



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



OCT 24 2014

Gregory Pritchett
Chevron USA Inc
PO Box 1392
Bakersfield, CA 93302

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: S-8530
Project Number: S-1143652

Dear Mr. Pritchett:

Enclosed for your review and comment is the District's analysis of Chevron USA Inc's application for an Authority to Construct for three IC engine generators in western Kern County.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (661) 392- 5617.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:RUE/st

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email

Seyed Sadredin
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**San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review
Nonroad Transportable Diesel-Fired IC Engines**

Facility Name:	Chevron USA Inc	Date:	October 15, 2014
Mailing Address:	PO Box 1392 Bakersfield, CA 93302	Engineer:	Richard Edgehill
Contact Person:	Gregory Pritchett and Dave Bone	Lead Engineer:	Richard Karrs
Telephone:	(661) 654-7150		
Application #:	S-8530-1-0, '-2-0, and '-3-0		
Project #:	1143652		
Complete:	September 18, 2014		

I. Proposal

Chevron USA Inc (CUSA) is requesting Authorities to Construct (ATCs) for the installation of 3 diesel-fired electric generators to be operated at an existing Drilling Fluids Management Facility (FMF). Applicant has stated that the current location of the FMF (Cymric Oil Field) is temporary and that the engines will be used there until the FMF is relocated to a permanent site with utility power.

Note that the drilling fluids processed at the FMF contain no VOCs and are used in oil well drilling operations (not oil production operations). Drilling operations are operated by third parties using registered portable equipment. The FMF is in support of the drilling activities and is not part of the oil production operation. Therefore, the FMF (with proposed IC engines '-1 through '-3) is considered a separate stationary source and has been assigned a new facility number S-8530.

Please note that the IC engines are existing and have been operated at the FMF as CARB registered Portable Equipment Registration (PERP). The FMF PERP engines will exceed their 12 month residency limit at any one location and will then lose their status as "portable" under the CARB PERP regulation. The District advised CUSA to obtain ATCs authorizing transportable engines to be operated at facility S-8530.

The project triggers BACT and Public Notice. Offsets are not required.

Facility S-8530 is not a Major Source and therefore Rules 2520 and 2530 are not applicable.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (Adopted 6/16/11, effective 11/26/12)

Rule 4001 New Source Performance Standards (4/14/99)
Subpart JJJJ – **not applicable** to Compression Ignition (CI) ICEs
Subpart IIII – **not applicable** - to non-road IC engines as defined by 40 CFR 1068.30 and as proposed in this project (EPA email 9/24/14)

Subpart ZZZZ - The District does not have jurisdiction on implementing this subpart for non-Major Sources since EPA has not delegated that part of the subpart to date FYI 309.

Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)- **not applicable** – source is not a major HAPs source

Rule 4101 Visible Emissions (2/17/05)

Rule 4102 Nuisance (12/17/92)

Rule 4201 Particulate Matter Concentration (12/17/92)

Rule 4603 - Surface Coating Of Metal Parts and Products (December 20, 2001)

Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/03)

Rule 4702 Stationary Internal Combustion Engines – Phase 2 (amended 11/14/13)

Rule 4801 Sulfur Compounds (12/17/92)

CH&SC 41700 Health Risk Assessment

CH&SC 42301.6 School Notice

Title 13 California Code of Regulations (CCR), Section 2423 – Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines and Equipment

Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

III. Project Location

The IC engine generators will be used at the CUSA FMF, Cymric Oilfield, Section 1, T30S, R21E. This location is not within 1,000 feet of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

A project location map is included in **Attachment I**.

IV. Process Description

The off-road IC engines drive electrical generators used for temporary power at the CUSA FMF.

The engines will be authorized to operate 24 hr/day, 7600 hr per year.

V. Equipment Listing

S-8530-1-0: 157 BHP CUMMINS MODEL QSB5-G9 INTERIM TIER IV CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

S-8530-2-0: 157 BHP CUMMINS MODEL QSB5-G9 INTERIM TIER IV CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

S-8530-3-0: 256 BHP CUMMINS MODEL QSB7-G7 INTERIM TIER IV CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

The engines are equipped with:

- EPA – Certified Interim Tier IV compliance and CARB Certified
- Very Low (0.0015%) sulfur diesel

The use of very low sulfur (0.0015% by weight sulfur maximum) diesel fuel reduces SO_x emissions by over 99% from standard diesel fuel.

VII. General Calculations

A. Assumptions

Operating schedule: 24 hr/day, 7600 hr/yr (offsets limit)

- Density of diesel fuel: 7.1 lb/gal
- EPA F-factor (adjusted to 60 °F): 9,051 dscf/MMBtu
- Fuel heating value: 137,000 Btu/gal
- BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr
- Thermal efficiency of engine: commonly ≈ 35%
- PM₁₀ fraction of diesel exhaust: 0.96 (CARB, 1988)

B. Emission Factors

S-8530-1 and -2

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	2.5	ARB/EPA Offroad Diesel Engine Standards
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.01	ARB/EPA Offroad Diesel Engine Standards
CO	3.7	ARB/EPA Offroad Diesel Engine Standards
VOC	0.14	ARB/EPA Offroad Diesel Engine Standards

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

S-8530-3

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	1.5	ARB/EPA Offroad Diesel Engine Standards
SO _x	0.0051	Mass Balance Equation Above
PM ₁₀	0.01	ARB/EPA Offroad Diesel Engine Standards
CO	2.6	ARB/EPA Offroad Diesel Engine Standards
VOC	0.14	ARB/EPA Offroad Diesel Engine Standards

Emission factor information is included in **Attachment II**.

C. Calculations

1. Pre-Project Emissions (PE1)

As these are new permit units, PE1 = 0.

2. Post Project PE (PE2)

S-8530-1, '-2 (EACH)

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	2.50	157	24	7600	20.8	6,576
SO _x	0.0051	157	24	7600	0.0	13
PM ₁₀	0.01	157	24	7600	0.1	26
CO	3.70	157	24	7600	30.7	9,733
VOC	0.14	157	24	7600	1.2	368

S-8530-3

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	1.50	256	24	7600	20.3	6,434
SO _x	0.0051	256	24	7600	0.1	22
PM ₁₀	0.01	256	24	7600	0.1	43
CO	2.60	256	24	7600	35.2	11,152
VOC	0.14	256	24	7600	1.9	600

The emissions profiles are included in **Attachment III**.

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source; therefore, the SSPE1 is equal to zero.

4. Post-Project Stationary Source Potential to Emit (SSPE2)

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
S-8530-1	6,576	13	26	9,733	368
S-8530-2	6,576	13	26	9,733	368
S-8530-3	6,434	22	43	11,152	600
Pre-Project SSPE (SSPE1)	19,586	48	95	30,618	1,336

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source

- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Facility emissions pre-project	0	0	0	0	0
Facility emissions – post project	19,586	48	95	30,618	1,336
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Estimated Facility PE before Project Increase	0	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

As shown above, the facility is not an existing major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

S-8530-1 through '-3

Since these are new emissions units, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (200,000 lb/year).

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Sulfuric acid mist

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Total PE from New and Modified Units	10	0.7	0.02	15	0.05	0.05
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. As the permit units are new QNEC = PE/4 for each air contaminant.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a new diesel-fired IC engines each with a PE greater than 2 lb/day for NO_x and CO. BACT is triggered for NO_x. However, BACT is not triggered for CO as the SSPE is less than 200,000 lb/yr.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project; therefore BACT is not triggered for modification purposes.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does not constitute a SB 288/Federal Major Modification; therefore BACT is not triggered.

2. BACT Guideline

BACT determination Guideline 3.2.11, applies to Transportable Compression – Ignited IC Engines (Non-Agricultural) (See **Attachment IV**).

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (**Attachment V**), BACT has been satisfied with the following:

NO_x: TIER 4i EPA Certified Non-Road Transportable Engine*

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets calculations will be required for this project.

Offset Determination (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
Post Project SSPE (SSPE2)	19,586	48	95	30,618	1,336
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets calculations required?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSPE of greater than 20,000 lb/year for any pollutant.
- e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

As demonstrated in Sections VII.C.7 and VII.C.8, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	0	19,586	20,000 lb/year	No
SO _x	0	48	54,750 lb/year	No
PM ₁₀	0	95	29,200 lb/year	No
CO	0	30,618	200,000 lb/year	No
VOC	0	1,335	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	19,586	0	19,586	20,000 lb/year	No
SO _x	48	0	48	20,000 lb/year	No
PM ₁₀	95	0	95	20,000 lb/year	No
CO	30,618	0	30,618	20,000 lb/year	Yes
VOC	1,335	0	1,335	20,000 lb/year	No

As demonstrated above, the SSIPEs for CO exceeds 20,000 lb/year; therefore public noticing for SSIPE purposes is required for SSIPE purposes.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating, this change is not a Title V significant Modification, and therefore public noticing is not required for this purpose.

2. Public Notice Action

As discussed above, public notice will be required for this project.

D. Daily Emissions Limits

Daily Emissions Limits (DELs) are required to enforce the applicability of BACT. For this emergency IC engine, the DELs are stated in the form of emission factors, the maximum engine horsepower rating, and the maximum operational time of 24 hours per day.

S-8530-1, '-2

Emission rates from this unit shall not exceed any of the following limits: NO_x (as NO₂) 2.5 g/hp-hr; VOC (as methane) 0.14 g/hp-hr; CO 3.7 g/hp-hr; or SO_x (as SO₂) 0.0051 g/hp-hr. [District Rule 2201] N

S-8530-3

Emission rates from this unit shall not exceed any of the following limits: NO_x (as NO₂) 1.5 g/hp-hr; VOC (as methane) 0.14 g/hp-hr; CO 2.6 g/hp-hr; or SO_x (as SO₂) 0.0051 g/hp-hr. [District Rule 2201] N

S-8530-1, '-2, '-3

The PM₁₀ emissions rate from the engine shall not exceed 0.01 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102] N

This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO-approved alternative. [District Rules 2201 and 4702] N

Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801] N

E. Compliance Assurance

1. Source Testing

This engines are not subject to any source testing for Rules 4701 or 4702 since they are Tier IVi certified. District Policy APR 1705 (*Source Testing Frequency*) does not require source testing for these units either. Therefore, source testing is not required.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition will appear on the permit to operate:

{3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] N

4. Reporting

The facility is required to report the location at which the IC engine is operating. The following condition will be placed on the permit to show compliance with this section.

Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to **Attachment VI** of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

Rule 4101 Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity.

Based on experience with similar operations, compliance with visible emission limits is expected under normal operating conditions.

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions or a change in mode or time of operation associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. RMR results are summarized in the table below.

Table 0-1 RMR Results

Unit ID	Unit Description	Cancer Risk	Hazard Index		T-BACT Required
			Chronic	Acute	
1-0	157 BHP DICE	3.02×10^{-9}	0.00	0.00	No
2-0	157 BHP DICE	3.02×10^{-9}	0.00	0.00	No
3-0	256 BHP DICE	1.10×10^{-8}	0.00	0.00	No
	Project Total	1.70×10^{-8}	0.00	0.00	
	Facility Total	1.70×10^{-8}	0.00	0.00	

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT). The full report is included in **Attachment VI**.

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 1-0, 2-0, 3-0

- No special conditions are required.

District Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

Particulate matter emissions from the engine will be less than or equal to the rule limit of 0.1 grain per cubic foot of gas at dry standard conditions as shown by the following:

$$0.01 \frac{g - PM_{10}}{bhp - hr} \times \frac{1g - PM}{0.96g - PM_{10}} \times \frac{1bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{9,051 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.002 \frac{grain - PM}{dscf}$$

Since 0.002 grain-PM/dscf is \leq to 0.1 grain per dscf, compliance with Rule 4201 is expected.

