0.71	0.00	0.05	0.00	0.05	25.57	613.79	A via PTO 8010
Derated Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333																		
2	006348	MM 336	MM-1	0.86	20.74	0.05	1.12	0.73	17.42	0.06	1.48	0.00	0.11	0.00	0.11	53.13	1,275.19	A via PTO 8010
3	006350	MM 336	MM-3	0.86	20.74	0.05	1.12	0.73	17.42	0.06	1.48	0.00	0.11	0.00	0.11	53.13	1,275.19	A via PTO 8010
4	006363	MM 336	MM-22	0.86	20.74	0.05	1.12	0.73	17.42	0.06	1.48	0.00	0.11	0.00	0.11	53.13	1,275.19	A via PTO 8010
5	006384	Waukesha 145	W-37	0.86	20.59	0.05	1.11	0.72	17.30	0.06	1.47	0.00	0.11	0.00	0.11	52.75	1,265.94	A via PTO 8010
Controlled Natural Gas-Fired, Rich Burn, Noncyclic ICEs																		
6	006395	Waukesha F1197	W-42	0.34	8.09	1.47	35.35	17.92	430.14	0.24	5.80	0.02	0.43	0.02	0.43	207.79	4,987.05	FE via ATC 9076
7	006396	Buda/6MO-672	B-5	0.23	5.60	1.02	24.47	12.41	297.79	0.17	4.01	0.01	0.29	0.01	0.29	143.86	3,452.58	FE via ATC 9129
8	006397	Buda/6MO	B-6	0.30	7.22	1.31	31.54	15.99	383.82	0.22	5.17	0.02	0.38	0.02	0.38	185.42	4,449.99	FE via ATC 9129
Controlled Gas-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333																		
9	006402	Clark HRA-6T	HRA #11	3.08	73.97	16.75	402.02	67.67	1,624.16	0.91	21.89	0.07	1.61	0.07	1.61	784.61	18,830.58	FE via ATC 8870
Uncontrolled Diesel-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333																		
10	008285	Caterpillar 3306	D-2	2.27	45.38	0.18	3.62	0.49	9.78	0.01	0.20	1.80	36.00	1.80	36.00	1001.88	20,037.60	A via PTO 11759
Gas Fired Microturbine																		
11	389118	Microturbine		0.11	2.61	0.10	2.52	0.37	8.82	0.04	1.04	0.04	0.91	0.04	0.91	370.15	8,883.67	FE via ATC 13864
	115152	Fugitive Hydrocarbons				0.07	1.62									0.00	0.00	FE via ATC 13864

Table 5.1-4
E&B South Cuyama Unit Part 70 / Permit to Operate 8010 - R11
Quarterly and Annual Emissions

Engine Count	APCD Device ID#	Emissions Unit Make & Model	E&B ID #	NO_X TPQ	NO_X TPY	ROC TPQ	ROC TPY	CO TPQ	CO TPY	SO_X TPQ	SO_X TPY	PM_{10} TPQ	PM_{10} TPY	$PM_{2.5}$ TPQ	$PM_{2.5}$ TPY	GHG TPQ	GHG TPY	Federal Enforceability and its Basis
Unmodified Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333																		
1	006338	Waukesha 180GBK	W-40	0.46	1.82	0.02	0.10	0.38	1.53	0.03	0.13	0.00	0.01	0.00	0.01	28.00	112.02	A via PTO 8010
Derated Natural Gas-Fired, Rich-Burn, Non-Cyclic Engines Not Subject to Rule 333																		
2	006348	MM 336	MM-1	0.95	3.79	0.05	0.20	0.79	3.18	0.07	0.27	0.00	0.02	0.00	0.02	58.18	232.72	A via PTO 8010
3	006350	MM 336	MM-3	0.95	3.79	0.05	0.20	0.79	3.18	0.07	0.27	0.00	0.02	0.00	0.02	58.18	232.72	A via PTO 8010
4	006363	MM 336	MM-22	0.95	3.79	0.05	0.20	0.79	3.18	0.07	0.27	0.00	0.02	0.00	0.02	58.18	232.72	A via PTO 8010
5	006384	Waukesha 145	W-37	0.94	3.76	0.05	0.20	0.79	3.16	0.07	0.27	0.00	0.02	0.00	0.02	57.76	231.03	A via PTO 8010
Controlled Natural Gas-Fired, Rich Burn, Noncyclic ICEs																		
6	006395	Waukesha F1197	W-42	0.01	0.03	0.04	0.15	0.45	1.79	0.01	0.02	0.00	0.00	0.00	0.00	5.19	20.78	FE via ATC 9076
7	006396	Buda/6MO-672	B-5	0.01	0.02	0.03	0.10	0.31	1.24	0.00	0.02	0.00	0.00	0.00	0.00	3.60	14.39	FE via ATC 9129
8	006397	Buda/6MO	B-6	0.33	1.32	1.44	5.76	17.51	70.05	0.24	0.94	0.02	0.07	0.02	0.07	203.03	812.12	FE via ATC 9129
Controlled Gas-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333																		
9	006402	Clark HRA-6T	HRA #11	0.04	0.04	0.20	0.20	0.81	0.81	0.01	0.01	0.00	0.00	0.00	0.00	9.42	9.42	FE via ATC 8870
Uncontrolled Diesel-Fired, Lean Burn, Non-Cyclic Engine Not Subject to Rule 333																		
10	008285	Caterpillar 3306	D-2	0.19	0.19	0.01	0.01	0.04	0.04	0.01	0.01	0.02	0.02	0.02	0.02	10.02	10.02	A via PTO 11759
Gas Fired Microturbine																		
11	389118	Microturbine		0.12	0.48	0.11	0.46	0.40	1.61	0.05	0.19	0.04	0.17	0.04	0.17	405.32	1621.27	FE via ATC 13864
	115152	Fugitive Hydrocarbons				0.07	0.30									0.00	0.00	FE via ATC 13864

Table 5.2
E&B South Cuyama Unit Part 70 / Permit to Operate 8010 - R11
Total Permitted Facility Emissions (FID 8916)
for the Internal Combustion Engines and Microturbine

A. Peak Hourly (lb/hour)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Internal Comb. Engines	10.09	20.95	117.73	1.82	1.93	1.93	2,561.28
Microturbine	0.11	0.10	0.37	0.04	0.04	0.04	370.15
Fugitive Hydrocarbons		0.07					
Totals (lb/hr)	**10.20**	**21.12**	**118.10**	**1.87**	**1.97**	**1.97**	**2,931.43**

B. Peak Daily (lb/day)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Internal Comb. Engines	233.08	502.02	2,823.64	43.70	39.20	39.20	57,463.11
Microturbine	2.61	2.52	8.82	1.04	0.91	0.91	8,883.67
Fugitive Hydrocarbons		1.62					
Totals (lb/day)	**235.69**	**506.15**	**2,832.45**	**44.74**	**40.11**	**40.11**	**66,346.78**

C. Peak Quarterly (tons/qtr)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Internal Comb. Engines	4.81	1.94	22.68	0.57	0.06	0.06	491.56
Microturbine	0.12	0.11	0.40	0.05	0.04	0.04	405.32
Fugitive Hydrocarbons		0.07					
Totals (ton/qtr)	**4.92**	**2.13**	**23.08**	**0.62**	**0.10**	**0.10**	**896.88**

D. Peak Annual (ton/yr)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Internal Comb. Engines	19.02	7.59	89.77	2.41	0.35	0.35	3,529.21
Microturbine	0.48	0.46	1.61	0.19	0.17	0.17	1,621.27
Fugitive Hydrocarbons		0.30					
Totals (ton/yr)	**19.49**	**8.35**	**91.38**	**2.60**	**0.51**	**0.51**	**5,150.48**

Note: This permit covers only the ICEs and the microturbine at the E&B stationary source, and the fugitives associated with the microturbine

Table 5.3
E&B South Cuyama Unit Part 70 / Permit to Operate 8010 - R11
Federal Part 70 "PTE"

A. Peak Daily (lb/day)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Internal Combustion Engines	233.08	502.02	2,823.64	43.70	42.18	39.20	491.56
Microturbine	2.61	2.52	8.82	1.04	42.18	0.91	405.32
Fugitive Hydrocarbons		1.62					0.00
Exempt Internal Comb. Engines	1.85	0.10	1.56	0.13	0.01	0.01	113.86
Totals (lb/day)	**237.54**	**506.25**	**2,834.01**	**44.87**	**84.36**	**40.12**	**1,010.74**

B. Peak Annual (ton/year)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Internal Combustion Engines	19.02	7.59	89.77	2.41	0.73	0.35	3,529.21
Microturbine	0.48	0.46	1.61	0.19	0.73	0.17	1,621.27
Fugitive Hydrocarbons		0.30					0.00
Exempt Internal Comb. Engines	0.34	0.02	0.28	0.02	0.00	0.00	20.78
Totals (ton/year)	**19.83**	**8.37**	**91.66**	**2.62**	**1.46**	**0.51**	**5,171.26**

Note: This permit covers only the ICEs at the E&B stationary source. For the tanks, fugitives, external combustion, etc. emissions, see Part 70 permits 7250 and 9136.

Table 5.4
E&B South Cuyama Unit Part 70 / Permit to Operate 8010 - R11
Estimated Emissions from APCD Permit Exempt
and Part 70 Insignificant Internal Combustion Engines

A. Quarterly (Tons/Qtr)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
195 hp Waukesha W-17 Generator	0.34	0.02	0.28	0.02	0.00	0.00	20.78
TOTALS (ton/qtr)	**0.34**	**0.02**	**0.28**	**0.02**	**0.00**	**0.00**	**20.78**

B. Annual (Tons/yr)

Equipment Category	NO_X	ROC	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
195 hp Waukesha W-17 Generator	0.34	0.02	0.28	0.02	0.00	0.00	20.78
TOTALS (ton/yr)	**0.34**	**0.02**	**0.28**	**0.02**	**0.00**	**0.00**	**20.78**

Table 5.5-1
Permit to Operate 8010 - R11
E&B South Cuyama Unit Internal Combustion Engines
HAP Emission Factors

Equipment Catego Description	Device ID#	Units	Acetaldehyde	Acrolein	Arsenic	Benzene	Beryllium	Biphenyl	1,3-Butadiene	Cadmium	Carbon tetrachloride	Chlorobenzene	Chloroform	Chromium (total)	1,3-dichloropropene	Ethyl benzene	Ethylenedibromide	Formaldehyde	HCl	Hexane	Lead	Manganese	Mercury	Methanol	Methylene Chloride	Naphthalene	Nickel	PAHs	Selenium	Styrene	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	Toluene	Vinyl Chloride	Xylenes	References
Gas Fired Unmodified 4-Stroke, Rich Burn																																			
Waukesha 180GBK	006338	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
Gas Fired Derated 4-Stroke, Rich Burn																																			
MM 336	006348	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
MM 336	006350	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
MM 336	006363	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
Waukesha 145	006384	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
Gas Fired NSCR-Controlled, 4-stroke, Rich Burn																																			
Waukesha F1197	006395	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
Buda/6MO-672	006396	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
Buda/6MO	006397	lb/MMBtu	2.79E-03	2.63E-03		1.58E-03		6.63E-04		1.77E-05	1.29E-05	1.37E-05		1.27E-05	2.48E-05	2.13E-05	2.05E-02							3.06E-03	4.12E-05	9.71E-05		1.41E-05		1.19E-05	2.53E-05	1.53E-05	5.58E-04	7.18E-06	1.95E-04	A
Gas Fired Controlled Lean Burn																																			
Clark HRA-6T	006402	lb/MMBtu	8.36E-03	5.14E-03		4.40E-04	2.12E-04	2.67E-04		3.67E-05	3.04E-05	2.85E-05		2.64E-05	3.97E-05	4.43E-05	5.28E-02			1.11E-03				2.50E-03	2.00E-05	7.44E-05		2.69E-05		2.36E-05	4.00E-05	3.18E-05	4.08E-04	1.49E-05	1.84E-04	B
Diesel Fired Uncontrolled Lean Burn																																			
Caterpillar 3306	008285	lb/1000 ga	7.83E-01	3.39E-02	1.60E-03	1.86E-01		2.17E-01	1.50E-03		2.00E-04		6.00E-04		1.09E-02		1.73E+00	1.86E-01	4.67E-01	8.30E-03	3.10E-03	2.00E-03			1.97E-02	3.90E-03	5.59E-02	2.20E-03				1.05E-01		4.24E-02	C
Gas Fired Microturbine																																			
Microturbine	389118	lb/MMBtu	4.00E-05	6.40E-06		1.20E-05		4.30E-07							3.20E-05		7.10E-04								1.30E-06		2.20E-06					1.30E-04		6.40E-05	D
Fugitive Emissions	115152	lb/lb-ROC				3.25E-03														1.69E-01															E

References:
A. US EPA AP-42, Table 3.2-3 - Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines (7/00)
B. US EPA AP-42, Table 3.2-2 - Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines (7/00)
C. VCAPCD AB 2588 Natural Gas Fired External Combustion Emission Factors - Diesel Internal Combustion
D. US EPA AP-42, Table 3.1-3 - Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas Turbines (4/00)
E. CARB Speciation Manual Second Edition (1991) Profile Number 757 - Oil & Gas Production Fugitives - Gas Service

Notes:
1. US EPA AP-42 uncontrolled emission factors were used for engines equipped with controls because no controlled emission factors were available.
2. The District may revise the emission factors as necessary if more appropirate emission factors become available.