Rule 4603 - Surface Coating Of Metal Parts and Products

The rod coating operations S-2783-1 and '-5 are currently operating in compliance with the rule. The project is not expected to affect compliance status. Continued compliance is expected.

Rule 4701 Stationary Internal Combustion Engines – Phase I

Rule 4701 limits the emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp that requires a Permit to Operate (PTO).

Transportable engines as defined in the rule are not subject to the emission limits of this rule per Section 4.2. The transportable engines are subject to the administrative requirements of Sections 6.1, 6.2.2, and 6.2.3.

Therefore, compliance with the requirements of this rule is expected.

Rule 4702 Internal Combustion Engines – Phase 2

Purpose:

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines.

Applicability:

This Rule applies to any internal combustion engine with a rated brake horsepower greater than 25 horsepower.

Requirements:

Section 5.2 Engines Rated at Greater than 50 Brake Horsepower (>50 bhp)

Section 5.2 requires that the owner of an internal combustion engine shall not operate it in such a manner that results in emissions exceeding the limits in the Engine Emission Limits table below:

Engine Type	Emission Limit/Standard	Compliance Date
Certified Compression-Ignited Engine		
EPA Certified Tier 3 or Tier 4 Engine	Meet Certified Compression-Ignited Engine Standard in effect at time of installation	At time of installation

The proposed engine is a EPA certified Tier 4i. Therefore, the proposed IC engine is expected to comply with the emission requirements of the Rule.

Section 5.7 SO_x Emission Control Requirements:

On and after the compliance schedule specified in Section 7.5, operators of non-AO spark-ignited engines and non-AO compression-ignited engines shall comply with one of the following requirements:

5.7.1 Operate the engine exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;

5.7.2 Limit gaseous fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet; or

5.7.3 Use California Reformulated Gasoline for gasoline-fired spark-ignited engines; or

5.7.4 Use California Reformulated Diesel for compression-ignited engines; or

5.7.5 Operate the engine on liquid fuel that contains no more than 15 ppm sulfur, as determined by the test method specified in Section 6.4.6; or

5.7.6 Install and properly operate an emission control system that reduces SO₂ emissions by at least 95% by weight as determined by the test method specified in Section 6.4.6.

The facility will comply with Section 5.7.4.

Section 5.8 Monitoring

Section 5.8 applies to engines with a horsepower rating \geq 1000 hp or equipped with an external catalyst. The subject IC engines are rated less than 1000 hp and are therefore not subject to the subpart.

Section 5.9 Monitoring (All other IC Engines)

The applicable sections are as follows:

5.9.2 Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.

5.9.3 Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.

5.9.4 Install and operate a nonresettable elapsed time meter.

The IC engines meet the above requirements.

Section 5.10 SO_x Emissions Monitoring Requirements

Applicable ICEs subject to Sections 5.7.2 (limit gas S to gr S) , 5.7.5 (15 ppm S in diesel) or 5.7.6 (95% SO_x Control System)

The subject IC engines will combust CARB Certified diesel. Therefore, S testing is not required.

Section 5.11 PEER Requirements

Not applicable

Section 6.0 Administrative Requirements

Section 6.1 Emissions Control Plan Requirements

Not applicable to a certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.

Record keeping:

Section 6.2 requires that the owner of an engine subject to the requirements of Section 5.2 shall maintain an engine-operating log to demonstrate compliance with this Rule. This information shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The engine-operating log shall include, on a monthly basis, the following information:

- Total hours of operation,
- Type of fuel used,
- Maintenance or modifications performed,
- Monitoring data,
- Compliance source test results, and
- Any other information necessary to demonstrate compliance with this Rule.

Section 6.2.2 requires that the data collected pursuant to the requirements of Section 5.7 shall be maintained for at least five years, shall be readily available, and made available to the APCO upon request.

Compliance Testing:

Section 6.3 requires that the owner of an engine subject to the requirements of Section 5.2 or the requirements of Section 8.0, shall comply with the source testing Sections 6.3.2 through 6.3.4. except for certified compression-ignited engine that has not been retrofitted with an exhaust control and is not subject to the requirements of Section 8.0.

The engine in this project is a certified compression-ignited engines not retrofitted with exhaust control and are not subject to Section 8.0. Therefore, source testing is not applicable.

Section 6.5 Inspection and Monitoring (I&M) Plan:

Section 6.5 requires that the owner of an engine subject to the requirements of Section 5.1 or the requirements of Section 8.0, except for an engine specified in Section 6.5.1, shall submit to the APCO for approval, an I&M plan that specified all actions to be taken to satisfy the requirements of Section 6.5 and 5.7. However this requirement does not apply to certified compression-ignited engines that have not been retrofitted with an exhaust control and are not subject to the requirements of Section 8.0.

The engines in this project are certified compression-ignited engines not retrofitted with exhaust control and are not subject to Section 8.0. Therefore, an I&M Plan is not required.

Section 7 Compliance Schedule:

The engines are expected to be in compliance with this Rule; no further action is required at this time.

Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = (n \times R \times T) \div P$$

n = moles SO₂

T (standard temperature) = 60 °F or 520 °R

$$R \text{ (universal gas constant)} = \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}}$$

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb}}{\text{gal}} \times \frac{64 \text{ lb} - \text{SO}_2}{32 \text{ lb} - S} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gal}}{0.137 \text{ MMBtu}} \times \frac{\text{lb} - \text{mol}}{64 \text{ lb} - \text{SO}_2} \times \frac{10.73 \text{ psi} - \text{ft}^3}{\text{lb} - \text{mol} - \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times 1,000,000 = 1.0 \text{ ppmv}$$

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801.

Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

{3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

This facility is not located within 1,000 feet of a school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

Code of Federal Regulations (CFR), Title 40, Part 89

The term “non-road” is defined in Title 40 Code of Federal Regulations (CFR) Part 89 (Control Of Emissions From New and In-Use Nonroad Compression-Ignition Engines). Like District “transportable” engines, federal “non-road” engines are also mobile.

Per 40 CFR Part 89, non-road engines include compression ignited engines that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indications of transportability include but are not limited to wheels, skids, carrying handles, dollies, trailers, or platforms.

An internal combustion engine is NOT a non-road engine if:

1. The engine is used to propel a motor vehicle or a vehicle used solely for competition; or is subject to standards promulgated under section 202 of the Clean Air Act; or
2. The engine is regulated by a New Source Performance Standard promulgated under section 111 of the Clean Air Act; or
3. The engine will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site (i.e. footprint) at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least 2 years) and that operates at that single location approximately three months (or more) each year.

In addition, there are several categories that are not included in the definition of non-road (or subject to 40 CFR 89). These categories are:

1. Aircraft Engines
2. Mining Engines
3. Locomotive Engines
4. Marine Engines
5. Hobby Engines (less than 50 cc per cylinder)
6. Tier 4 Engines that are subject to emissions standards under 40 CFR Part 1039

The proposed engine meets the definition of a non-road engine, and is therefore subject to this part.

40 CFR Part 89 identifies emissions certification requirements for new non-road engines. There are no emission requirements for existing engines.

Per 40 CFR Part 89.2, "new" means:

"a nonroad engine, nonroad vehicle, or nonroad equipment the equitable or legal title to which has never been transferred to an ultimate purchaser. Where the equitable or legal title to the engine, vehicle, or equipment is not transferred to an ultimate purchaser until after the engine, vehicle, or equipment is placed into service, then the engine, vehicle, or equipment will no longer be new after it is placed into service. A nonroad engine, vehicle, or equipment is placed into service when it is used for its functional purposes."

The proposed IC engine is new.

The certification requirements of this regulation are known as either Tier 1, Tier 2, or Tier 3 certifications.

Pursuant to 40 CFR Part 89, Appendix A to Subpart A:

“EPA believes that states are not precluded (*or prevented*) under section 209 from regulating the use and operation of non-road engines, such as regulations on hours of usage, daily mass emission limits, or sulfur limits on fuel; nor are permits regulating such operations precluded (*or prevented*), once the engine is no longer new. EPA believes that states are precluded from requiring retrofitting of used nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act.”

Therefore, beyond the requirements of Part 89, local authorities can only regulate the use and operation of non-road engines such as regulations on the hours of usage, daily mass emission limits, or sulfur limits on fuel. Local authorities cannot require retrofitting of used nonroad engines except those that are identical to California requirements that have been authorized by EPA, e.g. in the California Code of Regulations (CCR).

The proposed engine reflects the latest certification for the applicable rated power category; therefore, this part is satisfied.

California Code of Regulations (CCR), Title 13 (Motor Vehicles), Division 3 (Air Resources Board), Chapter 9 (Off-Road Vehicles and Engines Pollution Control Devices), Article 4 (Off-Road Compression-Ignition Engines and Equipment)

§ 2420 - Applicability:

This article is applicable to new heavy-duty compression-ignited engines produced on or after January 1, 1996 and all other new 2000 model year and later off-road compression-ignition engines, with the exception of all engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air ACT and as defined by regulation of the U.S. Environmental Protection Agency. The engine proposed falls under the applicability of this article since they are “off-road” as defined below.

§ 2421 - Definitions

Like District “transportable” engines and federal “non-road” engines, California “off-road” engines are also mobile. “Off-road” engines are defined as:

“(A) Except as specified in paragraph (B) of this definition, an off-road compression-ignition engine is any internal combustion engine:

1. In or on a piece of equipment that is self-propelled or serves as a dual purpose by both propelling itself and performing another function and is primarily used off the highways (such as garden tractors, off-highway mobile cranes and bulldozers); or
2. In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or
3. That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another.

Indicia of transportability include, but are not limited to wheels, skids, carrying handles, dolly, trailer, or platform.

(B) An internal combustion engine is not an off-road compression-ignition engine if:

1. The engine is used to propel a vehicle subject to the emission standards contained in Title 13, California Code of Regulations, Sections 1950-1978, or a vehicle used solely for competition, or is subject to standards promulgated under Section 202 of the federal Clean Air Act (42 U.S.C. 7521); or
2. The engine is regulated by a federal New Source Performance Standard promulgated under Section 111 of the federal Clean Air Act (42 U.S.C. 7511); or
3. The engine otherwise included in paragraph (A)3 of this definition remains or will remain at a location for more than 12 consecutive months or a shorter time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at a single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.”

§ 2423 - Emission Standards:

The proposed engines are certified 2012 model engine and meet the standards of Off-Road Compression-Ignition Emissions requirements of Title 13 CCR, Section 2423.

California Code of Regulations (CCR), Title 17 (Public Health), Division 3 (Air Resources), Chapter 1 (Air Resources Board), Subchapter 7.5 (Air Toxic Control Measures), Measure 93116 (Portable Diesel Engines)

§ 93116.1 - Applicability

Except as provided in §93116.1(b), all portable engines having a maximum rated hp of 50 bhp and greater and fueled with diesel are subject to this regulation. The proposed engine(s) are portable and are subject to this regulation.

§ 93116.2 - Definitions

Like District “transportable”, federal “non-road”, and California “off-road” engines, California “portable” engines are also mobile.

(bb) Portable means designed and capable of being carried or moved from one location to another. Indicia of portability include, but are not limited to, wheels, skids, carrying handles,

dolly, trailer, or platform. For the purposes of this regulation, dredge engines on a boat or barge are considered portable. The engine is not portable if:

- (1) the engine or its replacement is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months. The period during which the engine is maintained at a storage facility shall be excluded from the residency time determination. Any engine, such as a back-up or stand-by engine, that replace engine(s) at a location, and is intended to perform the same or similar function as the engine(s) being replaced, will be included in calculating the consecutive time period. In that case, the cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; or
- (2) the engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; or
- (3) the engine is moved from one location to another in an attempt to circumvent the portable residence time requirements.