Table 5.5-2
Permit to Operate 8010 - R11
E&B South Cuyama Unit Internal Combustion Engines
HAP Emissions (tpy) [1]

Equipment Category	Description	Device ID#	Acetaldehyde	Acrolein	Arsenic	Benzene	Beryllium	Biphenyl	1,3-Butadiene	Cadmium	Carbon tetrachloride	Chlorobenzene	Chloroform	Chromium (total)	1,3-dichloropropene	Ethylbenzene	Ethylenedibromide	Formaldehyde	HCl	Hexane	Lead	Manganese	Mercury	Methanol	Methylene Chloride	Naphthalene	Nickel	PAHs	Selenium	Styrene	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	Toluene	Vinyl Chloride	Xylenes
Gas Fired Unmodified 4-Stroke, Rich Burn																																			
	Waukesha 180GBI	006338	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Fired Derated 4-Stroke, Rich Burn																																			
	MM 336	006348	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MM 336	006350	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MM 336	006363	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Waukesha 145	006384	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Fired NSCR-Controlled, 4-stroke, Rich Burn																																			
	Waukesha F1197	006395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Buda/6MO-672	006396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Buda/6MO	006397	0.02	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Fired Controlled Lean Burn																																			
	Clark HRA-6T	006402	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Fired Uncontrolled Lean Burn																																			
	Caterpillar 3306	008285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Fired Microturbine																																			
	Microturbine	389118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fugitive Emissions	115152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Sub Total HAPS (tpy)		**0.05**	**0.04**	**0.00**	**0.03**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.34**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**
	Total HAPs (tpy)		**0.59**																																

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

Table 5.5-3
Permit to Operate 8010 - R11
E&B South Cuyama Unit Internal Combustion Engines
Stationary Source HAP Emissions (tpy) [1]

Facility	FID	Acetaldehyde	Acrolein	Arsenic	Benzene	Beryllium	Biphenyl	1,3-Butadiene	Cadmium	Carbon tetrachloride	Chlorobenzene	Chloroform	Chromium (total)	1,3-dichloropropene	Ethyl benzene	Ethylenedibromide	Formaldehyde	HCl	Hexane	Lead	Manganese	Mercury	Methanol	Methylene Chloride	Naphthalene	Nickel	PAHs	Selenium	Styrene	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	Toluene	Vinyl Chloride	Xylenes
South Cuyama Unit (SCU)	1074	0.00	0.00	0.00	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.00
Gas Plant 10	3202	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.04	0.00	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E & B IC Engines	8916	0.14	0.13	0.00	0.08	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.05	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01
Stationary Source Subtotal Tota		**0.15**	**0.14**	**0.00**	**1.92**	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.00**	**1.10**	**0.00**	**13.54**	**0.00**	**0.00**	**0.00**	**0.16**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.12**	**0.00**	**0.01**

Stationary Source Total HAPs 18.23

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

6.0 Air Quality Impact Analyses

6.1 Modeling

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

6.2 Increments

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

6.3 Monitoring

Air quality monitoring is not required for this stationary source.

6.4 Health Risk Assessment

The E&B stationary source is subject to the Air Toxics Hot-Spots Program (AB-2588). A health risk assessment (HRA) for the facilities was prepared by the District on March 12, 1996 under the requirements of the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588). The HRA is based on 1994 toxic emissions inventory data submitted to the District by the previous operator. An earlier HRA, based on 1991 emission data was also prepared by the District for this facility on November 10, 1993.

Based on the 1994 toxic emissions inventory, a cancer risk of 6 per million off the property was estimated for the E&B Stationary Source. This risk is primarily due to emissions of polycyclic aromatic hydrocarbon (PAH) from internal combustion devices. Additionally, a chronic risk of 0.3 and an acute risk of 0.07 have been estimated by the District and are mainly due to formaldehyde and acrolein emissions from internal combustion devices. The cancer and non-cancer chronic risk projections are less than the District's AB-2588 significance thresholds of 10 in a million and 1.0, respectively. Approximately 4.7 pounds of PAH, 6,000 pounds of formaldehyde and 190 pounds of acrolein were emitted from internal combustion devices in 1994.

E&B is in the process of completing an updated Air Toxics Emission Inventory Plan (ATEIP) and Air Toxics Emission Inventory Report (ATEIR) under the AB2588 "Hot Spots" program. These documents will reflect the entire E&B South Cuyama Stationary Source. Once approved, a health risk assessment for the entire source will be performed in accordance with Air Toxic "Hot Spots" risk procedures.

7.0 CAP Consistency, Offset Requirements and ERCs

7.1 General

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

7.2 Clean Air Plan

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

In December 2019 the District Board adopted the 2019 Ozone Plan. The 2019 Plan provides a three-year update to the 2010 Clean Air Plan. The 2019 Clean Air Plan therefore satisfies all state triennial planning requirements.

7.3 Offset Requirements

The E&B - South Cuyama stationary source triggers the Regulation VIII offset thresholds for NO_X and ROC emission. A summary of the E&B - South Cuyama stationary source's current emission liabilities and ERCs are shown in Table 7(a) and 7(b) below.

7.4 Emission Reduction Credits

7.4.1 Decision of Issuance (DOI) 0033 created NO_X, ROC, and CO ERCs from the electrification of the #12 Clark HRA-6T integral gas compressor engine. See Section 1.5 of this permit.

7.4.2 Decision of Issuance (DOI) 0061-02 created NO_X, ROC, and CO ERCs from the electrification of two water injection pumps: one at the Machader Wastewater Plant and one at the Perkins Wastewater Plant. Historically, four engines were used in the pumping process (two at each site). Two engines previously used to drive the injection pumps will be maintained on permit as controlled standby engines with no more than 50 hours per year and 200 hours per year of operations each.

7.4.3 Decision of Issuance (DOI) 0086 created ROC ERCs by filling in twenty well cellars at the South Cuyama Unit. The well cellars were permanently removed, but the wells remain active.

Table 7(a) - Offset Liabilities for the E&B - South Cuyama Stationary Source
Updated: 9/29/2021

Item	Permit	Facility	Issue Date	ERC Returned?	Project	Offset Liability ---- tons/year ---- NO_X	ROC	SO_X	PM	PM_{10}	ERC Source	Notes
1	ATC 14903	South Cuyama Unit	12/23/2016	no	Tank Floor Replacement	-	0.170	-	-	-	411	-
2	ATC 14871	South Cuyama Unit	03/14/17	no	Install MicroTurbine	0.476	0.473	-	-	-	346	-
3	ATC 14959	South Cuyama Unit	03/14/17	no	Install VRU	-	0.104	-	-	-	424	-
4	ATC 14960	South Cuyama Unit	03/14/17	no	Install VRU	-	0.104	-	-	-	425	-
5	ATC 14982	South Cuyama Unit	05/01/17	no	Tank Floor Replacement	-	0.010	-	-	-	431	-
6	ATC 15098	South Cuyama Unit	01/09/18	no	Install Wash Tank	-	0.190	-	-	-	426	-
7	PTO 14751	Gas Plant 10	01/18/18	no	Pipeline Installation	-	0.240	-	-	-	461	-
8	ATC 15163	South Cuyama Unit	08/03/18	no	Install Propane Bullet	-	0.837	-	-	-	461	-
9	PTO 15098	South Cuyama Unit	10/29/18	no	Install Wash Tank	-	0.040	-	-	-	480	-
10	ATC 15217	South Cuyama Unit	11/21/18	no	Install Produced Water Tank	-	0.550	-	-	-	480	-
11	ATC 15370	South Cuyama Unit	08/29/19	no	Tank Floor Replacement	-	0.170	-	-	-	482	-
12	ATC 15528	South Cuyama Unit	10/13/20	no	Install Compressor and Fugitives	-	1.054	-	-	-	526	-
13	PTO 15528	South Cuyama Unit	TBD	yes	Install Compressor and Fugitives	-	(0.017)	-	-	-	N/A	(a)
					TOTALS (tpy) =	0.476	3.925	0.000	0.000	0.000		

Notes

(a) ERCs used after August 26, 2016 may be returned to the Source Register. This line item reflects such a return. It is entered as a negative entry to balance this ledger. Original entry is not revised.

\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 01073 E & B - South Cuyama\Offsets\[Post 2016 NSR Rule Change SCU Offset Table - (7-23-21).xlsx]Table 7.1 - Offsets

Table 7(b) - Emission Reduction Credits Table the E&B - South Cuyama Stationary Source
Updated: 9/29/2021

Item	Permit	Facility	Surrender Date	ERC Returned?	Emission Reduction Credits ---- tons/year ---- NO_X	ROC	SO_X	PM	PM_{10}	Offset Ratio	ERC Source	NOTES
1	ATC 14903	South Cuyama Unit	12/23/2016	no	-	0.187	-	-	-	1.1	411	(a)
2	ATC 14871	South Cuyama Unit	03/14/17	no	0.524	0.520	-	-	-	1.1	346	(a)
3	ATC 14959	South Cuyama Unit	03/14/17	no	-	0.114	-	-	-	1.1	424	
4	ATC 14960	South Cuyama Unit	03/14/17	no	-	0.114	-	-	-	1.1	425	
5	ATC 14982	South Cuyama Unit	05/01/17	no	-	0.011	-	-	-	1.1	431	(a)
6	ATC 15098	South Cuyama Unit	01/09/18	no	-	0.209	-	-	-	1.1	426	
7	PTO 14751	Gas Plant 10	01/18/18	no	-	0.264	-	-	-	1.1	461	
8	ATC 15163	South Cuyama Unit	08/03/18	no	-	0.921	-	-	-	1.1	461	
9	PTO 15098	South Cuyama Unit	10/29/18	no	-	0.044	-	-	-	1.1	480	
10	ATC 15217	South Cuyama Unit	11/21/18	no	-	0.605	-	-	-	1.1	480	
11	ATC 15370	South Cuyama Unit	8/29/2019	no	-	0.187	-	-	-	1.1	482	
12	ATC 15528	South Cuyama Unit	10/13/20	no	-	1.159	-	-	-	1.1	526	-
13	PTO 15528	South Cuyama Unit	TBD	yes	-	(0.019)	-	-	-	1.1	N/A	-
			TOTALS (tpy) =		0.524	4.318	0.000	0.000	0.000			

Notes
(a) Brown text cells require data entry. Do not enter data in Black text cells

\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 01073 E & B - South Cuyama\Offsets\[Post 2016 NSR Rule Change SCU Offset Table - (7-23-21).xlsx]Table 7.2 - ERCs

8.0 Lead Agency Permit Consistency

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

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9.0 Permit Conditions

This section lists the applicable permit conditions for the E&B Internal Combustion Engines. Section 9.A lists the standard administrative conditions. Section 9.B lists 'generic' permit conditions, including emission standards, for all equipment in this permit. Section 9.C lists conditions affecting specific equipment. Section 9.D lists non-federally-enforceable (i.e., District only) permit conditions. Conditions listed in Sections 9.A, 9.B and 9.C are enforceable by the USEPA, the District, the State of California and the public. Conditions listed in Section 9.D are enforceable only by the District and the State of California. Where any reference contained in Sections 9.A, 9.B or 9.C refers to any other part of this permit, that part of the permit referred to is federally-enforceable. In case of a discrepancy between the wording of a condition and the applicable federal or District rule(s), the wording of the rule shall control.

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

9.A Standard Administrative Conditions

The following federally-enforceable administrative permit conditions apply to the internal combustion engines at the South Cuyama Unit:

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

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

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

(c) Any permit noncompliance constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application.

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

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

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

(i) compliance with the permit, or

(ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.

(g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the

condition most protective of air quality and public health and safety shall prevail to the extent feasible.

[*Re: 40 CFR Part 70.6.(a)(6)(iii), District Rules 1303.D.1.j, 1303.D.1.n, 1303.D.1.l, 1303.D.1.k, 1303.D.1.o*]

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

A.3. **Compliance Plan:**

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

(b) For all applicable equipment, the permittee shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards.

[*Re: District Rule 1302.D.2*]

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

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

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

(c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times.

[*Re: District Rule 1303.D.2.a*]

A.5 **Severability:** The provisions of this Permit to Operate are severable and if any provision of this Permit to Operate is held invalid, the remainder of this Permit to Operate shall not be affected thereby. [*Re: District Rules 103, 1303.D.1.i*]

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

The permittee shall apply for renewal of the Part 70 permit not later than 6 months before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. [*Re: District Rules 1303.D.1.c ,d, 1304.D.1.a.v*]

A.7 **Payment of Fees:** The permittee shall reimburse the District for all its Part 70 permit processing and compliance monitoring expenses for the stationary source on a timely basis. Failure to

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

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

A.9 **Federally-Enforceable Conditions:** Each federally-enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the District-only enforceable section of this permit are federally-enforceable or subject to the public/USEPA review. [*Re: CAAA, § 502(b)(6), 40 CFR 70.6(b)*]

A.10 **Reporting Requirements/Compliance Certification:** The permittee shall submit compliance certification reports to both the USEPA and the Control Officer every six-months. These reports shall be submitted on District forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1st and March 1st , respectively, each year. Supporting monitoring data shall be submitted in accordance with the *Semi-Annual Compliance Verification Report* condition in section 9.C. The permittee shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [*Re: District Rules 1303.D.1, 1302.D.3, 1303.2.c*]

A.11 **Recordkeeping Requirements**. Records of required monitoring information that include the following:

(a) The date, place as defined in the permit, and time of sampling or measurements;

(b) The date(s) analyses were performed;

(c) The company or entity that performed the analyses;

(d) The analytical techniques or methods used;

(e) The results of such analyses; and

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

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

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

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

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

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

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

If a permit is reopened, the expiration date does not change. Thus, if the permit is reopened, and revised, then it will be reissued with the expiration date applicable to the re-opened permit. [*Re: 40 CFR 70.7(f)(1)-(3), 40 CFR 70.6(a)(2)*]

9.B. Generic Conditions

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

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

B.2. **Visible Emissions (Rule 302):** The permittee shall not discharge into the atmosphere from any single source of emission or air contaminants for a period or periods aggregating more than three minutes in any one hour which is:

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

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection B.2.(a) above.

The permittee shall determine compliance with this Rule in accordance with the monitoring and recordkeeping procedures in permit condition 9C.15 *(Visible Emissions - Diesel Fueled IC Engines) condition of this permit. [Re: District Rule 302]*.

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

B.4 **Particulate Matter – Northern Zone (Rule 304):** The permittee shall not discharge into the atmosphere, from any source, particulate matter in excess 0.3 grain per cubic foot of gas at standard conditions. *[Re: District Rule 304]*

B.5 **Specific Contaminants (Rule 309):** The permittee shall not discharge into the atmosphere from any single source sulfur compounds and combustion contaminants (particulate matter) in excess of the applicable standards listed in Sections A through E of Rule 309. *[Re: District Rule 309]*

B.6 **Sulfur Content of Fuels (Rule 311):** The permittee shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 796 ppmvd or 50 gr/100 scf (calculated as H_2S) for gaseous fuel. Compliance with this condition shall be based on measurements of the fuel gas using colorimetric gas detection tubes, ASTM, or other District-approved methods and diesel fuel billing records or other data showing the certified sulfur content for each shipment. *[Re: District Rule 311.B]*

B.7 **Emergency Episode Plan (Rule 603):** During emergency episodes, the permittee shall implement their District approved Emergency Episode Plan. *[Reference District Rule 603]*

B.8 **Adhesives and Sealants (Rule 353):** The permittee shall not use adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers, unless the permittee complies with the following:

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

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

B.9 **Oil and Natural Gas Production MACT:** The permittee shall comply with the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Oil and Natural Gas Production and Natural Gas Transmission and Storage (promulgated June 17, 1999). At a minimum, the permittee shall maintain records in accordance with 40 CFR Part 63, Subpart A, Section 63.10 (b) (1) and (3). Full compliance shall be achieved by no later than June 17, 2002. [*Re:* 40 CFR 63, Subpart HH]

B.10 **CARB Registered Portable Equipment:** State registered portable equipment shall comply with State registration requirements. A copy of the State registration shall be readily available whenever the equipment is at the facility. *[Re: District Rule 202]*

9.C Equipment-Specific Conditions

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

C.1 **Derated Internal Combustion Engines:** The following engines are included in this emissions unit category:

Device ID	Equipment
6348, 6350, 6363, 6384	Derated, gas-fired, rich burn, internal combustion engines rated less than 50 hp and not subject to Rule 333 emission limits.

(a) Emission Limits: Emission from engines subject to this condition shall not exceed the values listed in Table 5.1. In addition, the following specific limits apply:

(b) Operational Limits: The following operational limits apply to engines subject to this condition:

(i) *Hourly Heat Input*: Maximum heat input (MMBtu/hour) to the internal combustion engines listed in this condition is restricted to the values listed in the "Use per Hour" column of Table 5.1-1.

(ii) *Annual Heat Input*: Maximum annual heat input (MMBtu/year) to the internal combustion engines listed in this condition is restricted to the values listed in the "Use per Year" column of Table 5.1-1.

(iii) *Orifice Plate Use and Maintenance*: Orifice plates shall be in place at all times during engine operations. The permittee shall assist District personnel in the measurement and/or inspection of orifices from a random sampling of any engines that have been derated in brake horsepower rating by the addition of an orifice plate between the carburetor and the intake manifold. District personnel shall determine the number of engines to be measured and/or inspected. If, in the judgment of District personnel, evidence of corrosion or other degradation of any orifice plate exists which may result in an increase in brake horsepower and/or emissions resulting from the use of the engine(s), the permittee shall inspect all orifice plate installations that have not been inspected within the last six-months.

The permittee shall replace any degraded orifice plate within sixty (60) calendar days after the District inspection per the following criteria. The permittee shall replace any orifice plate that shows corrosion and/or degradation that enlarges the specified hole diameter. Any condition that indicates a decreased flow of air and/or fuel through the orifice shall not be grounds for mandatory replacement (e.g., a smaller than specified orifice hole diameter). The District shall be notified in writing when all orifice plate inspections and/or replacements, if any, are complete. This notification shall be received by the District no more than 10-days after completion of the orifice plate inspection/replacement work.

(iv) *Four Stroke Spark Ignition RICE ≤ 500 Horsepower Operating Requirements*. Engines subject to this permit condition are subject to the following requirements:

1. Change the oil and filter every 1,440 hours of operation or annually, whichever comes first;
2. Inspect the spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and
3. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

(c) Monitoring: The following monitoring requirements apply to engines subject to this condition:

(i) Monitor the operating hours of each engine on a quarterly basis.

(d) Recordkeeping: The following records (electronic or hard copy) shall be maintained by the permittee and shall be made available to the District upon request:

(i) The quarterly hours of operation and the annual total for each engine.

(ii) The operator shall maintain a log of the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses. Any repair or replacement of the spark plugs, belts, or shall be documented in the log.

(e) Reporting: On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. [Re: *District Rule 333.F, G, District ATC 11129, 9129, 9076, 8910, 8870/PTO 8010*]

C.2 **Controlled Rich Burn Internal Combustion Engines:** The following engines are included in this emissions unit category:

Device ID	Equipment
6395 6396, 6397	Controlled gas-fired internal combustion engines rated greater than 50 hp and subject to Rule 333 emission limits.

(a) Emission Limits: Emission from engines subject to this condition shall not exceed the values listed in Table 5.1. In addition, the following specific limits apply:

(i) The permittee shall meet District Rule 333.E.1 NO_X, ROC and CO ppm_V limits, or the oxides of nitrogen (NO_X) shall be reduced by at least 90 percent of the uncontrolled emissions across the control device. The Rule 333 emission limitations for Device ID 6397 shall be verified through biennial source testing and Rule 333 quarterly inspections. The Rule 333 emission limits for Device IDs 6395 and 6396 shall be verified through quarterly inspections with a portable emissions analyzer.
The emission limits stipulated above do not supersede any other limits that may be specified for the equipment by any applicable requirement promulgated by the USEPA or the District during the life of this permit. [Re: *District Rule 333, District ATCs 9129, 9076, 8910, 8870*]

(b) Operational Limits: The following operational limits apply to engines subject to this condition:

(i) *Hourly Heat Input*: Maximum heat input (MMBtu/hour) to the internal combustion engines listed in this condition is restricted to the values listed in the "Use per Hour" column of Table 5.1-1.

(ii) *Annual Heat Input*: Maximum annual heat input (MMBtu/year) to the internal combustion engines listed in this condition is restricted to the values listed in the "Use per Year" column of Table 5.1-1.

(iii) *Limited Use Engines*: Use of two engines (ID# 6395 & 6396) shall not exceed 50 hours per quarter each and 200 hours per year each.

(iv) *Catalyst Replacement*: The permittee shall inform the District verbally within 14 days whenever the catalyst for any of the catalyst controlled engines subject to this condition has been replaced. This notification shall be followed up with a written report submitted to the District within five days. Such replacement is only allowed in accordance with District Rules and Regulations.

Within three (3) days of replacing a catalyst, a portable emissions analyzer shall be used to take NO_X and oxygen emission readings to determine compliance with this permit. An instrument reading in excess of the limits in Condition 9.C.2.(a).(i) shall not be considered a violation so long as the problem is corrected, and either a follow-up source test (for Device ID 6397) or portable emissions analyzer inspection (for Device IDs 6395 and 6396) that demonstrates compliance is conducted within 30 days of the initial portable analyzer inspection. The requirements specified in Source Testing Condition 9.C.14 of this permit shall apply to any source test triggered by this condition. A log shall be maintained detailing the portable analyzer readings, a description of the corrective actions taken, and a determination of whether or not the engine is in compliance. The initials of the person making the measurement shall be recorded in the log.

(v) *ERCs: Disposition of the Clark #10 and Clark #12 HRA-6T Engines (PTO 8010-R4 ID# 26 and #28)* - To ensure that the ERCs created by replacement of the gas-fired engine on the Clark #12 compressor-engine unit remain permanent and enforceable, the permittee shall ensure that the gas-fired engines on the Clark #10 and Clark #12 HRA-6T compressor-engine units are permanently disabled to prevent any future use. This provision does not preclude the permittee from salvaging non-engine block components for subsequent use as replacement parts in the Clark #11 HRA-6T engine.

(1) The permittee shall permanently remove all connecting rods, pistons, and piston rings associated with the power cylinders on the Clark #12 HRA-6T engine. The permittee shall permanently remove the fuel injection valves, fuel gas headers, exhaust manifold, and power cylinder jacket water lines on the Clark #12 HRA-6T engine.

(2) The permittee shall not use or offer for sale the engine block from the Clark #12 HRA-6T engine within the South Central Coast Air Basin. The permittee shall make available to the District or its agent access to verify that

the engine block has been permanently disabled. In the event that the permittee sells the Clark #12 engine block to a business outside of the South Central Coast Air Basin, the permittee shall provide signed documentation verifying the date of sale, business sold to, contact name and phone number and the location the engine block will be transported to for future operation.

(vi) *ERCs: Disposition of Machader and Perkins Wastewater Pumps*.

(1) *Wastewater Injection Pumps*. The Machader and Perkins injection wells located at the E&B Cuyama stationary source shall be powered by electrically-driven pumps unless standby engines are operated as allowed in (2) below.