§ 93116.2 - Requirements

Fuel and Fuel Additive Requirements:

This regulation stipulates that diesel-fueled portable engines shall use one of the following fuels:

1. CARB Diesel Fuel; or
2. An alternative diesel fuel that has been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines; or
3. CARB diesel fuel utilizing fuel additives that have been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.

The proposed engines will use CARB certified diesel fuel.

Diesel PM Standards:

Portable diesel-fueled engines that have not been permitted or registered prior to January 1, 2006, (meaning new engines) are subject to "the most stringent of the federal or California emission standard for nonroad engines".

The proposed engines have the highest CARB certification for model and year (Tier IVi).

Fleet Requirements:

The earliest fleet average PM requirement is 1/1/2013; therefore, there is no applicable fleet requirement at this time.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has prepared or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

On December 17, 2009, the District's Governing Board adopted a policy, APR 2005, *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*, for addressing GHG emission impacts when the District is Lead Agency under CEQA and approved the District's guidance document for use by other agencies when addressing GHG impacts as lead agencies under CEQA. Under this policy, the District's determination of significance of project-specific GHG emissions is founded on the principal that projects with GHG emission reductions consistent with AB 32 emission reduction targets are considered to have a less than significant impact on global climate change. Consistent with District Policy 2005, projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, would be determined to have a less than significant individual and cumulative impact for GHG emission.

The California Air Resources Board (ARB) adopted a Cap-and-Trade regulation as part one of the strategies identified for AB 32. This Cap-and-Trade regulation is a statewide plan, supported by a CEQA compliant environmental review document, aimed at reducing or mitigating GHG emissions from targeted industries. Facilities subject to the Cap-and-Trade regulation are subject to an industry-wide cap on overall GHG emissions. Any growth in emissions must be accounted for under that cap such that a corresponding and equivalent reduction in emissions must occur to allow any increase. Further, the cap decreases over time, resulting in an overall decrease in GHG emissions.

Under District policy APR 2025, *CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation*, the District finds that the Cap-and-Trade is a regulation plan approved by ARB, consistent with AB32 emission reduction

targets, and supported by a CEQA compliant environmental review document. As such, consistent with District Policy 2005, projects complying project complying with Cap-and-Trade requirements are determined to have a less than significant individual and cumulative impact for GHG emissions.

The GHG emissions increases associated with this project result from the combustion of fossil fuel(s), other than jet fuel, delivered from suppliers subject to the Cap-and-Trade regulation. Therefore, as discussed above, consistent with District Policies APR 2005 and APR 2025, the District concludes that the GHG emissions increases associated with this project would have a less than significant individual and cumulative impact on global climate change.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct S-8530-1-0, '-2-0, and '-3-0 subject to the permit conditions listed on the attached draft Authorities to Construct in **Attachment VII**).

X. Billing Information

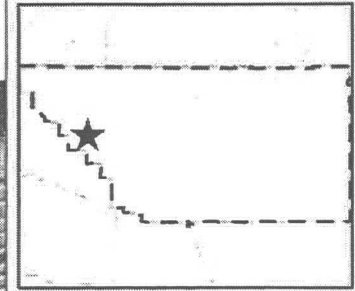
Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-8530-1	3020-10B	157 HP	\$117.00
S-8530-2	3020-10B	157 HP	\$117.00
S-8530-3	3020-10C	256 HP	\$240.00

List of Attachments

- I: Location Map
- II: IC Engine Emissions Standards
- III: Emissions Profiles
- IV: BACT Guideline
- V: BACT Analysis
- VI: HRA/AAQA Summary
- VII: Draft ATC

Attachment I Location Map

CUSA Drilling Fluids Mgmt Facility Generator Project



Legend

Roads

- Arterial
- Collector
- Highway
- Local
- Ramp
- Unpaved

County of Kern

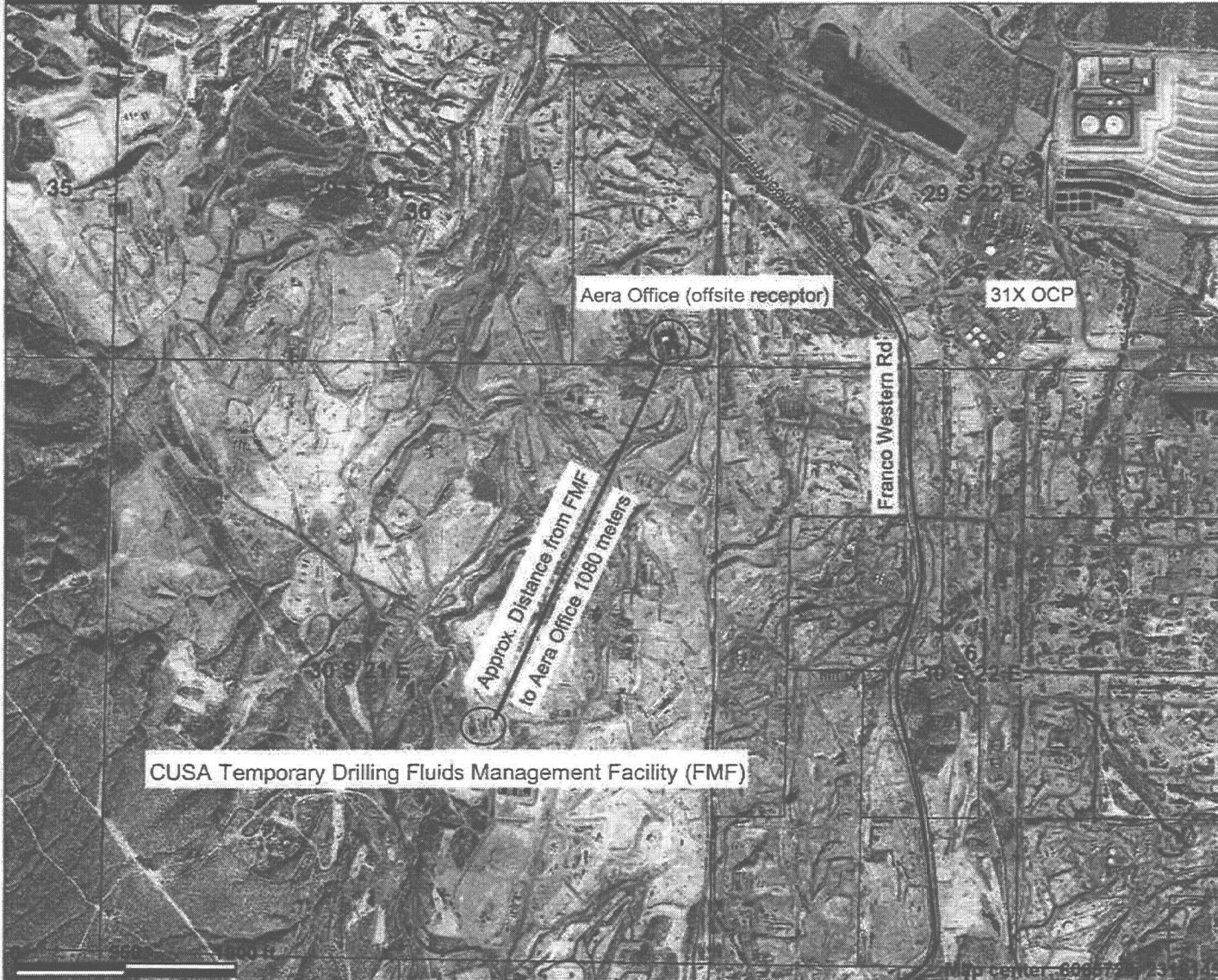
Assessment Parcels

Townships

Sections



Scale: 1:16,243



This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Notes: Distance between FMF and Aera office is approximately 1,080 meters.

Attachment II

IC Engine Emissions Standards

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2013	DCEXL04.5AAF	4.5	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Module, Exhaust Gas Recirculation, Diesel Oxidation Catalyst			Generator Set	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
75 ≤ KW < 130	Interim Tier 4 /ALT NOx	STD	0.19	3.4	N/A	5.0	0.02	N/A	N/A	N/A
		CERT	0.004	2.2	--	0.01	0.01	--	--	--

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 2 day of August 2012.

Annette Hebert
Annette Hebert, Chief
Mobile Source Operations Division

157 hp

0.74558 $\frac{kw}{hp}$
 $NO_x = 2.53 \frac{g}{hp-hr}$
 $HC = 0.14$
 $CO = 3.72$ $PM_{10} = 0.015$

	<p align="center">CUMMINS INC.</p>	<p align="center">EXECUTIVE ORDER U-R-002-0574 New Off-Road Compression-Ignition Engines</p>
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Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2012	CCEXL06.7AAF	6.7	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Module, Exhaust Gas Recirculation, Diesel Oxidation Catalyst, and Periodic Trap Oxidizer			Generator Set	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW < 560	Tier 4 Alt NOx	STD	0.19	2.0	N/A	3.5	0.02	N/A	N/A	N/A
		CERT	0.01	1.4	--	0.00	0.003	-	-	-

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 1 day of July 2011.


 Annette Hebert, Chief
 Mobile Source Operations Division

256 hp

x
79558
1.5 g/hr-hr

Table 1. Off Road Compression - Ignition Diesel Engine Standards (NMHC + Nox/CO/PM in g/bhp hr.)

157 hp

hp (kw)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015+	
< 11 (8)						7.8 (10.5) 6.0 (8.0) 0.75 (1.0)					5.6 (7.5) 6.0 (8.0) 0.60 (0.80)			5.6 (7.5) 6.0 (8.0) 0.30 (0.40)								
≥ 11 (8) < 25 (19)						7.1 (9.5) 4.9 (6.6) 0.60 (0.80)					5.6 (7.5) 4.9 (6.6) 0.60 (0.80)			5.6 (7.5) 4.9 (6.6) 0.30 (0.40)								
≥ 25 (19) < 50 (37)					7.1 (9.5) 4.1 (5.5) 0.60 (0.80)					5.6 (7.5) 4.1 (5.5) 0.45 (0.60)				5.6 (7.5) 4.1 (5.5) 0.22 (0.30)					3.5 (4.7) 4.1 (5.5) 0.022 (0.03)			
≥ 50 (37) < 75 (55.5)				N/A ^(b) 6.9 (9.2) N/A N/A						5.8 (7.5) 3.7 (5.0) 0.30 (0.40)				3.5 (4.7) 3.7 (5.0) 0.22 ^(c)					3.5 (4.7) 3.7 (5.0) 0.022 (0.03) ^(d)			
≥ 75 (55.5) < 100 (75)				N/A ^(b) 6.9 (9.2) N/A N/A						5.6 (7.5) 3.7 (5.0) 0.30 (0.40)				3.5 (4.7) 3.7 (5.0) 0.3 (0.40)					0.14 (0.19) 2.5 (3.4) 3.7 (5.0) 0.01 (0.02) ^(b,e)		0.14 (0.19) 0.29 (0.4) 3.7 (5.0) 0.01 (0.02) ^(b)	
≥ 100 (75) < 175 (130) ^(d)			N/A ^(b) 6.9 (9.2) N/A N/A						4.9 (6.6) 3.7 (5.0) 0.22 (0.30)				3.0 (4.0) 3.7 (5.0) 0.22						0.14 (0.19) 2.5 (3.4) 3.7 (5.0) 0.01 (0.02) ^(b,e)		0.14 (0.19) 0.29 (0.4) 3.7 (5.0) 0.01 (0.02) ^(b)	
≥ 175 (130) < 300 (225) ^(d)	1.0 (1.3) ^(b) 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)								4.9 (6.6) 2.6 (3.5) 0.15 (0.20)				3.0 (4.0) 2.6 (3.5) 0.15 ^(d)						0.14 (0.19) 1.5 (2.0) 2.6 (3.5) 0.01 (0.02) ^(b,d)		0.14 (0.19) 0.29 (0.4) 2.6 (3.5) 0.01 (0.02) ^(b)	
≥ 300 (225) < 600 (450) ^(d)	1.0 (1.3) ^(b) 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)								4.8 (6.4) 2.6 (3.5) 0.15 (0.20)				3.0 (4.0) 2.6 (3.5) 0.15 ^(d)						0.14 (0.19) 1.5 (2.0) 2.6 (3.5) 0.01 (0.02) ^(b,d)		0.14 (0.19) 0.29 (0.4) 2.6 (3.5) 0.01 (0.02) ^(b)	
≥ 600 (450) < 750 (560) ^(d)	1.0 (1.3) ^(b) 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)								4.8 (6.4) 2.6 (3.5) 0.15 (0.20)				3.0 (4.0) 2.6 (3.5) 0.15 ^(b)						0.14 (0.19) 1.5 (2.0) 2.6 (3.5) 0.01 (0.02) ^(b,d)		0.14 (0.19) 0.29 (0.4) 2.6 (3.5) 0.01 (0.02) ^(b)	
≥ 750 (560) ^(d)						1.0 (1.3) ^(b) 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)							4.8 (6.4) 2.6 (3.5) 0.15 (0.20)						0.3 (0.40) 2.6 (3.5) 2.6 (3.5) 0.07 (0.10) ^(b)		0.14 (0.19) 2.6 (3.5) 2.6 (3.5) 0.03 (0.04) ^(b)	
> 750 ≤ 1207	Generators					1.0 (1.3) ^(b) 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)							4.8 (6.4) 2.6 (3.5) 0.15 (0.20)						0.3 (0.40) 2.6 (3.5) 2.6 (3.5) 0.07 (0.10) ^(b)		0.14 (0.19) 0.5 (0.67) 2.6 (3.5) 0.02 (0.03) ^(b)	
> 1207	Generators					1.0 (1.3) ^(b) 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)							4.8 (6.4) 2.6 (3.5) 0.15 (0.20)						0.3 (0.40) 0.5 (0.67) 2.6 (3.5) 0.07 (0.10) ^(b)		0.14 (0.19) 0.5 (0.67) 2.6 (3.5) 0.02 (0.03) ^(b)	