(2) *Engine Operating Limits*. The Buda B-5 (ID# 006396 at Machader) and Waukesha W-42 (ID# 006395 at Perkins) IC engines shall not operate more than 50 hours per quarter and 200 hours/year each.

(3) *Disposal of Injection Pump Engines*. E&B shall permanently remove the Waukesha W-12 (ID# 006392) and Waukesha W-11 (ID# 006393) injection pump engines from service by physically disconnecting the engines from any fuel gas and process lines. The engines shall be made inoperable and be removed from their foundations. E&B shall ensure that each engine block is destroyed. Documentation that the engine blocks have been destroyed shall be provided to the District. Such documentation shall include the engine make, model, ID#, serial number, method of destruction, company and person who performed the work and a photograph of the block showing the work done. This provision does not preclude E&B from salvaging non-engine block components for subsequent use as replacement parts in existing engines.

(vii) *Engine Identification*: The Clark #9, Clark #10, and Clark #12 HRA-6T engines shall have unique identification numbers permanently and legibly liquid welded or stamped into the engine block. The location of the identifying stamp shall be the same for each engine model and shall be readily accessible for inspection.

(viii) *Emission Controls:* Each engine listed in Table 1 below shall be equipped with an air/fuel ratio controller compatible with the existing Non-Selective Catalytic Reduction (NSCR) control technology to control IC engine exhaust NO_X, ROC, and CO emissions. NSCR emission controls and associated air/fuel ratio controller shall be used at all times when operating the engine.

Table 1

Device ID	E&B ID No	Engine Make & Model	Location & Service
6395	W-42	Waukesha F1197	Perkins WW Injection-Standby Service
6396	B-5	Buda 6MO-672	Machader WW Injection-Standby Service

(ix) *Air/Fuel Ratio Controller Display*: The air/fuel ratio controller for each engine listed in Table 1 shall be operated in accordance with manufacturer's specifications and the approved *ICE Inspection and Monitoring Plan*. Millivolt readouts shall be maintained at values documented by portable emissions analyzer measurements to comply with Rule 333.

(x) *Catalyst Exhaust Oxygen Concentration*: The oxygen concentration in the catalyst exhaust in each engine listed in Table 1 shall not exceed 0.5% by volume.

(xi) *Rich Burn Spark Ignition RICE ≤ 500 Horsepower Operating Requirements*. Engines subject to this permit condition are subject to the following requirements:

(1) Change the oil and filter every 1,440 hours of operation or annually, whichever comes first;

(2) Inspect the spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and

(3) Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

(c) Monitoring:

(i) *Source Testing*: For each engine subject to this condition, with the exception of Waukesha F1197 (Device ID 6395) and Buda 6MO-672 (Device ID 6396), the permittee shall perform source testing of air emissions and process parameters consistent with the requirement of the *Source Testing* permit condition below and in accordance with the requirements of Rule 333.I.

(ii) *Emissions Monitoring*: On a quarterly basis, NO_X and CO emissions inspections of the Waukesha F1197 (Device ID 6395) and the Buda 6MO-672 (Device ID 6396) shall be conducted with a portable emissions analyzer. Inspections shall be consistent with the requirements of District Rule 333.F.3. Emission measurements need to be conducted only if an engine has operated more than 20 hours in a calendar quarter.

(iii) *ICE Inspection and Maintenance Plan*: The permittee shall perform quarterly NO_X, CO, and O_2 monitoring in accordance with Rule 333. The District approved *ICE I&M Plan* shall be followed by the permittee. The Plan may be modified only upon written District approval. All required logs of the parameter settings and values documented by this plan shall be readily available on-site for review by District inspection staff upon request.

(d) Recordkeeping: The following records (electronic or hard copy) shall be maintained by the permittee and shall be made available to the District upon request:

(i) Written records documenting fuel use on a monthly basis.

(ii) Written records documenting the ICE operating hours on a monthly basis.

(iii) On an annual basis, the high heating value of the gaseous fuel (Btu/scf) shall be measured and recorded.

(iv) Fuel meter calibration records, including the meter's calibration procedures.

(v) Written ICE operations logs consistent with the requirements of Rule 333.J.

(vi) If an operator's tag number is used in lieu of an ICE identification plate, written documentation which references the permittee's unique ICE ID number to a list containing the make, model, rated maximum HP and the corresponding RPM.

(vii) A log of all significant activities involving the catalytic converter and air/fuel ratio controller shall be maintained. This log shall include the following: catalyst replacements, air/fuel ratio oxygen sensor replacements, and catalyst cleanings.

(viii) A log that tracks and records daily oxygen sensor voltage, oxygen concentration in percent by volume, pre-catalyst exhaust temperature, and engine timing shall be recorded.

(ix) The operator shall maintain a log of the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses. Any repair or replacement of the spark plugs, belts, or shall be documented in the log.

(x) The date and results of each NO_X and CO emissions inspection of the Waukesha F1197 (Device ID 6395) and Buda the 6MO-672 (Device ID 6396) conducted with a portable emissions analyzer and describe any corrective action taken.

(e) Reporting: On a semi-annual basis, a report detailing the previous six-month's activities shall be provided to the District. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit. [Re: *District Rule 333.F, G, District ATC 11129, 9129, 9076, 8910, 8870/PTO 8010, PTO Mod 8010-06*]

C.3 **Limited Use Internal Combustion Engines:** The following equipment are included in this emissions unit category:

Device ID#	Equipment
6402	Gas-fired ICE, Clark #11 HRA-6T

(a) Emission Limits: Clark #11 - The permittee shall meet District Rule 333.D.2 NO_X, ROC, and CO ppm_V limits.

(b) Operational Limits: The following operational limits apply to Clark #11:

(i) Annual operation of Clark #11 shall not exceed 24 hours per year.

(ii) Lean burn/timing retard controls shall be in place on Clark #11 at all times during operations.

(iii) *Shift in Load:* To ensure that the ERCs created by replacement of the gas-fired IC engine part of the Clark #12 compressor-engine with an electric motor remain permanent and enforceable, the permittee shall not shift load from the electric motor driven Clark #10 and Clark #12 compressors to either the Clark #11 compressor-engine by operating this engine beyond the existing 24 hours per year limit, or to any other gas-fired IC engine.

(1) The permittee may apply to increase the hours of operation of the Clark #11 compressor-engine contingent upon the increased potential to emit being offset

with ERCs from the Source Register. Furthermore, all natural gas compression at the E&B South Cuyama Stationary Source shall be performed with engine/compressor units that ensure the emission reductions remain permanent and enforceable for the life of the project.

(iv) *Hourly Heat Input*: Maximum heat input (MMBtu/hour) is restricted to the value listed in the "Use per Hour" column of Table 5.1-1.

(v) *Annual Heat Input*: Maximum annual heat input (MMBtu/year) in the "Use per Year" column of Table 5.1-1.

(vi) *Fuel Use Monitoring*: The permittee shall comply with the District approved *Fuel Use Monitoring Plan* for the engines listed on this permit. This Plan is incorporated by reference as an enforceable part of this permit. The Plan may be modified only upon written approval by the District and shall be maintained on-site and made available to District personnel upon request.

(vii) *Clark Compressor Operational Requirements*: The Clark compressor is subject to the following operating requirements for existing four stroke lean burn stationary RICE rated greater than 500 bhp, limited to 24 hours or less per year, and located at area sources of HAP emissions:

(1) Change the oil and filter every 500 hours of operation or annually, whichever comes first;

(2) Inspect the spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

(3) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

(c) Monitoring: The following testing and periodic monitoring conditions apply to Clark #11:

(i) *Hour Meter* – Clark #11 shall be equipped with totalizing non-resettable hour meters in accordance with Rule 333.D.2. Hour meters shall be operational at all times the engines are operated.

(d) Recordkeeping: The permittee shall keep the required logs for Clark #11 which demonstrate compliance with operation limits and monitoring requirements for this engine. All records and logs, required under any applicable federal or District requirements for the engine, shall be maintained for a minimum of five calendar years from the date of the information collection and log entry. These shall be readily accessible and be made available to the District upon request. Written information (logs) shall include:

(i) The hours of operation for Clark #11. The log shall detail the number of operating hours on each day the engine is operated and the cumulative total monthly and annual hours.

(ii) The operator shall maintain a log of the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses. Any repair or replacement of the spark plugs, belts, or shall be documented in the log.

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

C.4 **Microturbine:** The following equipment are included in this emissions unit category:

Device ID#	Equipment
389118	3.161 MMBtu/hr Microturbine

(a) Emission Limits:

(i) The mass emissions from the equipment permitted herein shall not exceed the values listed in Table 5.1.

(ii) Emissions from the Flex Turbine MT250 shall not exceed 9 ppmv NO_X, 50 ppmv CO, and 25 ppmv ROC (all at 15 percent oxygen). Compliance shall be based on periodic inspections by District staff with a portable analyzer. If the results of the periodic inspections indicate potential non-compliance, the owner/operator may be required to perform a District-approved emissions source test. If requested, the test shall be performed within 60 days of written District notification. The District's *Source Test Procedures Manual* shall be adhered to and the source test fees in Schedule C of Rule 201 shall apply.

(b) Operational Limits: The following operational limits apply to the microturbine:

(i) The microturbine shall only be operated on produced tail gas and/or field gas.

(ii) The microturbine shall not exceed a heat input of 75.864 MMBtu/day, 6,922.59 MMBtu/qtr, and 27,690.36 MMBtu/year based on the combined use of tail gas and field gas as fuel.

(c) Monitoring: The following testing and periodic monitoring conditions apply to the microturbine:

(i) *Fuel Usage Metering*. The permittee shall operate two dedicated, temperature and pressure-corrected, totalizing, non-resettable fuel meters. One to measure the volume of tail gas used and one to measure the volume of field gas used.

(ii) *Heating Value Data*. On a quarterly basis measure the heat content (HHV basis) of both the tail gas and the field gas in units of Btu/scf.

(iii) *Fuel Gas Sulfur Data*. The permittee shall measure the total sulfur content of the tail gas and the field gas annually in accordance with current ASTM-D1072 method. The permittee shall measure the hydrogen sulfide (H_2S) content of the treated tail gas and field gas monthly with current ASTM-D1072 method, colorimetric gas detection sampling, or other District approved equivalent method.

(d) Recordkeeping: The permittee shall keep the required logs for the microturbine that demonstrate compliance with operation limits and monitoring requirements for the microturbine. All records and logs, required under any applicable federal or District

requirements for the microturbine, shall be maintained for a minimum of five calendar years from the date of the information collection and log entry. These shall be readily accessible and be made available to the District upon request. Written information (logs) shall include:

(i) *Fuel Gas Use*. The total amount of tail gas and field gas used by the each microturbine shall be recorded on a monthly, quarterly, and annual basis in units of standard cubic feet and million Btus.

(ii) *Heat Content*. Record the results of quarterly heating value testing of the tail gas and the field gas.

(iii) *Operational Days*. The number of days the microturbine operated each month and totaled for the year.

(iv) *Sulfur Content*. The monthly measured hydrogen sulfide content and the annually measured total sulfur content, in units of ppmvd, of the tail gas and field gas burned in the microturbine.

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

C.5 **Engine Identification:** Each engine shall be identified with a permanently affixed plate, tag, or marking listing, or providing reference to, the engine's make, model, and serial number. The plate, tag, or marking shall be maintained in an accessible and legible manner in order to facilitate engine inspection by District personnel.

C.6 **Maintenance:** Each engine shall be maintained in conformance with the manufacturer's (or the permittee's, if equivalent) operation and maintenance procedures. A copy of these procedures is to be made accessible during District inspections of the engines. For each engine, records shall be kept to document the maintenance activities along with any adjustment to the operations or maintenance procedures which may change the emissions. Engine operational and maintenance records shall be readily available for review by District inspection staff upon request.

C.7 **Fuel Use Monitoring:** The permittee shall follow the *Fuel Use Monitoring Plan* and *Fuel Meter Calibration Plan* approved by the District. These Plans may only be revised upon written District approval. The permittee shall revise the approved plan upon written notification by the District if the District determines that implementation of the approved plan does not provide fuel monitoring data sufficient to readily determine compliance. The Fuel Use Monitoring Plan and required records shall be readily available for review by District inspection staff upon request.

C.8 **Fuel Type:** Engines ID# 6348, 6350, 6363, 6384, 6388, 6395, 6396, 6397, & 6402 shall be fired on gaseous fuels only. Engine ID# 8285 shall be fired on diesel fuel only.

C.9 **Gaseous Fuel Sulfur Limit:** The total sulfur content (calculated as H_2S at standard conditions, 60^o F and 14.7 psia) of the gaseous fuel burned at the facility shall not exceed 50 grains per 100 cubic feet (796 ppmv).

C.10 **Liquid Fuel Sulfur Limit:** The diesel fired engines included in this permit shall be fired on "CARB diesel" with a total sulfur content that does not exceed 15 ppmv.

C.11 **Fuel Sulfur/BTU Monitoring:** The permittee shall measure the following parameters at the frequencies shown using the methods specified:

Fuel Type	Parameter	Frequency	Method
Field gas	Sulfur content	annually	current ASTM D-1072[a]
Tail gas	Sulfur content	Annually	current ASTM D-1072[a]
natural gas	Hydrogen sulfide content	daily[b]	Colorimetric gas detection tubes[c]
natural gas	Gross heating value (Btu/scf)	annually	ARB or District-approved test method
diesel[d]	Sulfur content	annually	ARB or District-approved test method

a or a District approved equivalent method

b only required when Southern California Gas Company H_2S analyzer is down or registering alarm conditions

c or an equivalent field check type device/procedure

d certified value from diesel fuel supplier will be accepted in lieu of measurement

[*Re: District Rule 333.F, G, District ATC 9129, 9076, 8910, 8870/PTO 8010*]

C.12 **Recordkeeping:** The permittee shall maintain all records and logs required by this permit or any applicable federal rule or regulation for a minimum of five calendar years from the date of information collection and log entry at the lease. These records or logs shall be readily accessible and be made available to the District upon request.

C.13 **Semi-Annual Compliance Verification Reports:** The permittee shall submit a report to the District every six-months to verify compliance with the emission limits and other requirements of this permit. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1st and March 1st, respectively, each year, and shall be in a format approved by the District. A paper copy as well as a complete PDF electronic copy of these reports shall be submitted. All logs and other basic source data not included in the report shall be available to the District upon request. The second report shall also include an annual report for the prior four quarters. The report shall include the following information:

(a) **Derated Internal Combustion Engines**

(i) A copy of the log for each derated internal combustion engine listing the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses, and any repair or replacement of the spark plugs, belts, or hoses shall be documented in the log. In lieu of submitting copies of the original maintenance records for each engine, E&B may submit a comprehensive summary table of all engines to demonstrate compliance with Subpart ZZZZ maintenance requirements. Copies of the original maintenance records shall be made available to the District upon request.

(b) **Controlled Internal Combustion Engines**

(i) Fuel used by each controlled engine on a monthly basis.

(ii) On an annual basis, the high heating value (Btu/scf) and sulfur content (ppmv) of the gaseous fuel. (Submitted with July through December report.)

(iii) On an annual basis, written ICE operations logs consistent with the requirements of Rule 333.J.1. (Submitted with July through December report.)

(iv) A copy of the log for each controlled internal combustion engine listing the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses, and any repair or replacement of the spark plugs, belts, or hoses shall be documented in the log. In lieu of submitting copies of the original maintenance records for each engine, E&B may submit a comprehensive summary table of all engines to demonstrate compliance with Subpart ZZZZ maintenance requirements. Copies of the original maintenance records shall be made available to the District upon request.

(v) The date and results of each NO_X and CO emissions inspection of the Waukesha F1197 (Device ID 6395) and Buda the 6MO-672 (Device ID 6396) conducted with a portable emissions analyzer, including a description of any corrective action taken.

(c) **Limited Use Internal Combustion Engines**

(i) Engine hour meter logs detailing the requirements of Rule 333.B.2 for any engine operating less than two hundred (200) hours per calendar year.

(ii) On an annual basis, the high heating value (Btu/gallon) and the sulfur content (percent) of the diesel fuel. (Submitted with July through December report.)

(iii) On an annual basis, written ICE operations logs consistent with the requirements of Rule 333.J.3. (Submitted with July through December report.)

(iv) A copy of the log for each limited use internal combustion engine listing the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses, and any repair or replacement of the spark plugs, belts, or hoses shall be documented in the log. In lieu of submitting copies of the original maintenance records for each engine, E&B may submit a comprehensive summary table of all engines to demonstrate compliance with Subpart ZZZZ maintenance requirements. Copies of the original maintenance records shall be made available to the District upon request.

(d) **Diesel Fired Firewater Pump**

(i) The emergency use hours of operation;

(ii) The maintenance and testing hours of operation;

(iii) The hours of operation for all uses other than those specified in items (i) & (ii) above along with a description of what those hours were for.

(iv) A copy of the log for the diesel firewater pump listing the date of each oil and filter change, each inspection of the air cleaner, and each inspection of the belts and hoses, and any repair or replacement of the air cleaner, belts, or hoses shall be documented in the log. In lieu of submitting copies of the original maintenance records for each engine, E&B may submit a comprehensive summary table of all engines to demonstrate compliance with Subpart ZZZZ maintenance requirements. Copies of the original maintenance records shall be made available to the District upon request.

(e) **Microturbine**

(i) The total amount of tail gas and field gas consumed by the microturbine on a monthly, quarterly, and annual basis in units of standard cubic feet and million Btu.

(ii) The quarterly measured heating value of the tail gas and field gas.

(iii) The number of days the microturbine operated each month and year.

(iv) The monthly measured hydrogen sulfide content and the annually measured total sulfur content, both in units of ppm_V, of the tail gas and field gas burned in the microturbine.

(f) **Emissions:** Annual NO_X and ROC emissions from both permitted and exempt equipment.

C.14 **Source Testing:** The following source testing provisions shall apply:

(a) *IC Engine Source Testing*: The permittee shall perform source testing of air emissions and process parameters listed in Table 9.1. Device ID # 6397 shall be source tested in accordance with the requirements of Rule 333.I and Device ID # 6395 and #6396 source tested as stipulated in Table 9.1. These engines shall be tested biennially in the month of April. An extension of the test deadlines for good cause may be granted upon submittal of a written request from the permittee, and District approval.

(b) *Microturbine Source Testing*: When requested in writing by the District, the permittee shall perform source testing for the microturbine (ID# 389118) in accordance with Table 9.2 to demonstrate compliance with the *Microturbine* condition of this permit.

(c) *Not-In-Service Engines*: The engines that are not-in-service (e.g. permitted engines that have not been operating and remain non-operational), at the time a source test is due are subject to the following testing requirements upon return to service:

(i) If the engine has not been source tested in more than two years, E&B shall source test the engine in accordance with the approved source test plan within 45 days after the engine returns to service.

(ii) If less than two years has lapsed since the last source test of the engine, a NO_X emissions reading using a portable NO_X analyzer shall be obtained within 15 days after the engine returns to service. This portable reading shall serve as the quarterly reading required under District Rule 333.E.4, and all terms of Rule 333.E.4 shall apply.

E&B shall notify the District 30 days in advance of the test date if a test is triggered by (i) or (ii) above.

(d) *ICE Load Limitations*: Testing shall be performed in an as-found condition at normal operating loads. The source test plan shall identify the proposed source test load and include fuel use data and hours of operation for 2 months prior to the test of each ICE. The fuel use rate during the test shall be within 5% of the average fuel rate over the previous two-month period. [*Re: District Rule 333.F,G, District PTO 9129, 9076, 8910, 8870, 8010, 11129*]

(e) The permittee shall submit to the District a Source Test Plan at least thirty (30) calendar days prior to the start of source testing. The plan must be approved by the District prior to initiation of source testing. 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 notify the District at least fourteen (14) 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.

(f) 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 be used to make compliance determinations with emission rates in Table 5.1 and applicable permit conditions. 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.

(g) A source test for an item of equipment shall be performed on the scheduled day of testing (the test day mutually agreed to) unless circumstances beyond the control of the permittee 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 permittee shall seek and obtain District approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. Once the sample probe has been inserted into the exhaust stream of the equipment unit to be tested (or extraction of the sample has begun), the test shall proceed in accordance with the approved source test plan. In no case shall a test run be aborted except in the case of an emergency or unless approval is first obtained from the District. If the test cannot be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the District. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without District's prior authorization, except in the case of an emergency, 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.

(h) Any District certified ICE source test result which indicates the applicable Rule 333, or Table 5.1 emission limitations applicable to ICE ID# 6397 have been exceeded shall constitute a violation of Rule 333 and/or the PTO. The District may, at its discretion, extend the deadlines in this condition.

Table 9.1

IC Engine Source Test Requirements [6] [7] [8] [9]

Device ID#	Pollutant/ Parameter	Exhaust Concentration Limit[10] (ppmv @ 15% O_2)	Max Exhaust Emission Rate[11] (lb/hr)	Other
6397	NO_X	50	See Table 5.1-3	Measure
	ROC	250	See Table 5.1-3	Measure
	CO	4,500	See Table 5.1-3	Measure
	Fuel Analysis			Measure
	Fuel Flow, scf/hr			Measure
	Exhaust Oxygen			Measure
	Ignition Timing			Document settings used in source test
6395 & 6396	AFRC O_2 Sensor Concentration	0.5% by volume		Measure and document AFRC display

Table 9.2
Microturbine Source Test Requirements

MicroTurbine Source Test Requirements[(g)]

Emission & Limit Test Points	Pollutants	Parameters[(b)]	Test Methods[(a),(c)]	Concentration Limit	Mass Emissions Limit
				(ppmvd @ 15% O_2)	(lb/hr)
Turbine Exhaust [(b)]	NO_x	ppmv, lb/hr	EPA Method 7E, ARB 1-100	9	0.109
	ROC	ppmv, lb/hr	EPA Method 18	25	0.105
	CO	ppmv, lb/hr	EPA Method 10, ARB 1-100	50	0.367
	Sampling Point Det.		EPA Method 1		
	Stack Gas Flow Rate		EPA Method 2 or 19		
	O_2	Dry, Mol. Wt	EPA Method 3		
	Moisture Content		EPA Method 4		
Fuel Gas	Fuel Gas Flow Rate		Fuel Gas Meter[(f)]		
	Higher Heating Value	BTU/scf	ASTM D 1826-88		
	Total Sulfur Content[(d)]		ASTM D 1072		

Notes:

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

[(b)] The emission rates shall be based on EPA Methods 2 and 4, or Method 19 along with the heat input rate. Measured NO_x, ROC, and CO ppmvd shall not exceed the limits specified in Condition 1.b. of this ATC.

[(c)] For NO_x, ROC, CO and O_2 a minimum of three 40-minute runs shall be obtained during each test.

[(d)] Total sulfur content fuel samples shall be obtained using EPA Method 18 with Tedlar Bags (or equivalent) equipped with Teflon tubing and fittings. Turnaround time for laboratory analysis of these samples shall be no more than 24 hours from sampling in the field.

[(e)] Source testing shall be performed for the microturbines in an "as found" condition operating at a representative, APCD-approved, microturbine load (SCF/hr).

[(f)] Fuel meter shall meet the calibration and metered volume corrections specified in Rule 333, §G.3.a.

[(g)] Source testing will not be required unless the APCD specifically reqests that the units be tested.

C.15 **Visible Emissions - Diesel Fueled IC Engines:** No visible emissions shall occur from any diesel fueled engines. Once per calendar quarter, the permittee shall perform a visible emissions inspection for a one-minute period on each permitted and District-permit exempt diesel engine

[6] All emission and process parameter testing shall be performed consistent with District protocol.
[7] All source test values shall be reported at standard conditions (60˚F and 1 atm) or as otherwise specified.
[8] Emission source test shall be performed at the load approved in the source test plan.
[9] Source testing will establish values for emissions calculations and Rule 333 I&M purposes.
[10] As specified in Rule 333, referenced to a corrected 15% oxygen concentration in exhaust.
[11] As specified and referenced in Table 5.1-1 and 5.1-3 of this permit.

when operating, except for the firewater pump. If an engine does not operate during a calendar quarter, no monitoring is required. For the firewater pump, the permittee shall perform a one-minute visible emission inspection each time the firewater pump is operated longer than 15 minutes during any testing or emergency drill.

The start-time and end-time of each visible emissions inspection shall be recorded in a log, along with a notation identifying whether visible emissions were detected. The permittee shall obtain District approval of the Visible Emissions Log required by this condition. All records shall be maintained consistent with the recordkeeping condition of this permit.