3.4 x
.74558
= 2.5

256 hp

a. The PM standard for hand-start, air cooled, direct injection engines below 6 bhp may be delayed until 2010 and be set at 0.45 g/bhp-hr.
 b. Standards given are NMHC/NOx/CO/PM in g/bhp-hr.
 c. Engine families in the power category may alternately meet Tier 3 PM standards (0.3 g/bhp-hr) from 2008-2011 in exchange for introducing final PM standards in 2012.
 d. The implementation schedule is the three-year alternate Nox approach. Other schedules are available.
 e. Certain manufacturers have agreed to comply with these standards by 2005.
 Note: This chart was converted into bhp units based on the chart at <http://www.arb.ca.gov/msprog/offroad/offroad.htm> 2/7/06.

Tier 1
 Tier 2
 Tier 3
 Interim Tier 4
 Final Tier 4

Attachment III Emissions Profiles

Permit #: S-8530-1-0	Last Updated
Facility: CHEVRON USA, INC. (CUSA)	09/20/2014 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	6576.0	13.0	26.0	9733.0	368.0
Daily Emis. Limit (lb/Day)	20.8	0.0	0.1	30.7	1.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1644.0	3.0	6.0	2433.0	92.0
Q2:	1644.0	3.0	6.0	2433.0	92.0
Q3:	1644.0	3.0	7.0	2433.0	92.0
Q4:	1644.0	4.0	7.0	2434.0	92.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-8530-2-0	Last Updated
Facility: CHEVRON USA, INC. (CUSA)	09/20/2014 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	6576.0	13.0	26.0	9733.0	368.0
Daily Emis. Limit (lb/Day)	20.8	0.0	0.1	30.7	1.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1644.0	3.0	6.0	2433.0	92.0
Q2:	1644.0	3.0	6.0	2433.0	92.0
Q3:	1644.0	3.0	7.0	2433.0	92.0
Q4:	1644.0	4.0	7.0	2434.0	92.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-8530-3-0	Last Updated
Facility: CHEVRON USA, INC. (CUSA)	09/20/2014 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	6434.0	22.0	43.0	11152.0	600.0
Daily Emis. Limit (lb/Day)	20.3	0.1	0.1	35.2	1.9
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1608.0	5.0	10.0	2788.0	150.0
Q2:	1608.0	5.0	11.0	2788.0	150.0
Q3:	1609.0	6.0	11.0	2788.0	150.0
Q4:	1609.0	6.0	11.0	2788.0	150.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Attachment IV BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.2.11*

Last Update: 8/11/2014

Transportable Compression - Ignited IC Engines (Non-Agricultural)*

Pollutant	Achieved In Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	<p>The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range.</p> <p>(Example: a 200 bhp engine proposed in 2014 shall be Tier 4i certified and meet the emission standard of 0.14 g-VOC/bhp-hr)</p>		LPG/Propane Fired Engine
SOx	<p>Very Low Sulfur Fuel (0.0015% fuel S by weight)</p>		
PM10	<p>The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range.</p> <p>(Example: a 200 bhp engine proposed in 2014 shall be Tier 4i certified and meet the emission standard of 0.01 g-PM10/bhp-hr)</p>		LPG/Propane Fired Engine
NOx	<p>The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range.</p> <p>(Example: a 200 bhp engine proposed in 2014 shall be Tier 4i certified and meet the emission standard of 1.5 g-NOx/bhp-hr)</p>		LPG/Propane Fired Engine
CO	<p>The proposed engine shall meet the latest available CARB certification standard for the particular horsepower range.</p> <p>(Example: a 200 bhp engine proposed in 2014 shall be Tier 4i certified and meet the emission standard of 2.6 g-CO/bhp-hr)</p>		LPG/Propane Fired Engine

*For the purposes of this BACT guideline, Transportable Compression-Ignited IC engines are IC engines that remain or will remain at a location (any single site at a building, structure, facility, or installation) for 12 months or less or a shorter period of time for an engine located at a seasonal source.

Attachment V BACT Analysis

NO_x

Step 1 - Identify All Possible Control Technologies

Option 1: Latest Available Certified Compression-Ignited Engine

As shown in Section II of this document, since 1996, manufacturers are required to produce certified engines. In fact, numerous engines of the latest available certification have been installed within the SJVAPCD. Therefore, the latest available certification is considered achieved-in-practice (AIP) for this BACT guideline.

No additional control options for the engine will be considered at this time since, as shown above in Section II.A, federal law prohibits local authorities from regulating beyond the use and operation (hours, mass emission limits, or fuel sulfur content). Local authorities cannot require retrofitting of used nonroad engines except those that are identical to California requirements that have been authorized by EPA, e.g. in the California Code of Regulations (CCR). As a result, add-on controls (e.g. selective catalytic reduction, positive crankcase ventilation, turbocharging, intercooling, etc.) will not be considered as control options for this class and category or source.

Option 2: Propane/Liquid Petroleum Gas (LPG) Fueled Engine

The use of LPG results in lower emissions overall when compared to diesel emissions. The table below identifies emission factors (EFs) for LPG-fired IC engines:

Pollutant	EF	Source
NO _x	25 ppmvd @ 15% O ₂	District Rule 4702 (Achieved-In-Practice)
SO _x	0.012 g/bhp-hr	CARB Emissions Inventory Database
PM ₁₀	0.063 g/bhp-hr	AP-42 (7/00) Table 3.2-3
CO	400 ppmvd @ 15% O ₂	District Rule 4702 (Achieved-In-Practice)
VOC	100 ppmvd @ 15% O ₂	District Rule 4702 (Achieved-In-Practice)

*g/hp·hr equivalent of lb/MMBtu values is calculated as follows: (example SO_x)

$$0.35 \frac{lb}{1,000 \text{ gal}} \times \frac{gal}{94,000 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{hp \cdot hr} \times \frac{1 \text{ hp}_m}{0.35 \text{ hp}_{out}} \times \frac{453.6 \text{ g}}{lb} = 0.012 \frac{g}{hp \cdot hr}$$

Step 3 - Rank Remaining Control Technologies

Control Technology	Rank	Emission Factors (g/bhp-hr)	Technology Classification for BACT
LPG/Propane Engine + 3-way catalyst system	1	NO _x : 0.35 (≈ 25 ppmvd @ 15% O ₂) VOC: 0.5 (≈ 100 ppmvd @ 15% O ₂) CO: 3.4 (≈ 400 ppmvd @ 15% O ₂) PM ₁₀ : 0.063	ABE
Latest Tier Certification Levels	2	NO _x + VOC: 3.0 - 5.6 CO: 2.6 - 3.7 PM ₁₀ : 0.149 - 0.3	AIP

Step 4 - Cost Effectiveness Analyses

LPG Engines

LPG engines ≤ 1,200 bhp are not cost effective*

* District BACT analysis for Transportable Compression – Ignited IC Engines (Non-Agricultural, Non-Electric Generation) dated October 29, 2009 demonstrates (Appendix A) that LPG-fired engines less than 1200 hp are not cost effective and are not required as Alternate Basic Equipment.

Latest Available Certified Compression-Ignited Engine

Per District BACT Policy, a cost effectiveness analysis is not required for AIP controls since the control must be implemented.

Step 5 - Select BACT

The remaining control not eliminated in Step 4 (latest available certification) is considered AIP BACT for this class and category of source for NO_x

Attachment VI HRA/AAQA Summary



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



Risk Management Review
And
Ambient Air Quality Analysis

For

Chevron USA Inc.
Facility S-8530-1-0, 2-0
Project S-1143652

Report Prepared by:
Leland Villalvazo
Permit Serviced Department, Technical Services
Submitted: 9-18-14 | Completed: 10-1-14

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1. Purpose of this Document

This document serves as the Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the proposed installation of two 157 BHP transportable diesel fired IC engines powering an electrical generator and one 256 BHP transportable diesel fired IC engine powering and electrical generator for drilling fluids operation (liquids do not contain VOCs) for Chevron USA Inc.. This document describes the modeling performed to satisfy the requirements of District Rule 4201(Nuisance) and District's Rule 2201 (New Source Review).

2. Applicant

Project Site Location:

Chevron USA Inc.
Section 1, T30S, R22E
Western Oil Field, McKittrick Area

Project Contact:

Dave Bone
Chevron USA Inc.
PO Box 1392
Bakersfield ,CA 93302
Phone: (661) 654-7150

Permitting Engineer:

Richard Edgehill
San Joaquin Valley APCD
Permit Services Department
34946 Flyover Court
Bakersfield, CA 93308
Phone: (661) 392-5500
FAX: (661) 392-5585
Richard.Edgehill@valleyair.org

3. Project Location

The equipment will be located at the FMF area, within the Section 1, Township 30S, Range 21E. It is located in a rural setting in the District's Southern Region in Kern County.