C.16 **DOI #0033:** The conditions and limits contained in DOI #0033 (and all updates thereof) are hereby incorporated by reference as an enforceable part of this permit.

C.17 **DOI #0061-02:** The conditions and limits contained in DOI #0061-02 (and all updates thereof) are hereby incorporated by reference as an enforceable part of this permit.

C.18 **Emission Offsets:** The permittee shall offset all reactive organic compound (ROC) emissions pursuant to Tables 7(a) and 7(b). Emission reduction credits (ERCs) sufficient to offset the permitted annual ROC emissions shall be in place for the life of the project.

C.19 **Documents Incorporated by Reference:** The documents listed below, including any District-approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition for this operating permit:

(a) *Emergency Episode Plan for Stationary Source Curtailment* (dated July 1, 2011 and approved July 12, 2012 and all subsequent approved updates). [Ref: Rule 603]

(b) *Process Monitor and Maintenance Plan* (dated June 8, 2012 and approved July 12, 2012) and all subsequent approved updates).

(c) *Fuel Use Monitoring Plan* (Dated September 16, 1993 and all subsequent approved updates).

(d) *Inspection and Maintenance Plan, Internal Combustion Engines* (dated May 12, 2009 and all subsequent approved updates). [Ref: Rule 333]

C.20 **Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities:** The equipment permitted herein shall be operated in compliance with the California Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities regulation (CCR Title 17, Section 95665 *et. Seq*

C.21 **CARB GHG Regulation Recordkeeping:** The permittee shall maintain at least 5 years of records that document the following:

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

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

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

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

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

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

C.22 **CARB GHG Regulation Reporting:** All throughput data and any updates to the information recorded pursuant to the *CARB GHG Regulation Recordkeeping* condition above using District Annual Report Form ENF-108.

9.D District-Only Conditions

The following section lists permit conditions that are not federally-enforceable (i.e., not enforceable by the USEPA or the public). However, these conditions are enforceable by the District and the State of California. These conditions have been determined as being necessary to ensure that operation of the facility complies with all applicable local and state air quality rules, regulations and laws. Failure to comply with any of these conditions shall be a violation of District Rule 206, this permit, as well as any applicable section of the California Health & Safety Code.

D.1 **Internal Combustion Engine Operational Limits:** The following limits apply to all internal combustion engines included in this permit:

(a) *Hourly Heat Input*: Maximum heat input (MMBtu/hour) to the internal combustion engines listed in this permit is restricted to the values listed in the "Use per Hour" column of Table 5.1-1.

(b) *Annual Heat Input*: Maximum annual heat input (MMBtu/year) to the internal combustion engines listed in this permit is restricted to the values listed in the "Use per Year" column of Table 5.1-1.

(c) *Engine Identification*: Each engine shall be identified with a permanently affixed plate, tag, or marking listing, or providing reference to, the engine's make, model, and serial number. The plate, tag, or marking shall be maintained in an accessible and legible manner in order to facilitate engine inspection by District personnel.

(d) *Fuel Use Monitoring Plan*: The permittee shall comply with the District approved *Fuel Use Monitoring Plan* for the engines listed in this permit. The Plan may be modified only upon written approval by the District and shall be maintained on-site and made available to District personnel upon request.

D.2 **Emergency Diesel Fired Firewater Pump Engine:** The emergency diesel firewater pump (Device ID# 8285) is subject to the following emission and operational restrictions listed below.

(a) Emission Limits: The mass emissions from the equipment permitted herein shall not exceed the values listed in Table 5.1. Compliance shall be based on the operational, monitoring, recordkeeping and reporting conditions of this permit.

(b) Operational Limits: The emergency diesel firewater pump is subject to the operational restrictions listed below. Emergency use operations, as defined in the ATCM[12], have no operational hour limitations.

(i) Maintenance & Testing Use Limit: The stationary emergency standby diesel-fueled compression ignition (CI) engine subject to this condition, except for in-use firewater pump engines, shall limit maintenance and testing[13] operations to no more than the hours listed in the attached permit equipment list.

[12] As used in the permit, "ATCM" means Section 93115, Title 17, California Code of Regulations. Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines

[13] "maintenance and testing" is defined in of the ATCM and may also be found on the District webpage at http://www.sbcapcd.org/eng/atcm/dice/ES_MT_DICE_Definitions.pdf

(ii) Impending Rotating Outage Use: The in-use stationary emergency standby diesel-fueled CI engine subject to this condition may be operated in response to the notification of an impending rotating outage if all the conditions cited in the ATCM are met.

(iii) Fuel and Fuel Additive Requirements: The permittee may only add fuel and/or fuel additives to the engine or any fuel tank directly attached to the engine that comply with the ATCM.

(iv) Firewater Pump Operational Requirements: Existing emergency compression ignition RICE must comply with the following:

(1) Change the oil and filter every 500 hours of operation or annually, whichever comes first;

(2) Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

(3) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

(c) Monitoring: The emergency firewater pump is subject to the following monitoring requirements:

(i) Non-Resettable Hour Meter: The in-use stationary emergency standby diesel-fueled CI engine subject to this condition shall have installed a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District has determined (in writing) that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.

(d) Recordkeeping: The permittee shall record and maintain the information listed below. Log entries shall be retained for a minimum of 36 months from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request. Log entries made from 25 to 36 months from most recent entry shall be made available to District staff within 5 working days from request. District Form ENF-92 (*Diesel-Fired Emergency Standby Engine Recordkeeping Form*) can be used for this requirement.

(i) Emergency use hours of operation;

(ii) Maintenance and testing hours of operation;

(iii) Hours of operation for all uses other than those specified in items (i) – (ii) above along with a description of what those hours were for.

(iv) The owner or operator shall document fuel use through the retention of fuel purchase records that demonstrate that the only fuel purchased and added to an engine, or to any fuel tank directly attached to the engine, meets the requirements of the ATCM.

(v) The operator shall maintain a log of the date of each oil and filter change, each inspection of the spark plugs, and each inspection of the belts and hoses. Any repair or replacement of the spark plugs, belts, or shall be documented in the log.

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

(f) Temporary Engine Replacements - DICE ATCM: Any reciprocating internal combustion engine subject to this permit and the stationary diesel ATCM may be replaced temporarily only if the requirements (i – viii) listed below are satisfied.

(i) The permitted engine that is being temporarily replaced is in need of routine repair or maintenance.

(ii) The permitted engine does not have a cracked block, unless the block will be replaced under manufacturer's warranty.

(iii) Replacement parts are available for the permitted engine.

(iv) The permitted engine is returned to its original service within 180 days of installation of the temporary engine.

(v) The temporary replacement engine has the same or lower manufacturer rated horsepower and same or lower potential to emit of each pollutant as the permitted engine. At the written request of the permittee, the District may approve a replacement engine with a larger rated horsepower if the proposed temporary engine has manufacturer guaranteed emissions (for a brand new engine) or source test data (for a previously used engine) less than or equal to the permitted engine.

(vi) The temporary replacement engine shall comply with all rules and permit requirements that apply to the permitted engine.

(vii) For each permitted engine to be temporarily replaced, the permittee shall submit a completed *Temporary IC Engine Replacement Notification* form (Form ENF-94) within 14 days of the temporary engine being installed. This form may be sent hardcopy, or can be e-mailed (e-mail: engr@sbcapcd.org) to the District (Attn: Engineering Supervisor).

(viii) Within 14 days of returning the original permitted engine to service, the permittee shall submit a completed *Temporary IC Engine Replacement Report* form (Form ENF-95). This form may be sent hardcopy, or can be e-mailed (e-mail: engr@sbcapcd.org) to the District (Attn: Engineering Supervisor).

Any engine in temporary replacement service shall be immediately shut down if the District determines that the requirements of this condition have not been met. This condition does not apply to engines that have experienced a cracked block (unless under manufacturer's warranty), to engines for which replacement parts are no longer available, or new engine replacements {including "reconstructed" engines as defined in Section (d)(44) of the ATCM}. Such engines are subject to the provisions of New Source Review and the new engine requirements of the ATCM.

(g) Permanent Engine Replacements: The permittee may install a new engine in place of a permitted E/S engine, firewater pump engine or engine used for an essential public service that breaks down and cannot be repaired, without first obtaining an ATC permit only if the requirements (i)–(vi) listed below are satisfied.

(i) The permitted stationary diesel IC engine is an E/S engine, a firewater pump engine or an engine used for an essential public service (as defined by the District).

(ii) The engine breaks down, cannot be repaired and needs to be replaced by a new engine.

(iii) The facility provides "good cause" (in writing) for the immediate need to install a permanent replacement engine prior to the time period before an ATC permit can be obtained for a new engine.

(iv) The new permanent engine must comply with the requirements of the ATCM for new engines. A temporary replacement engine may be used while the new permanent engine is being procured only if it meets the requirements of the *Temporary Engine Replacements - DICE ATCM* permit condition.

(v) An Authority to Construct application for the new permanent engine is submitted to the District within 15 days of the existing engine being replaced and the District permit for the new engine is obtained no later than 180 days from the date of engine replacement (these timelines include the use of a temporary engine).

(vi) For each new permanent engine installed pursuant to this condition, the permittee shall submit a completed *Permanent IC Engine Replacement Notification* form (Form ENF-96) within 14 days of the new engine being installed. This form may be sent hardcopy, or can be e-mailed (e-mail: engr@sbcapcd.org) to the District (Attn: Engineering Supervisor).

Any engine installed (either temporally or permanently) pursuant to this permit condition shall be immediately shut down if the District determines that the requirements of this condition have not been met.

(h) Notification of Non-Compliance: Owners or operators who have determined that they are operating their stationary diesel-fueled engine(s) in violation of the requirements specified in Sections (e)(1) or (e)(2) of the ATCM shall notify the District immediately upon detection of the violation and shall be subject to District enforcement action.

(i) Notification of Loss of Exemption: Owners or operators of in-use stationary diesel-fueled CI engines, who are subject to an exemption specified in the ATCM shall notify the District immediately after they become aware that the exemption no longer applies and shall demonstrate compliance within 180-days after notifying the District.

(j) Enrollment in a DRP/ISC - January 1, 2005: Any stationary diesel IC engine rated over 50 bhp that enrolls for the first time in a Demand Response Program/Interruptible Service Contract (as defined in the ATCM) on or after January 1, 2005, shall first obtain a District Authority to Construct permit to ensure compliance with the emission control requirements

and hour limitations governing ISC engines.

D.3 **Engine Identification:** Each engine listed in Table 5.1-1 of this permit shall each have its E&B identification number permanently and legibly stamped into the engine block. The location of the identifying stamp shall be the same for each engine and shall be readily accessible for inspection. Any engine removed from permit shall not be returned to operation at the E&B South Cuyama Stationary Source without first obtaining an Authority to Construct permit from the District.

D.4 **Compliance with Permit Conditions:** The permittee shall comply with all permit conditions in Section 9.D.

D.5 **Condition Acceptance:** Acceptance of this operating permit by the permittee shall be considered as acceptance of all terms, conditions, and limits of this permit. [*Re: District Rule 206*]

D.6 **Grounds for Revocation:** Failure to abide by and faithfully comply with this permit shall constitute grounds for revocation pursuant to California Health & Safety Code Section 42307 *et seq*.

D.7 **Reimbursement of Costs:** All reasonable expenses, as defined in District Rule 210, incurred by the District, District contractors, and legal counsel for all activities related to the implementation of Regulation XIII (*Part 70 Operating Permits*) that follow the issuance of this PTO permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by the permittee as required by Rule 210.

D.8 **Access to Records and Facilities:** As to any condition that requires for its effective enforcement the inspection of records or facilities by the District or its agents, the permittee shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A.

D.9 **Compliance:** Nothing contained within this permit shall be construed to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment.

D.10 **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.

D.11 **Consistency with Federal, State and Local Permits:** Nothing in this permit shall relax any air pollution control requirement imposed on the permittee by any other governmental agency.

D.12 **Permitted Equipment:** Only those equipment items listed in Table 5.1-1 are approved for operation under this permit and are covered by the requirements of this permit and District Rule 201.B.

D.13 **Mass Emission Limitations:** Mass emissions for each equipment item (i.e., emissions unit) associated with the ICEs at the South Cuyama Unit shall not exceed the values listed in Tables 5.1-3 and 5.1-4. Emissions for the ICEs at the entire facility shall not exceed the total limits listed in Table 5.2.

D.14 **Process Monitoring Systems - Operation and Maintenance:** All facility process monitoring devices shall be properly operated and maintained according to manufacturer recommended specifications and the District approved *Process Monitor Calibration and Maintenance Plan.*

D.15 **Recordkeeping:** All records and logs required by this permit and any applicable District, state or federal rule or regulation shall be maintained for a minimum of five calendar years at the facility. These records or logs shall be readily accessible and be made available to the District upon request.

D.16 **Annual Compliance Verification Reports:** The permittee shall submit a report to the District, by March 1st of each year containing the information listed below and shall document compliance with all applicable permit requirements. These reports shall be in a format approved by the District. A paper copy as well as a complete PDF electronic copy of these reports shall be submitted All logs and other basic source data not included in the report shall be available to the District upon request. Pursuant to Rule 212, a completed *District Annual Emissions Inventory Questionnaire* shall be included in the annual report or submitted electronically via the District website. The report shall include the following information:

(a) Breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence.

(b) The throughputs for all permit exempt activities (tons per year by device/activity).

(c) All fuel parameters (fuel use, fuel sulfur content and gross fuel heating value).

(d) The annual emissions totals of all pollutants in tons per year for each emission unit and summarized for the entire facility.

D.17 **Off-Permit IC Engines:** The IC Engines listed in Section C (*Off-Permit*) of the permit equipment list are depermitted and may remain at the scrap yard. The off-permit IC Engines shall remain in a disconnected and unusable state, or be removed from the stationary source completely. The off-permit IC engines shall not be operated at the stationary source without first obtaining a new ATC permit from the District. Notwithstanding the above, E&B may salvage components from each off-permit IC engine other than the engine block, for subsequent use as replacement parts in existing engines.

AIR POLLUTION CONTROL OFFICER

_____

_____
Date

Notes:

a. This permit supersedes Part 70/PTO 8010-R10
b. Permit Reevaluation Due Date: June 2026.

RECOMMENDATION
It is recommended that this PTO be issued with the conditions as specified in the permit.

J. Menno	June 2023		June 2023
AQ Engineer	Date	Engineering Supervisor	Date

\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\Major Sources\SSID 01073 E & B - South Cuyama\Reevals\Reevals (2023)\IC Engines\Draft Reeval-Part 70 8010-R11 - 3-4-2023.docx

10.0 Attachments

10.1 Emission Calculation Documentation

10.2 Emission Calculation (See Tables 5.1-1 and Section 10.1)

10.3 IDS Tables

10.4 Fee Statement

10.5 Equipment List

10.1 Emission Calculation Documentation:

This attachment contains relevant emission calculation documentation used for the emission tables in Section 5. Refer to Section 4 for the general equations. The letters A - E refer to Tables 5.1-1 and 5.1-2.

Reference A - Internal Combustion Engines

→ The maximum operating schedule is in units of hours

→ Gaseous fuel default characteristics:
- ⇒ HHV = 1,050 Btu/scf
- ⇒ Fuel S = 796 ppmvd as H_2S for all equipment
- ⇒ Fuel S = 846 ppmvd as S for all equipment

→ Diesel fuel #2 default characteristics are:
- ⇒ Density = 7.043 lb/gal (36° API)
- ⇒ HHV = 19,878 Btu/lb (140,000 Btu/gal)
- ⇒ LHV = 18,410 Btu/lb (129,700 Btu/gal)

→ Brake Specific Fuel Consumption (BSFC) based on HHV for each model of ICE:

Manufacturer	Model(s)	District ID# in Table 5.1-1	Control type	BSFC
Waukesha	180GBK, 195, 140, 145		None (all but #1 derated)	9,100
MM	336		none (derated)	9,800
Waukesha	F1197		NSCR	9,100
Buda	6MO-672		NSCR	9,100
Buda	8MO		NSCR	8,490
Clark	HRA-6T		lean & retard	8,460
Detroit Diesel	-		none	7,500

→ Emission factor units (lb/MMBtu) are based on HHV.

→ The NO_X emission factor for all uncontrolled IC engines is based on factors dictated by the District Hearing Board. The NO_X emission factor for controlled IC engines are based on District Rule 333 limits, i.e., 0.19 lbs/MMBtu (gas-fired rich burn), and 0.46 lbs/MMBtu (gas-fired lean burn).

→ ROC emission factors for all uncontrolled IC engines are based on factors dictated by the District Hearing Board. The ROC emission factors for controlled IC engines are based on District Rule 333 limits, i.e., 0.83 lbs/MMBtu (gas-fired rich burn), and 2.5 lbs/MMBtu(gas-fired lean burn) as given by the District PGD on Reciprocating ICEs dated January 27, 1998, page 7.

→ The CO emission factor for all uncontrolled IC engines is based on factors dictated by the District Hearing Board. The CO emission factor for controlled IC engines are based on District Rule 333 limits, i.e., 10.1 lbs/MMBtu (for both rich and lean burn gas-fired) as given by the District PGD on Reciprocating ICEs dated January 27, 1998, page 7.

→ SO_2 emission limits (factors) are based on mass balance based on fuel S. Thus, for gas-fired engines:

⇒ SO_2 (lb/MMBtu) = 0.169 lb SO_2/scf of H_2S * 1/HHV*(ppmvd S in fuel) = 0.1361

→ PM emission limits are based on USEPA, AP-42, Table 3.2.4 (gas-fired ICE). Thus, for gas-fired ICEs:

⇒ PM (lb/MMBtu) = 0.010 lb/MMBtu (gas-fired) based on AP-42 data via the District PGD on Reciprocating ICEs dated January 27, 1998, page 7.

⇒ PM_{10}: PM ratio = 1.00 (gas-fired) - based on CARB data and AP-42, Chapter 3.2 via District PGD on Reciprocating ICEs dated January 27, 1998, page 7, Tables 3.6-1 and 3.6-3 footnotes (c).

Reference B - Components Emitting Fugitive Hydrocarbons

⇒ Emission factors are based on the *District P&P 6100.060* guidelines and *District P&P 6100.061 guidelines.*

⇒ In determining the facility model using the CARB/KVB methodology for fugitive emissions, a default Gas Oil Ratio of 501 scf/bbl was used. This value assumes the worst case model.

⇒ An 80% reduction in fugitive emissions was assumed due to the implementation of a fugitive inspection and maintenance plan pursuant to Rule 331.

Reference C - GHG Emission Factor Basis

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

For IC engines, the emission factor in lb/MMBtu heat input is converted to g/bhp-hr output based on a standard brake-specific fuel consumption.

For natural gas combustion the emission factor is:

(53.02 kg CO_2/MMBtu) (2.2046 lb/kg) = 116.89 lb CO_2/MMBtu

(0.001 kg CH_4/MMBtu) (2.2046 lb/kg)(21 lb CO_2e/lb CH4) = 0.046 lb CO_2e/MMBtu

(0.0001 kg N_2O/MMBtu) (2.2046 lb/kg)(310 lb CO_2e/lb N_2O) = 0.068 lb CO_2e/MMBtu

Total CO2e/MMBtu = 116.89 + 0.046 + 0.068 = **117.10 lb CO_2e/MMBtu**

For diesel fuel combustion the emission factor is:

(73.96 kg CO_2/MMBtu) (2.2046 lb/kg) = 163.05 lb CO_2/MMBtu

(0.003 kg CH_4/MMBtu) (2.2046 lb/kg)(21 lb CO_2e/lb CH4) = 0.139 lb CO_2e/MMBtu

(0.0006 kg N_2O/MMBtu) (2.2046 lb/kg)(310 lb CO_2e/lb N_2O) = 0.410 lb CO_2e/MMBtu

Total CO2e/MMBtu = 163.05 + 0.139 + 0.410 = **163.60 lb CO_2e/MMBtu**

Converted to g/hp-hr:

(163.60 lb/MMBtu)(453.6 g/lb)(7500 Btu/hp-hr)/1,000,000 = **556.58 g/hp-hr as CO_2e**

10.2 Emission Calculation Spreadsheets

FUGITIVE ROC EMISSIONS CALCULATION

ADMINISTRATIVE INFORMATION
Attachment: A
Company: E&B Natural Resources
Facility: SCU
Processed by: KMB
Date: March 2023
Path & File Name:

Facility Type: (Choose one)									
Production Field	**X**								
Gas Processing Plant		**ROC[2] Emission Factor**	**ROC/THC Ratio**	**Uncontrolled ROC Emission (lbs/day)**	**ROC Control Eff**	**Controlled ROC Emission (lbs/hr)**	**Controlled ROC Emission (lbs/day)**	**Controlled ROC Emission (Tons/Qtr)**	**Controlled ROC Emission (Tons/year)**
Refinery									
Offshore Platform									
Component	**Count[1]**	**(lbs/day-clp)**							
Gas Condensate Service									
Valves - Acc/Inacc	34	0.295	0.31	3.11	0.80	0.03	0.62	0.03	0.11
Valves - Bellows		0.295	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Unsafe		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Low Emitting		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - E-500		0.295	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Valves - E-100		0.295	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Flanges - Acc/Inacc	134	0.070	0.31	2.91	0.80	0.02	0.58	0.03	0.11
Flanges - Unsafe		0.070	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Flanges - E-500		0.070	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Flanges - E-100		0.070	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Compressor Seals - To Atm		2.143	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Compressor Seals - To VRS		2.143	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Compressor Seals - E-500		2.143	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Compressor Seals - E-100		2.143	0.31	0.00	0.90	0.00	0.00	0.00	0.00
PSV - To Atm	1	6.670	0.31	2.07	0.80	0.02	0.41	0.02	0.08
PSV - To VRS		6.670	0.31	0.00	1.00	0.00	0.00	0.00	0.00
PSV - E-500		6.670	0.31	0.00	0.85	0.00	0.00	0.00	0.00
PSV - E-100		6.670	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Pump Seals		1.123	0.31	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - E-500		1.123	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Pump Seals - E-100		1.123	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Sub Total	169			8.08		0.07	1.62	0.07	0.30
Oil Service									
Valves - Acc/Inacc		0.0041	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Valves - Unsafe		0.0041	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Valves - E-500		0.0041	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Valves - E-100		0.0041	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Flanges - Acc/Inacc		0.0020	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Flanges - Unsafe		0.0020	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Flanges - E-500		0.0020	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Flanges - E-100		0.0020	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Pump Seals - Single		0.0039	0.56	0.00	0.80	0.00	0.00	0.00	0.00
Pump Seals - E-500		0.0039	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Pump Seals - E-100		0.0039	0.56	0.00	0.90	0.00	0.00	0.00	0.00
PSV - To Atm		0.2670	0.56	0.00	0.80	0.00	0.00	0.00	0.00
PSV - To VRS		0.2670	0.56	0.00	1.00	0.00	0.00	0.00	0.00
PSV - E-500		0.2670	0.56	0.00	0.85	0.00	0.00	0.00	0.00
PSV - E-100		0.2670	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total	0			0.000		0.00	0.00	0.00	0.00
Total	**169**			**8.08**		**0.07**	**1.62**	**0.07**	**0.30**

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

10.3 IDS Tables

PERMIT POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
lb/day	235.69	506.15	2832.45	44.74	40.11	40.11	40.11
lb/hr							
TPQ							
TPY	19.49	8.35	91.38	2.60	0.51	0.51	0.51

FACILITY POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
lb/day	235.69	506.15	2832.45	44.74	40.11	40.11	40.11
lb/hr							
TPQ							
TPY	19.49	8.35	91.38	2.60	0.51	0.51	0.51

STATIONARY SOURCE POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}	$PM_{2.5}$
lb/day	239.00	1,175.94	2,833.86	44.79	40.38	40.38	40.38
lb/hr							
TPQ							
TPY	22.59	137.94	105.20	7.61	1.29	1.29	1.29

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.

10.4 Fee Statement

Emission fees for the permit reevaluation of PTO 8010 are based on Fee Schedule A.3 of District Rule 210. The fees are detailed in the attached table.