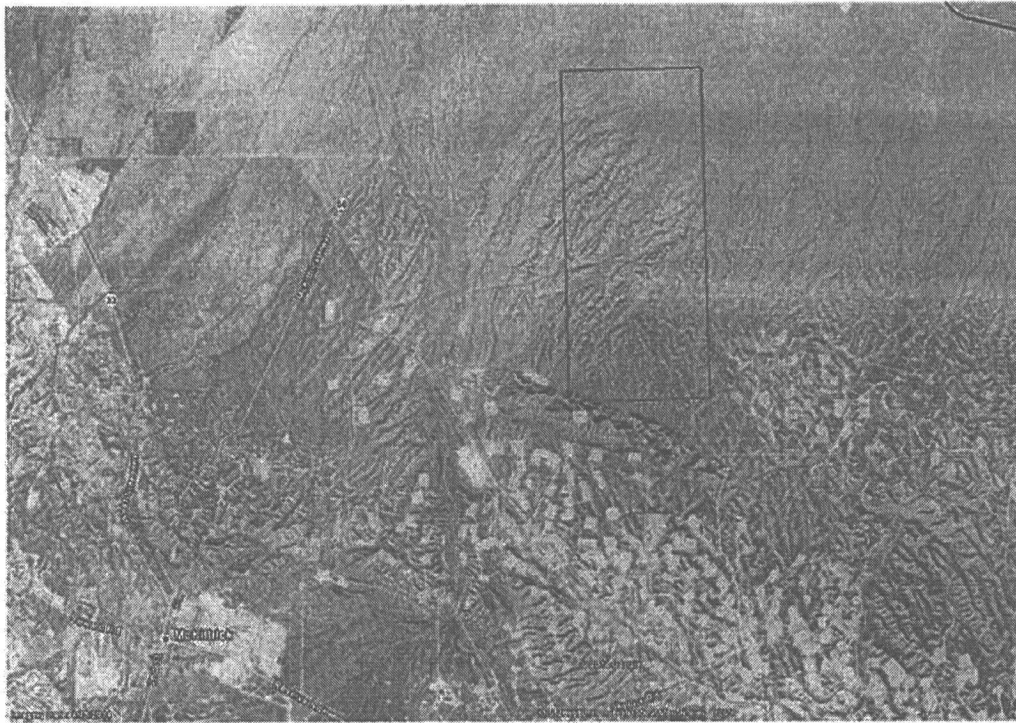


Figure 3-1 Project Location

4. Project Description

Technical Services received a request on September 18, 2014 to perform a Risk Management Review and Ambient Air Quality Analysis and for the proposed installation of two 157 BHP transportable diesel fired IC engines powering an electrical generator and one 256 BHP transportable diesel fired IC engine powering and electrical generator.

5. District Rule 4201 – Nuisance (Risk Management Review)

The purpose of District Rule 4201 is to protect the health and safety of the public. This rule prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. The process by which the District insures permitting projects do not cause injury to the public is specified in District Policy APR 1905 (*Risk Management Policy for Permitting New and Modified Sources*). This policy requires that for an increase in emissions or a change in mode or time of operation associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. District Policy APR 1905 requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis to show compliance with Assembly

Bill 2588 Air Toxic "Hot Spots" Act (AB 2588) requirements. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required using District approved models including but not limited to District screening assessment tools, EPA's AERMOD, and CARB's HARP program. Required model inputs characterize the various emitting units, meteorology, and the land surface, and define a set of receptors (spatial locations at which to estimate concentrations, typically out to 2-5 km from the facility). Modeling should be performed in accordance with District, OEHHA, and EPA's Guideline on Air Quality Modeling, in Appendix W to 40 CFR Part 51 (GAQM or Appendix W).

If a refined assessment is greater than one in a million but less than 10 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented. In most cases Best Available Control Technology (BACT) is considered TBACT.

Carcinogenic impacts greater than 10 in one million or greater than 1.0 for either the Acute or Chronic hazard indices is considered significant and may not be permissible. In special circumstance the Air Pollution Control Officer may approve a project determined to be significant; if it can be demonstrated that the project is essential to public safety and more harm to the public may occur from denying the project than from approving it.

5.1 Toxic Emissions

Toxic emissions for these proposed units were calculated using annual and hourly rates of diesel fuel combustion calculated by the processing engineer.

Table 5-1. Source Process Rates

Unit ID	Unit Description	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
1-0	157 BHP ICE	Diesel	Hours	1	7600
2-0	157 BHP ICE	Diesel	Hours	1	7600
3-0	256 BHP ICE	Diesel	Hours	1	7600

A summary of hazardous emissions is presented in Appendix C.

5.2 Prioritization

The prioritization methodology used by the District was developed by the Facility Prioritization Guidelines of the AB 2588 Risk Assessment Committee of the California Air Pollution Control Officers Association in 1990. The guidance document can be downloaded from ARB at <http://www.arb.ca.gov/ab2588/RRAP-IWRA/priguide.pdf>.

The prioritization methodology has two basic methods that can be used to determine a source's potential impact on nearby receptors. The first is the "Emissions and Potency" method which relies on the quantity of a specific pollutant and the pollutant's specific potency (tendency to cause harm) in conjunction with the distance a source is from a receptor to calculate a score or potential for exposure.

The second method, "Dispersion Adjustment", is similar to the first method except that the stack height is also included as a parameter in the calculations to derive the prioritization score. Both prioritization methodologies look at three aspects of exposure 1) Acute short term non-carcinogenic risk [1-24 hours], 2) Chronic long term non-carcinogenic risk [24 hours to 1 year], and 3) Carcinogenic risk over a 70 year period.

For the purpose of this assessment the word carcinogenic refers to those compounds that have been identified by the Office of Environmental Health hazard Assessment (OEHHA) as having the potential of cause cancer.

A prioritization was performed for this assessment using the "Emissions and Potency" method. Prioritization results are summarized in Table 5-2.

Table 5-2. Prioritization Summary

Unit ID	Unit Description	Receptor Distance (m)	Prioritization Score
1-0	157 BHP DICE	1067	0.04
2-0	157 BHP DICE	1067	0.04
3-0	256 BHP DICE	1067	0.07
Project Total			0.145
Facility Total			0.145

The prioritization score for this proposed project was less than 1.0, and the prioritization score for the facility was less than 1.0. Since an AAQA was required for this project refined modeling was performed.

5.3 Screening and Refined Assessment

If modeling is required after implementing a screening technique, two modeling options may be available.

- The first option is a screening model that uses conservative modeling assumptions to estimate impacts or it may be a spreadsheet that was derived from a screening/refined model using conservative assumptions.
- The second option is to use a refined model which will require more resources and time. This is due to the facility and source specific information required to perform a given run.

The determination of which option is used will mainly be based on the following:

- Is there a screening method available for the scenario under review?
- Is the conservative screening method acceptable to the reviewing agency?
- Is the meteorological data used to develop the screening method acceptable?
- Are the source parameters used in the screening method acceptable?

5.4 Refined Assessment

The impact of the project was assessed in accordance with District, OEHHA, and CARB guidance. The modeling analyses included the maximum air quality impacts during normal operations using maximum hourly emissions for the acute hazard index (HI), annual average emissions for the chronic HI, and annual emissions for the cancer risk.

5.4.1 Model Selection

The District requires that the following regulatory models be used to analyze health impacts in the project area:

Table 5-3. Summary of Preferred Models

Model Name	Model Purpose	Model Version
AERMOD	Air dispersion modeling	14134
AERMAP	Terrain processing	--
AIRMET	Meteorological data processing	14134
HARP	Analysis of health impacts	1.4f

5.4.2 Land Characteristics

Land characteristics are used in the AERMOD modeling system in three ways:

- via elevation within AERMOD to assess plume interaction with the ground;
- via a choice of rural versus urban algorithm within AERMOD; and
- via specific values of AERMET parameters that affect turbulence and dispersion. This aspect applies to the meteorological inputs discussed in Section 5.4.3.

5.4.2.1 Elevation

Terrain elevations from United States Geological Survey (USGS) National Elevation Dataset (NED) data were used at a horizontal resolution of 30 meters, for receptor heights in AERMOD, which uses them to assess plume distance from the ground for each receptor. All coordinates were referenced to UTM North American Datum 1983 (NAD83). The AERMOD, receptor elevations were interpolated among the NED nodes according to standard AERMAP procedure.

Table 5-4. Unit Location & Elevation Data

Unit ID	Unit Description	Location			Elevation (m)
		UTM Zone	UTMN (m)	UTME (m)	
1-0	157 BHP DICE	11	266323.320	3913791.574	198.54
2-0	157 BHP DICE	11	266323.320	3913791.574	198.54
3-0	256 BHP DICE	11	266323.320	3913791.574	198.54

5.4.2.2 Urban/Rural Classification

The classification of a site as urban or rural can be based on the Auer method specified in the EPA document Guideline on Air Quality Models (40 CFR Part 51, Appendix W). From the Auer's method, areas typically defined as Rural include:

- Residences with grass lawns and trees
- Large estates
- Metropolitan parks and golf courses
- Agricultural areas
- Undeveloped land

- Water surfaces

Auer defines an area as Urban if it has less than 35% vegetation coverage or the area falls into one of the following use types:

Table 5-5. Land Use in Urban Classifications

Type	Use and Structures	Vegetation
I1	Heavy industrial	Less than 5%
I2	Light/moderate industrial	Less than 5%
C1	Commercial	Less than 15%
R2	Dense single / multi-family	Less than 30%
R3	Multi-family, two-story	Less than 35%

To determine if an area should be classified as urban or rural, evaluate land use within a 3 km radius from the center of the emissions source. If land use types I1, I2, C1, R2, and R3 account for 50 % or more of the area within the circle, then the area is classified as Urban, otherwise the area is classified as Rural.

For this project, it was determined that the source's land use classification is rural.

5.4.3 Meteorological Inputs

5.4.3.1 Surface Data

AERMOD requires representative meteorological data in order to accurately simulate air quality impacts. In order to select a meteorological site, the District did a qualitative comparison of the following factors from EPA's *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (Document EPA-454/R-99-005) recommended for consideration for siting:

- Proximity.
- Height of measurement.
- Aspects of the site's surface that affect turbulence and dispersion.

Table 5-6 provides the characteristics of the meteorological sites that are in close proximity to the project area, the type of data collected at each site, the met data processing parameters, and identifies the site selected.

Table 5-6. Surface Met Sites Near the Project Site

Site Criteria	Surface Met Sites			
	Bakersfield	Arvin	Missouri Triangle	Wasco
Distance from Project (km)	45.95	65.75	13.45	29.05
Elevation	149	267	268	77
Direction from Project	SE	SE	NW	NE
Urban/Rural	Urban	Rural	Rural	Rural
Land Use	Commercial	Ag Land	Commercial	Commercial
Met Type	ASOS/ NOAA	MM5	MM5	MM5
Station ID	23155	--	--	--
Data Type				
Years Available	2005-2013	2007-2011	2004-2008	2007-2011
U* Adjustment Applied	Yes	Yes	Yes	Yes
Site Selected			X	

¹Met data was processed per the District's meteorological data processing guidance (http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#modeling_guidance).

The District believes that the chosen surface meteorological data is the most representative for the proposed project analysis for the following reasons:

- The project site and the meteorological site are in close proximity to each other.
- Both locations are located in the Western Oils Fields of Kern County and are at approximately the same elevation.
- There are no significant terrain features separating the surface meteorological site from the project site that would cause significant differences in wind or temperature conditions between these respective areas compared to the other site evaluated.

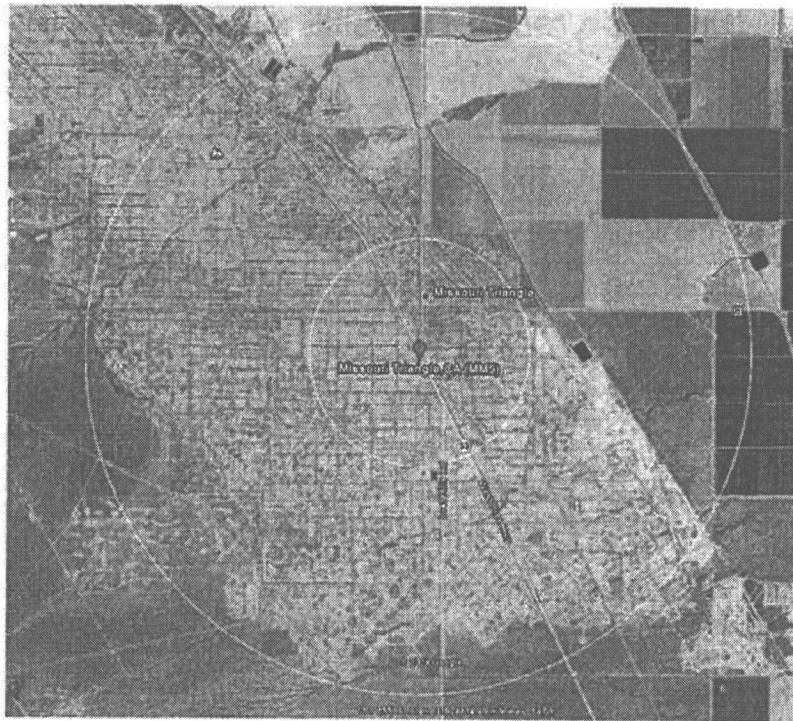


Figure 5-1 Missouri Triangle

5.4.3.2 Upper Air Data

The District selected upper air data from Oakland, California, This upper air site is the most representative upper air site available that had acceptable data completeness. No other upper air meteorological monitoring stations are located in the San Joaquin Valley Air Basin.

Table 5-7. Upper Air Met Sites Near the Project Site

Site Criteria	MM5
Distance from Project (km)	13.45
Elevation	268
Direction from Project	NW
Station ID	--
Data Type	
Years Available	2004-2008
Site Selected	X

5.4.4 Sensitive Receptors Grid

Sensitive receptors are defined as infants and children, the elderly, the chronically ill, and any other members of the general population who are more

susceptible to the effects of exposure to environmental contaminants than the population at large. Additionally, the District includes in the definition of sensitive receptors locations occupied by groups of individuals that may be more susceptible than the general population to health risks from a chemical exposure and therefore include schools (public and private), day-care facilities, convalescent homes, parks, and hospitals.

The RMR approach treats all receptors as sensitive receptors.

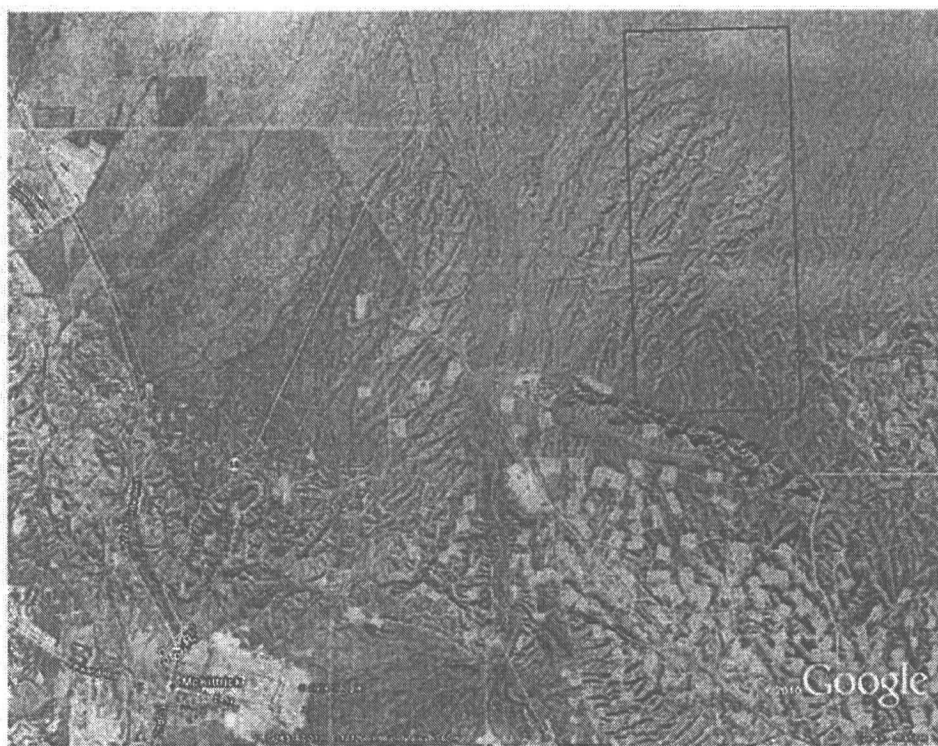


Figure 5-2 Sensitive Receptor Locations

5.4.5 Source Parameters

Modeling was performed using the source parameters in the tables below to conservatively estimate the project's impacts.

Table 5-8. Point Source Parameters

Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)
1-0*	157 BHP DICE	2.185	884	53	0.076
2-0*	157 BHP DICE	2.185	884	53	0.076
3-0*	256 BHP DICE	2.362	884	53	0.076

* Stack parameter are based on District default parameters

5.5 Risk Management Review (RMR)

Adverse health effects are expressed in terms of cancer or non-cancer health risks. Cancer risk is typically reported as "lifetime cancer risk," which is the estimated maximum increase in the risk of developing cancer caused by long-term exposure to a pollutant identified as being a carcinogen by the OEHHA. The calculation of cancer risk conservatively assumes an individual is exposed continuously to the maximum pollutant concentrations 24 hours per day for 70 years. Although such continuous lifetime exposure to maximum Toxic Air Contaminants (TAC) levels is highly unlikely, the goal of the approach is to produce a conservative worst-case estimate of potential cancer risk.

Non-cancer risk is typically reported as a Hazard Index (HI). The HI is calculated for each target organ as a fraction of the maximum acceptable exposure level or REL for an individual pollutant. The REL is generally the level at (or below) which no adverse health effects are expected. The HIs are calculated for both short-term (acute) and long-term (chronic) exposures to non-carcinogenic substances by adding the ratios of predicted concentrations to RELs for all pollutants.

Both cancer and non-cancer risk estimates produced by the RMR represent incremental risks (i.e., risks due to the modeled sources only) and do not include potential health risks posed by existing background concentrations. The HARP model performs all of the necessary calculations to estimate the potential lifetime cancer risk, and the acute and chronic non-cancer HIs due to the project's TAC emissions. The following parameters were selected in the HARP model:

- Breathing rates
 - Child: 95th percentile
 - Adult: 95th percentile
 - Worker: 95th percentile
- Years of exposure
 - Resident: 70 years
 - Worker: 40 years
- Worker modeled concentration adjustment factor: 1.0
- Site parameters
 - Inhalation pathway: enabled
 - Drinking water pathway: disabled

- Fish water pathway: disabled
- Beef/dairy (pasture) pathway: disabled
- Home grown produce pathways: enabled
- Pigs, chickens, and/or eggs pathways: disabled
- Dermal pathway: enabled
- Soil ingestion pathway: enabled
- Mother's milk pathway: enabled
- Deposition rate: 0.02 m/s

5.6 Risk Management Review Significance Thresholds

Project-related emissions are considered significant when the predicted increase in lifetime cancer risk exceeds 10 in 1 million (10×10^{-6}) and non-carcinogenic acute and chronic health effects, exposure affects a single target organ, exceed a value of 1.0.

5.7 Risk Management Review Results

The maximally exposed receptors for each type of adverse health impact are presented in Table 5-9.

Table 5-9. RMR Project Level Maximally Exposed Receptors

Health Impact	Receptor Type	Receptor Location		
		UTM Zone	UTMN (m)	UTME (m)
Cancer	Resident	11	261778.73	3910608.62
Chronic	--	--	--	--
Acute	--	--	--	--

The estimated cancer risk, and acute and chronic non-cancer hazard indexes at the maximally exposed receptors for the project are summarized in Table 5-10.

Table 5-10 RMR Results

Unit ID	Unit Description	Cancer Risk	Hazard Index	
			Chronic	Acute
1-0	157 BHP DICE	3.02×10^{-9}	0.00	0.00
2-0	157 BHP DICE	3.02×10^{-9}	0.00	0.00
3-0	256 BHP DICE	1.10×10^{-8}	0.00	0.00
	Project Total	1.70×10^{-8}	0.00	0.00
	Facility Total	1.70×10^{-8}	0.00	0.00

The acute and chronic indices are below 1.0 and the cancer risk associated with the project is less than 10 in a million. In accordance with the District's Risk Management Policy, the project is approved.

5.7.1 Toxic Best Available Control Technology (TBACT)

In order to control emissions of hazardous air pollutants to the maximum level achievable, sources must apply Toxic Best Available Control Technology (TBACT) to each new and modified emissions unit with a cancer risk greater than 1.0 in a million or a non-cancer hazard index greater than 1.0.

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. Toxic Best Available Control Technology (TBACT) is not required for this project.

5.7.2 Rule 4102 Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 1-0, 2-0, 3-0

- No special conditions are required.

6. District Rule 2201 – Air Quality

Ambient Air Quality Standards (AAQS) are established to protect the public and the environment. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to public health, vegetation or wildlife. The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. At present, EPA has set National Ambient Air Quality Standards for the following principal pollutants, which are called "criteria" pollutants:

- Ozone (O₃)
- Nitrogen Dioxide (NO₂)
- Sulfur Dioxide (SO₂)
- Respirable particulate matter having an aerodynamic diameter smaller than or equal to 10 microns (PM₁₀)
- Fine particulate matter having an aerodynamic diameter smaller than or equal to 2.5 microns (PM_{2.5})
- Carbon Monoxide (CO)
- Lead (Pb)

The National Ambient Air Quality Standards contain primary and secondary standards for each of the criteria pollutants. If a primary standard is exceeded, the public is considered at risk. If a secondary standard is exceeded, then crops, trees and buildings may be damaged. Air quality standards are based on a particular exposure period (averaging period) and concentration (average, maximum, or other statistical measure) during that period. A violation occurs if the observed concentration is greater than the standard during the specified averaging period.

The Clean Air Act also permits states to adopt additional or more protective air quality standards if needed. California law authorizes the Air Resources Board (ARB) to set ambient (outdoor) air pollution standards in consideration of public health, safety and welfare. California has set standards for certain pollutants, such as particulate matter and ozone, which are more protective of public health than respective federal standards. California has also set standards for some pollutants that are not addressed by federal standards, including the following:

- Visibility Reducing Particles
- Hydrogen Sulfide (H₂S)
- Vinyl Chloride

Both state and federal regulations require ambient air quality standards to be reviewed periodically, or whenever substantial new information becomes available.

The District ensures new and modified emissions sources do not cause or contribute to an exceedance of an ambient air quality standard through the implementation of District Rule 2201. This rule requires that an Ambient Air Quality Analysis be conducted for a new stationary source, or for a modification to an existing stationary source that results in a Public Notification and Publication Requirement, most commonly when the Potential to Emit is greater than 100 pounds during any one day for any one affected pollutant.

Table 6-1. CAAQS/NAAQS Attainment Status for SJVAPCD

Pollutant	Attainment Status		
	Federal	State	
Lead (Pb)	No Designation (Classification)	Attainment	
Nitrogen Dioxide (NO ₂)	Attainment (Unclassified)	Attainment	
Sulfur Dioxide (SO ₂)	Attainment (Unclassified)	Attainment	
Carbon Monoxide (CO)	Attainment (Unclassified)	Attainment (Unclassified)	
Particulate Matter under 2.5 micrometers diameter (PM _{2.5})	Nonattainment	Nonattainment	
Particulate matter under 10 micrometers diameter (PM ₁₀)	Attainment	Nonattainment	
Ozone	1-hour	N/A	Nonattainment (Severe)
	8-Hour	Nonattainment (Extreme)	Nonattainment
Hydrogen Sulfide	N/A	N/A	
Sulfates	N/A	Attainment	
Visibility Reducing Particles	N/A	Unclassified	
Vinyl Chloride	N/A	Attainment	

For the purposes of District Rule 2201, an Ambient Air Quality Analysis (AAQA) requires the use of EPA's preferred air dispersion model along with actual meteorological data to perform the air dispersion modeling. Information necessary to perform dispersion modeling includes the coordinates of the sources of emissions and the plant/facility boundary. Also required are the stack/modeling parameters for all emissions sources involved in the project.