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
006396	IC Engine: B-5	A3	1.229	598.34	Per 1 million Btu input	No	1	1.000	735.36	0.00	0.00	735.36
006397	IC Engine: B-6	A3	1.583	598.34	Per 1 million Btu input	No	1	1.000	947.17	0.00	0.00	947.17
006395	IC Engine: W-42	A3	1.775	598.34	Per 1 million Btu input	No	1	1.000	1,062.05	0.00	0.00	1,062.05
006348	IC Engine: MM-1	A3	0.454	598.34	Per 1 million Btu input	No	1	1.000	271.65	0.00	0.00	271.65
006350	IC Engine: MM-3	A3	0.454	598.34	Per 1 million Btu input	No	1	1.000	271.65	0.00	0.00	271.65
006363	IC Engine: MM-22	A3	0.454	598.34	Per 1 million Btu input	No	1	1.000	271.65	0.00	0.00	271.65
006384	IC Engine: W-37	A3	0.450	598.34	Per 1 million Btu input	No	1	1.000	269.25	0.00	0.00	269.25
006402	Clark #11 Compressor	A3	6.700	598.34	Per 1 million Btu input	No	1	1.000	4,008.88	0.00	0.00	4,008.88
008285	Diesel Fired Firewater Pump	A1.a	1.000	79.76	Per equipment	No	1	1.000	79.76	0.00	0.00	79.76
006338	IC Engine: W-40	A3	0.218	598.34	Per 1 million Btu input	No	1	1.000	130.44	0.00	0.00	130.44
115152	Valves and Flanges	A1.a	1.000	79.76	Per equipment	No	1	1.000	79.76	0.00	0.00	79.76
389118	Microturbine	A3	3.161	598.34	Per 1 million Btu input	No	1	1.000	1,891.35	0.00	0.00	1,891.35
	Device Fee Sub-Totals =								**$10,018.97**	**$0.00**	**$0.00**	
	Device Fee Total =											**$10,018.97**

Permit Fee

Fee Based on Devices **$10,018.97**

Fee Statement Grand Total = $10,018

Notes:

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

10.5 Internal Combustion Engine Equipment List

PT-70/Reeval 08010 R11 / FID: 08916 E & B IC Engines / SSID: 01073

A PERMITTED EQUIPMENT

1 Controlled Gas Engines Subject to Rule 333

1.1 IC Engine: B-5

Device ID #	**006396**	***Device Name***	**IC Engine: B-5**
Rated Heat Input	1.229 MMBtu/Hour	*Physical Size*	135.00 Brake Horsepower
Manufacturer	Buda	*Operator ID*	B-5
Model	6MO-672	*Serial Number*	
Location Note	Machader Wastewater Plant		
Device Description	Engine drives the Machader East wastewater injection pump. Controlled with a Johnson Mathey DuraNOx Model 200 using noble metal catalyst served by an Omnitek air/fuel ratio controller. Operates less than 200 hours/year.		

1.2 IC Engine: B-6

Device ID #	**006397**	***Device Name***	**IC Engine: B-6**
Rated Heat Input	1.580 MMBtu/Hour	*Physical Size*	174.00 Brake Horsepower
Manufacturer	Buda	*Operator ID*	B-6
Model	6MO	*Serial Number*	
Location Note	Spare engine in storage at Gas Plant 10.		
Device Description	Controlled with a Johnson Mathey DuraNOx Model 200 using noble metal catalyst.		

1.3 IC Engine: W-42

Device ID #	**006395**	***Device Name***	**IC Engine: W-42**
Rated Heat Input	1.770 MMBtu/Hour	*Physical Size*	195.00 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-42
Model	F1197	*Serial Number*	
Location Note	Perkins Wastewater Plant		
Device Description	Engine drives the Perkins North wastewater injection pump. Controlled with a Johnson Mathey DuraNOx Model 200 using noble metal catalyst served by an Omnitek air/fuel ratio controller. Operation limited to 200 hours/year.		

2 Derated Gas Engines Not Subject to Rule 333

2.1 IC Engine: MM-1

Device ID #	**006348**	***Device Name***	**IC Engine: MM-1**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	46.30 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	MM-1
Model	336	*Serial Number*	
Location Note	Spare engine in storage at Gas Plant 10.		
Device Description	Capacity limits: orifice plate at 1.30 inches.		

2.2 IC Engine: MM-3

Device ID #	**006350**	***Device Name***	**IC Engine: MM-3**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	46.30 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	MM-3
Model	336	*Serial Number*	
Location Note	Spare engine in storage at Gas Plant 10.		
Device Description	Capacity limits: orifice plate at 1.30 inches.		

2.3 IC Engine: MM-22

Device ID #	**006363**	***Device Name***	**IC Engine: MM-22**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	46.30 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	MM-22
Model	336	*Serial Number*	
Location Note	Gas Plant 10		
Device Description	Engine drives the Gas Plant 10 compressor water jacket pump. Capacity limits: orifice plate at 1.30 inches.		

2.4 IC Engine: W-37

Device ID #	**006384**	***Device Name***	**IC Engine: W-37**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-37
Model	145	*Serial Number*	
Location Note	Spare engine in storage at Gas Plant 10.		
Device Description	Engine drives the Perkins South wastewater injection pump. Capacity limits: orifice plate at 0.922 inches.		

3 Controlled Gas Engines Not Subject to Rule 333

3.1 Clark #11 Compressor

Device ID #	**006402**	***Device Name***	**Clark #11 Compressor**
Rated Heat Input	6.700 MMBtu/Hour	*Physical Size*	792.00 Brake Horsepower
Manufacturer	Clark	*Operator ID*	HRA #11
Model	HRA-6T	*Serial Number*	
Location Note	Gas Plant 10		
Device Description	Engine use: Gas Compressor, Operates no more than than 24 hours/year, Capacity limits: nameplate/retarded lean burn.		

4 Air/Fuel Ratio Controllers

4.1 Air/Fuel Ratio Controller B-5

Device ID #	**109998**	***Device Name***	**Air/Fuel Ratio Controller B-5**
Rated Heat Input		*Physical Size*	
Manufacturer	Omnitek	*Operator ID*	
Model		*Serial Number*	
Location Note	South Cuyama Unit		
Device Description	A/F ratio controller installed on APCD Dev No 006396 (E&B ID# B-5) Buda 6MO-672 rich burn gas fired engine controlled by a Johnson Mathey Duro NOx Model 200 noble metal catalyst.		

4.2 Air/Fuel Ratio Controller W-42

Device ID #	**109997**	***Device Name***	**Air/Fuel Ratio Controller W-42**
Rated Heat Input		*Physical Size*	
Manufacturer	Omnitek	*Operator ID*	
Model		*Serial Number*	
Location Note	South Cuyama Unit		
Device Description	A/F ratio controller installed on APCD Dev No 006395 (E&B ID# W-42) Waukesha F1197 rich burn gas fired engine controlled by a Johnson Mathey Duro NOx Model 200 noble metal catalyst.		

5 Diesel Engines

5.1 Diesel Fired Firewater Pump

Device ID #	008285	*Maximum Rated BHP*	240.00
Device Name	Diesel Fired Firewater Pump	*Serial Number*	64Z08229
Engine Use	Fire Water Pump	*EPA Engine Family Name*	
Manufacturer	Caterpillar	*Operator ID*	
Model Year		*Fuel Type*	CARB Diesel - ULSD
Model	3306 DITA		
DRP/ISC?	No	*Healthcare Facility?*	No
Daily Hours	2.00	*Annual Hours*	20
Location Note	South Cuyama Unit		
Device Description	Engine is used as an emergency standby fire water pump engine. Note: previously permitted in PTO 10724 as Device ID# 107044.		

6 Unmodified Engine Not Subject to Rule 333

6.1 IC Engine: W-40

Device ID #	**006338**	***Device Name***	**IC Engine: W-40**
Rated Heat Input	0.210 MMBtu/Hour	*Physical Size*	24.00 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-40
Model	180GBK	*Serial Number*	
Location Note	Gas Plant 10		
Device Description	Back-up air compressor engine.		

7 Valves and Flanges

Device ID #	**115152**	***Device Name***	**Valves and Flanges**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Components associated with the microturbine. 169 components total.		

8 Microturbine

Device ID #	**389118**	***Device Name***	**Microturbine**
Rated Heat Input	3.161	*Physical Size*	250.00 Kilowatts
Manufacturer	Flex Turbine	*Operator ID*	
Model	MT250	*Serial Number*	
Location Note			
Device Description	Fired on tail gas produced from Gas Plant 10. Rated at 250 kW.		

B EXEMPT EQUIPMENT

1 IC Engine: W-17

Device ID #	**008284**	***Device Name***	**IC Engine: W-17**
Rated Heat Input	1.770 MMBtu/Hour	*Physical Size*	195.00 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-17
Model	F1197	*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:* 202.F.1.d. Spark ignition piston-type ICEs for emergency electrical power generation	
Location Note	Gas Plant 10		
Device Description	Engine drives the Gas Plant 10 emergency generator.		

C OFF PERMIT EQUIPMENT (DEPERMITTED – REMAINING ON SITE)

1 IC Engine: W-2

Device ID #	**006388**	***Device Name***	**IC Engine: W-2**
Rated Heat Input	1.770 MMBtu/Hour	*Physical Size*	195.00 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-2
Model	F1197	*Serial Number*	
Location Note	Scrapyard		
Device Description	Controlled with a Johnson Mathey DuraNOx Model 200 using noble metal catalyst. Engine off permit (depermitted), disconnected and in the scrap yard.		

2 IC Engine: W-3

Device ID #	**006389**	***Device Name***	**IC Engine: W-3**
Rated Heat Input	1.770 MMBtu/Hour	*Physical Size*	195.00 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-3
Model	F1197	*Serial Number*	
Location Note	Scrapyard		
Device Description	Controlled with a Johnson Mathey DuraNOx Model 200 using noble metal catalyst. Engine off permit (depermitted), disconnected and in the scrap yard.		

3 IC Engine: W-4

Device ID #	**006391**	***Device Name***	**IC Engine: W-4**
Rated Heat Input	1.770 MMBtu/Hour	*Physical Size*	195.00 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-4
Model	F1197	*Serial Number*	
Location Note	Scrapyard		
Device Description	Controlled with a Johnson Mathey DuraNOx Model 200 using noble metal catalyst. Engine off permit (depermitted), disconnected and in the scrap yard.		

4 IC Engine: MM-5

Device ID #	**006351**	***Device Name***	**IC Engine: MM-5**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	46.30 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	MM-5
Model	336	*Serial Number*	
Location Note	Scrapyard		
Device Description	Capacity limits: orifice plate at 1.30 inches. Engine off permit (depermitted), disconnected and in the scrap yard.		

5 IC Engine: MM-11

Device ID #	**006361**	***Device Name***	**IC Engine: MM-11**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	46.30 Brake Horsepower
Manufacturer	Minneapolis Moline	*Operator ID*	MM-11
Model	336	*Serial Number*	
Location Note	Scrapyard		
Device Description	Capacity limits: orifice plate at 1.30 inches. Engine off permit (depermitted), disconnected and in the scrap yard.		

6 IC Engine: W-24

Device ID #	**006379**	*Device Name*	**IC Engine: W-24**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-24
Model	140	*Serial Number*	
Location Note	Scrapyard		
Device Description	Capacity limits: orifice plate at 0.98 inches. Engine off permit (depermitted), disconnected and in the scrap yard.		

7 IC Engine: W-36

Device ID #	**006381**	*Device Name*	**IC Engine: W-36**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-36
Model	140	*Serial Number*	
Location Note	Scrapyard		
Device Description	Capacity limits: orifice plate at 0.98 inches. Engine off permit (depermitted), disconnected and in the scrap yard.		

8 IC Engine: W-38

Device ID #	**006347**	*Device Name*	**IC Engine: W-38**
Rated Heat Input	0.380 MMBtu/Hour	*Physical Size*	41.80 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-38
Model	195	*Serial Number*	
Location Note	Scrapyard		
Device Description	Capacity limits: orifice plate at 1.65 inches. Engine off permit (depermitted), disconnected and in the scrap yard.		

9 IC Engine: W-51

Device ID #	**006387**	*Device Name*	**IC Engine: W-51**
Rated Heat Input	0.450 MMBtu/Hour	*Physical Size*	49.50 Brake Horsepower
Manufacturer	Waukesha	*Operator ID*	W-51
Model	145	*Serial Number*	
Location Note	Scrapyard		
Device Description	Capacity limits: orifice plate at 0.922 inches. Engine off permit (depermitted), disconnected and in the scrap yard.		