Per District policy APR 1925, the AAQA performed for this project was conducted using a progressive approach. Pursuant to this policy, failure of preliminary analyses necessitates advancing to more refined approaches.

6.1 Preliminary Analysis

District Rule 2201 requires an air quality impact analysis be performed when a unit or project triggers public notice. Public Notice is triggered when an application which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one affected pollutant. This threshold is used as a screening tool to determine which projects need further review.

Applicable project emissions are shown in Table 6-2 (provided by the processing engineer). As shown in Table 6-2 below, no units are above the public notice threshold of 100 lbs per day. The processing Engineer has requested that an AQA be performed.

Table 6-2. Daily Emissions by Unit ID

Unit ID	Unit Description	Pounds per Day					Public Notice Triggered
		SO ₂	NO _x	CO	PM ₁₀	PM _{2.5}	
1-0	157 BHP DICE	0.0	21.0	30.9	0.1	--	Yes
2-0	157 BHP DICE	0.0	21.0	30.9	0.1	--	Yes
3-0	256 BHP DICE	0.1	20.3	35.2	0.1	--	No
Totals		0.1	62.3	97	0.3	--	

6.2 Refined Analysis

The District modeled the impact of the proposed project on the NAAQS and/or CAAQS in accordance with District Policy APR-1925 (*Policy for District Rule 2201 AAQA Modeling*) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or SIL, the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO₂ standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses included the maximum air quality impacts during normal operations using the appropriate emissions during each averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions.. These inputs are described in the sections that follow.

6.2.1 Model Selection

The District requires that the following regulatory models be used to analyze air quality impacts:

Table 6-3. Summary of Preferred Models

Model Name	Model Purpose	Model Version
AERMOD	Air dispersion modeling	14134
AERMAP	Terrain processing	--
AIRMET	Meteorological data processing	14134

6.2.2 Background Ambient Air Quality

District regulations require the air quality analysis to contain air quality monitoring data in the area for regulated pollutants for which there are NAAQS and/or CAAQS that may be affected by the source. For demonstrating compliance with the NAAQS and/or CAAQS, a background concentration is added to represent those sources not explicitly included in the modeling, as determined by the District, so that the total concentration accounts for all contributions to current air quality.

Ambient air concentrations of CO, ozone (O₃), NO₂, PM₁₀ and PM_{2.5} are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. **Table 6-4** displays monitors within close proximity to the project, as well as the pollutants measured.

Table 6-4 Monitoring Stations in Close Proximity to the Project Site

Site Criteria	Monitoring Site				
	Edison	Shafter – Walker St. ¹	Bakersfield-California	Fresno-First	Bakersfield-Golden
Distance from Project (km)	64	30	45	159	45
Direction from Project	E	NE	E	N - NW	E
Urban/Rural	Rural	Rural	Urban	Urban	Urban
Land Use	Commercial	Commercial	Commercial	Commercial	Commercial
Pollutants Monitored					
Ozone (O ₃)	●	●	●	●	●
Nitrogen Dioxide (NO ₂)	●	●	●	●	●
Respirable Particulate (PM ₁₀)			●	●	●
Fine Particulate (PM _{2.5})			●	●	●
Carbon Monoxide (CO)				●	●
Sulfur Dioxide (SO ₂) ³				●	

1 – Shafter Walker Street data was used for NO₂ refined modeling only

The area immediately surrounded the Project site can be characterized as rural with land use being predominantly undeveloped / farmland.

The monitoring station closest to the project Site is the Shafter Walker Street Station, located 30 kilometers to the northeast. This station measures O₃ and NO_x/NO₂, and is the most representative for these pollutants. This site was used for the refined NO₂ modeling. The Edison station located 64 kilometers to the east of the project site. This station was selected for use in Level 1 NO₂ analysis.

The Bakersfield – California Avenue station is the next closest station at 45 kilometers to the east of the project site. This station was selected as the best representation of the background levels for PM₁₀ and PM_{2.5} for the project.

The only station in the SJVAB that monitors SO₂ is the CARB station at First Street in Fresno, located approximately 99 miles (159 kilometers) to the north. Sulfur dioxide data have only been recorded in Fresno County for 6 of the last 10 years (2003, 2007, 2008, 2009, 2010, 2011,2012), a practice that is justified by the low levels that have been recorded for this pollutant where and when measurements have been made.

The Bakersfield – Golden State Highway station is the only station in Kern County that measures CO. This station was closed early in 2010; thus the most recent measurements available for this station are for 2007–2009, as 2010 data did not have suitable data capture.

Table 6-5 below describes the maximum background concentrations, from the most recent available 5 year period of data collection, for which there are NAAQS and CAAQS that may be affected by the project's emissions.

Table 6-5 AAQS and Background Concentrations

Pollutant	Averaging Time	AAQS (µg/m ³)		Background Concentration (µg/m ³)
		California	National (Primary)	
Respirable Particulate Matter (PM ₁₀)	24 Hour	50	150	256
	Annual Arithmetic Mean	20	--	65
Fine Particulate Matter (PM _{2.5})	24 Hour ¹	--	35	--
	Annual Arithmetic Mean	12	15	--
Carbon Monoxide (CO)	1 Hour	23,000	40,000	4,077.5
	8 Hour	10,000	10,000	2,563
Nitrogen Dioxide (NO ₂)	1 Hour ²	339	188	89.91
	Annual Arithmetic Mean	57	100	13.39
Sulfur Dioxide (SO ₂) ³	1 Hour	655	196	23.98
	3 Hour ⁴	--	1300	23.98
	24 Hour	105	365	5.33
	Annual	--	80	23.98

¹ The PM_{2.5} 24-hr value is the 98th percentile averaged over three years rather than the maximum. Please note until which time EPA resolves the courts concerns on SIL issue PM10 will be used.

² The NO₂ 1-hr value is the 98th percentile averaged over three years rather than the maximum

³ The SO₂ annual standard is replaced by the more stringent SO₂ 1-hour standard

⁴ No primary standard exist for SO₂ 3-hour standard. Value used is for the secondary standard

6.2.3 Land Characteristics

Land characteristics are used in the AERMOD modeling system in three ways:

- via elevation within AERMOD to assess plume interaction with the ground;
- via a choice of rural versus urban algorithm within AERMOD; and

- via specific values of AERMET parameters that affect turbulence and dispersion. This aspect will be discussed in more detail in Section 5.4.3, Meteorological Inputs.

6.2.3.1 Elevation

Terrain elevations from United States Geological Survey (USGS) National Elevation Dataset (NED) data were used at a horizontal resolution of 30 meters, for receptor heights in AERMOD, which uses them to assess plume distance from the ground for each receptor. All coordinates were referenced to UTM North American Datum 1983 (NAD83). The AERMOD, receptor elevations were interpolated among the NED nodes according to standard AERMAP procedure.

Table 6-6. Prioritization Summary

Unit ID	Unit Description	Location			Elevation (m)
		UTM Zone	UTMN (m)	UTME (m)	
1-0	157 BHP DICE	11	266323.320	3913791.574	198.54
2-0	157 BHP DICE	11	266323.320	3913791.574	198.54
3-0	256 BHP DICE	11	266323.320	3913791.574	198.54

6.2.3.2 Urban/Rural Classification

The classification of a site as urban or rural can be based on the Auer method specified in the EPA document Guideline on Air Quality Models (40 CFR Part 51, Appendix W). From the Auer's method, areas typically defined as Rural include:

- Residences with grass lawns and trees
- Large estates
- Metropolitan parks and golf courses
- Agricultural areas
- Undeveloped land
- Water surfaces

Auer defines an area as Urban if it has less than 35% vegetation coverage or the area falls into one of the following use types:

Table 6-7. Land Use in Urban Classifications

Type	Use and Structures	Vegetation
I1	Heavy industrial	Less than 5%
I2	Light/moderate industrial	Less than 5%
C1	Commercial	Less than 15%
R2	Dense single / multi-family	Less than 30%
R3	Multi-family, two-story	Less than 35%

To determine if an area should be classified as urban or rural, evaluate land use within a 3 km radius from the center of the emissions source. If land use types I1, I2, C1, R2, and R3 account for 50 % or more of the area within 3 km, then the area is classified as Urban, otherwise the area is classified as Rural. For this project, it was determined that the source's land use classification is rural.

6.2.4 Meteorological Inputs

6.2.4.1 Surface Data

AERMOD requires representative meteorological data in order to accurately simulate air quality impacts. In order to select a meteorological site, the District did a qualitative comparison of the following factors from EPA's *Meteorological Monitoring Guidance for Regulatory Modeling Applications* (Document EPA-454/R-99-005) recommended for consideration for siting:

- Proximity.
- Height of measurement.
- Aspects of the site's surface that affect turbulence and dispersion.

Table 5-6 provides the characteristics of the meteorological sites that are in close proximity to the project area, the type of data collected at each site, the met data processing parameters, and identifies the site selected.

Table 6-8. Surface Met Sites Near the Project Site

Site Criteria	Surface Met Sites			
	Bakersfield	Arvin	Missouri Triangle	Wasco
Distance from Project (km)	45.95	65.75	13.45	29.05
Elevation	149	267	268	77
Direction from Project	SE	SE	NW	NE
Urban/Rural	Urban	Rural	Rural	Rural
Land Use	Commercial	Ag Land	Commercial	Commercial
Met Type	ASOS/ NOAA	MM5	MM5	MM5
Station ID	23155	--	--	--
Data Type				
Years Available	2005-2013	2007-2011	2004-2008	2007-2011
U* Adjustment Applied	Yes	Yes	Yes	Yes
Site Selected			X	

Met data was processed per the District's meteorological data processing guidance (http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#modeling_guidance).

The District believes that the chosen surface meteorological data is the most representative for the proposed project analysis for the following reasons:

- The project site and the meteorological site are in close proximity to each other.
- Both locations are in the Western Oils Fields of Kern County and are at approximately the same elevation.
- There are no significant terrain features separating the surface meteorological site from the project site that would cause significant differences in wind or temperature conditions between these respective areas.



Figure 6-1 Missouri Triangle

6.2.4.2 Upper Air Data

The District selected upper air data from Oakland, California. This upper air site is the most representative upper air site available that had acceptable data completeness. No other upper air meteorological monitoring stations are located in the San Joaquin Valley Air Basin.

Table 6-9. Upper Air Met Sites Near the Project Site

Site Criteria	Oakland
Distance from Project (km)	13.45
Elevation	268
Direction from Project	NW
Station ID	--
Data Type	
Years Available	2004-2008
Site Selected	X

6.2.5 Receptors Grid

Receptors in the model are geographic locations at which the model estimates concentrations. Receptors were placed such that they have good area coverage and so that the maximum model concentrations can be found. At greater

distances from the emissions source, spacing between receptors may be greater since concentrations vary less with increasing distance. The spatial extent of the receptors is limited by the applicable range of the model (roughly 50 km for AERMOD), and possibly by knowledge of the distance at which impacts fall to negligible levels. Receptors need be placed only in ambient air, that is, locations to which the public has access, and that are not inside the project boundary.

The District used a Cartesian coordinate receptor grid to provide adequate spatial coverage surrounding the project area, to identify the extent of significant impacts, and to identify the maximum impact location. In the analyses, the District placed receptors using the following telescoping grid out to 10 km:

- 25-meter spacing along the property line and extending from the property line out 100 meters;
- 50-meter spacing from 100 to 300 meters beyond the property line;
- 100-meter spacing from 300 to 700 meters beyond the property line;
- 250-meter spacing from 700 meters to 1.5 kilometer beyond the property line;

6.2.6 Source Parameters

Modeling was performed using the source parameters in the tables below to conservatively estimate the project's impacts.

Table 6-10. Point Source Parameters

Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)
1-0*	157 BHP DICE	2.185	884	53	0.076
2-0*	157 BHP DICE	2.185	884	53	0.076
3-0*	256 BHP DICE	2.362	884	53	0.076

* Stack parameter are based on District default parameters

6.2.6.1 Good Engineering Practice (GEP) Analysis

The District performed a Good Engineering Practice (GEP) stack height analysis, to ensure that:

- downwash is properly considered in the modeling, and
- stack heights used as inputs to the modeling are no greater than GEP height, so as to disallow artificial dispersion from the use of overly tall stacks.

The GEP analysis was performed with EPA's BPIP Prime (Building Profile Input Program) software, which uses building dimensions and stack heights as inputs.

There were not any stacks present that exceeded GEP stack height of 65 meters. Therefore, actual stack heights were used to model emissions.

6.2.7 Level 1 AAQA

Assessment begins with the Level 1 approach, and only proceeds to the next level if necessary. In a Level 1 AAQA analysis, for each averaging period, the maximum modeled concentration for each source and receptor combination is summed to produce a worst-case concentration. The sum of the maximum modeled concentration and maximum monitor value is compared to the AAQS to determine whether or not an exceedance would be expected to occur. If an exceedance does occur, the maximum modeled concentrations are compared to their SILs to determine whether they exceed their *de minimus* value. If emissions of a pollutant are expected to cause an exceedance of both the standard and SIL, a more refined approach is required.

6.2.7.1 NO₂ Modeling

While the new 1-hour NO₂ NAAQS is defined relative to ambient concentrations of NO₂, the majority of NO_x emissions from stationary sources are in the form of nitric oxide (NO) rather than NO₂. Appendix W notes that the impact of an individual source on ambient NO₂ depends in part "on the chemical environment into which the source's plume is to be emitted" (see Appendix W, Section 5.1.j). Because of the role NO_x chemistry plays in determining ambient impact levels of NO₂ based on modeled NO_x emissions, Section 5.2.4 of Appendix W recommends a three-tiered screening approach for NO₂ modeling. Later guidance documents issued by EPA expand on this approach. In a Level 1 AAQA it is assumed that there is a full conversion of NO to NO₂. A summary of the Level 1 AAQA results are provided in the following table:

Table 6-11 Level 1 AAQA Results

AAQS Pollutant & Averaging Time	Modeled Impacts (µg/m³)	Back-ground (µg/m³)	Total (µg/m³)	AAQS (µg/m³)		Significant Impact Level (SIL, µg/m³)	Project Impact Significant?	
				National	State		AAQS	SIL
CO, 1-hour	190	4,078	4,268	23,000	40,000	2000	No	No
CO, 8-hour	294	2,563	2,692	10,000	10,000	500	No	No
NO ₂ , 1-hour (CAAQS)	127.19	89.91	217.1	---	339		No	No
NO ₂ , 1-hour (NAAQS)	127.19	89.91	217.1	188	---	7.5	Yes	Yes
NO ₂ , annual (CAAQS)	1.72	13.39	15.11	---	57	1	No	No
NO ₂ , annual (NAAQS)	1.72	13.39	15.11	100	---	1	No	No
SO ₂ , 1-hour	0.25	23.98	24.23	196	655	7.8	No	No
SO ₂ , 3-hour	0.2	23.98	24.18	1,300	---	25	No	No
SO ₂ , 24-hour	0.121	5.33	5.451	365	105	5	No	No
SO ₂ , Annual	0.0	23.98	23.98	80	--	--	No	No
PM ₁₀ , 24-hour	0.3	256	256.3	50	150	5	Yes	No
PM ₁₀ , annual	0.01	65	65.01	20	---	1.0	Yes	No
PM _{2.5} , 24-hour	--	--	--	35	---	1.2 ¹	--	--
PM _{2.5} , annual	--	--	--	15	15	0.3	--	--

As noted in the table above, the project's NO₂ emissions are expected to cause an exceedance of the 1-hour NAAQS and SIL. Therefore, a more refined Level 2 Analysis was required for this pollutant.

6.2.7.2 Level 2 NO₂ Modeling

No Level 2 NO₂ modeling was performed for this project. It was determined that the units were transportable and could operate at any location within the stationary source. Therefore a Level 3 or Option 11 was determined to be the appropriate choice.

Table 6-12. Options for Combining NO₂ Modeled Concentrations and Monitor Values

Option	Modeled Concentration	Monitor Value
1	Maximum (Significant Impact Level)	--
2	Maximum	Maximum
3	Maximum	98 th percentile
4	8 th highest	Maximum
5	8 th highest	98 th percentile
6*	5 year average of the 98 th percentile	Maximum
7*	5 year average of the 98 th percentile	98 th percentile

8*	5 year average of the 98 th percentile	Monthly hour-of-day (1 st highest)
9*	5 year average of the 98 th percentile	Seasonal hour-of-day (3 rd highest)
10*	5 year average of the 98 th percentile	Annual hour-of-day (8 th highest)
11**	Paired-sum (5 year average of the 98 th percentile)	

*EPA recommended option.

**May use with the approval of the reviewing agency.

6.2.8 Level 3 AAQA (NO₂ only)

The Level 3 analysis differs from the Level 2 analysis only in the approach used to combine the modeled 1-hour NO₂ concentrations and monitored values as described below.

6.2.8.1 Combining Modeled and Monitored Values

Options for combining 1-hour NO₂ modeled concentrations and monitor values were discussed previously in Section 6.2.7. For evaluation the 1-hour NO₂ impacts for a Level 3 AAQA, Option 11 is used. This option is the "paired-sum" (5 year average of the 98th percentile) approach. This is the merging of the modeled concentration with the monitored values paired together by month, day, and hour. The sum of the paired values are then processed to determine the X years average of 98th percentile of the annual distribution of daily maximum 1-hour concentrations across all receptors, where X is the number of years modeled.

6.2.8.2 Level 3 AAQA Results

The results of the refined Level 3 AAQA are shown in the following table.

Table 6-13 Level 3 AAQA Results

AAQS Pollutant & Averaging Time	Modeled Impacts (µg/m ³)	Back-ground (µg/m ³)	Total (µg/m ³)	AAQS (µg/m ³)		Significant Impact Level (SIL, µg/m ³)	Project Impact Significant?	
				National	State		AAQS	SIL
NO ₂ , 1-hour (NAAQS)	145	(Paired)	145	188	---	7.5	No	No

As noted in the table above, all pollutants are below the State and Federal AAQS and/or the SIL thresholds.

7. Report Summary

7.1 District Rule 2201 - New Source Review (NSR)

Section 4.14 of District Rule 2201 requires that an Ambient Air Quality Analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of a State or National ambient Air Quality Standard (AAQS). An AAQA is required to be performed for all New Source Review (NSR) public notice projects. As previously discussed in the evaluation above, this project requires that a public notice be performed before issuance of the Determination of Compliance. Therefore, the District has reviewed the AAQA for this project.

As presented in Section 0 of this document, the proposed project will not cause or contribute significantly to a violation of the State and National Ambient Air Quality Standard (AAQS) for NO_x, CO, PM₁₀, and SO_x. No further discussion is required.

7.2 Rule 4102 – Nuisance (RMR)

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of this operation provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions or a change in mode or time of operation associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. RMR results are summarized in the table below.

Table 7-1 RMR Results

Unit ID	Unit Description	Cancer Risk	Hazard Index		T-BACT Required
			Chronic	Acute	
1-0	157 BHP DICE	3.02×10^{-9}	0.00	0.00	No
2-0	157 BHP DICE	3.02×10^{-9}	0.00	0.00	No
3-0	256 BHP DICE	1.10×10^{-8}	0.00	0.00	No
	Project Total	1.70×10^{-8}	0.00	0.00	
	Facility Total	1.70×10^{-8}	0.00	0.00	

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. In accordance with the

District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 1-0, 2-0, 3-0

- No special conditions are required.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

8. Appendices

- A. Modeling request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score
- E. Facility summary
- F. PSD summary

Attachment VII
DRAFT ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-8530-1-0

LEGAL OWNER OR OPERATOR: CHEVRON USA, INC. (CUSA)
MAILING ADDRESS: P.O. BOX 1392
BAKERSFIELD, CA 93302

LOCATION: DRILLING FLUIDS MANAGEMENT FACILITY
NW SEC1 T30S R22E
CYMRIC OILFIELD, CA

SECTION: 1 TOWNSHIP: 30S RANGE: 21E

EQUIPMENT DESCRIPTION:

157 BHP CUMMINS MODEL QSB5-G9 INTERIM TIER IV CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Operation of IC engine shall not exceed 7600 hr/yr. [District Rule 2201]
5. This nonroad transportable engine shall not be operated at one location for more than 12 consecutive months and shall meet all the requirements of a nonroad transportable engine, per CFR Title 40 Part 89. [CCR, Title 17 and District Rule 4701]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO-approved alternative. [District Rules 2201 and 4702]
7. Permittee shall properly operate and maintain engine and monitor the operational characteristics of the engine as recommended by the engine manufacturer. [District Rule 4702]
8. Emission rates from this unit shall not exceed any of the following limits: NOx (as NO2) 2.5 g/hp-hr; VOC (as methane) 0.14 g/hp-hr; CO 3.7 g/hp-hr; or SOx (as SO2) 0.0051 g/hp-hr. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

S-8530-1-0: Oct 1 2014 2:55PM - EDG:HLR : Joint Inspection NOT Required

9. The PM10 emissions rate from the engine shall not exceed 0.01 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]
10. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801]
11. The operator shall maintain records of the cumulative hours of operation. These records shall be updated at least monthly. [District Rules 2201 and 4702]
12. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-8530-2-0

LEGAL OWNER OR OPERATOR: CHEVRON USA, INC. (CUSA)
MAILING ADDRESS: P.O. BOX 1392
BAKERSFIELD, CA 93302

LOCATION: DRILLING FLUIDS MANAGEMENT FACILITY
NW SEC1 T30S R22E
CYMRIC OILFIELD, CA

SECTION: 1 TOWNSHIP: 30S RANGE: 21E

EQUIPMENT DESCRIPTION:

157 BHP CUMMINS MODEL QSB5-G9 INTERIM TIER IV CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

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2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
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Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

S-8530-2-0: Oct 1 2014 2:55PM - EDGEMILR : Joint Inspection NOT Required

9. The PM10 emissions rate from the engine shall not exceed 0.01 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102]
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12. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-8530-3-0

LEGAL OWNER OR OPERATOR: CHEVRON USA, INC. (CUSA)

MAILING ADDRESS: P.O. BOX 1392
BAKERSFIELD, CA 93302

LOCATION: DRILLING FLUIDS MANAGEMENT FACILITY
NW SEC1 T30S R22E
CYMRIC OILFIELD, CA

SECTION: 1 TOWNSHIP: 30S RANGE: 21E

EQUIPMENT DESCRIPTION:

256 BHP CUMMINS MODEL QSB7-G7 INTERIM TIER IV CERTIFIED DIESEL-FIRED IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
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Seyed Sadredin, Executive Director, APCO

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Arnaud Marjolle, Director of Permit Services

S-8530-3-0 : Oct 1 2014 2:33PM - EDGEHLR : Joint Inspection NOT Required

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