

November 16, 2021

Trey Steinhart  
Reclamation District 2030  
1440 Arundel Ct  
Lodi, CA 95242

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: N-9736**  
**Project Number: N-1193614**

Dear Mr. Steinhart:

Enclosed for your review and comment is the District's analysis of Reclamation District 2030's application for Authority to Construct (ATC) permits for four diesel-fired emergency IC engines powering flood water pumps at canal dewatering stations, at 111 N Zuckerman Road in Stockton, CA.

The notice of preliminary decision for this project has been posted on the District's website ([www.valleyair.org](http://www.valleyair.org)). After addressing all comments made during the 30-day public notice period, the District intends to issue the ATCs. 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. Sajjad Ahmad of Permit Services at (559) 230-5903.

Sincerely,



Brian Clements  
Director of Permit Services

BC:sa

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

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# San Joaquin Valley Air Pollution Control District Authority to Construct Application Review

## Diesel-Fired Emergency IC Engines Powering Floodwater Pumps

Facility Name: Reclamation District 2030  
Mailing Address: 3520 Brookside Rd  
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Application #s: N-9736-1-0, '-3-0, '-4-0, and '-5-0  
Project #: N-1193614  
Deemed Complete: March 1, 2021

Date: November 16, 2021  
Engineer: Sajjad Ahmad  
Lead Engineer: Jerry Sandhu

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### I. Proposal

Reclamation District 2030 (the facility) has requested Authority to Construct (ATC) permits for four diesel-fired emergency internal combustion (IC) engines powering canal dewatering pumps to prevent flood as described below:

ATC N-9736-1-0: Transportable 660 bhp (intermittent) Caterpillar Model 3406 Tier 1 certified diesel-fired emergency IC engine powering a floodwater pump (location ID# CP 8)

ATC N-9736-3-0: Transportable 692 bhp (intermittent) Caterpillar Model 3456 Tier 1 certified diesel-fired emergency IC engine powering a floodwater pump (location ID# CP 20)

ATC N-9736-4-0: Transportable 599 bhp (intermittent) Caterpillar Model 3406 Tier 1 certified diesel-fired emergency standby IC engine powering a floodwater pump (location ID# CP 23)

ATC N-9736-5-0: 280 bhp (intermittent) Cummins Model QSL 9 Tier 2 certified diesel-fired emergency IC engine powering a floodwater pump (location ID# CP 23)

The IC engines under ATCs '-1-0, '-3-0, and '-4-0 will be identified as transportable on the permits, because they operate at pump station locations and could also be brought to the maintenance facility for testing and maintenance purposes. However, since these engines could be at the pump station for more than 12 months, they will be evaluated as stationary IC engines.

The IC engines were installed without getting District permits first; therefore, the District's Compliance Department issued Notices of Violation (NOVs) to the facility as summarized in the following table:

ATC	Engine	Install Date	Model Year	NOV #
N-9736-1-0	660 bhp Caterpillar Model 3406	2002	2000	5022184
N-9736-3-0	692 bhp Caterpillar Model 3456	2002	2001	5022185
N-9736-4-0	599 bhp Caterpillar Model 3406	2002	2000	5022186
N-9736-5-0	280 bhp Cummins Model QSL 9	01/09/2006	2004	5022200

This ATC application is submitted as a result of the NOV's and the IC engines are considered new emission units for the purpose of this evaluation.

The draft ATCs are included in Appendix A.

## II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4701	Internal Combustion Engines - Phase 1 (8/21/03)
Rule 4702	Internal Combustion Engines (8/19/21)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
 California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

## III. Project Location

The facility is located at 111 N Zuckerman Road in Stockton, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

## IV. Process Description

The emergency IC engines power floodwater pumps at the canal dewatering stations, located on McDonald Island, to save PG&E's underground natural gas storage site, crop lands, and housing from flooding during the power outages.

## McDonald Island and Reclamation District 2030

McDonald Island is an island in the Sacramento-San Joaquin River Delta, about 33 miles south of Sacramento. The 5,900-acre island is bound on the north by San Joaquin River, on the west by Middle River and Latham Slough, and on the south by Empire Cut (see facility layout and engine locations in Appendix B). The island is in San Joaquin County and managed by Reclamation District 2030. Reclamation District 2030 is an independent jurisdiction with responsibility for the operation and maintenance of the levee system within its jurisdictional boundaries.

Reclamation districts are a form of special-purpose districts in the United States, which are responsible for reclaiming and/or maintaining land that is threatened by permanent or temporary flooding for agricultural, residential, commercial, or industrial use. The land is reclaimed by removing and/or preventing water from returning via systems of levees, dikes, drainage ditches, and pumps.

### **V. Equipment Listing**

N-9736-1-0: TRANSPORTABLE 660 BHP (INTERMITTENT) CATERPILLAR MODEL 3406 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 8)

N-9736-3-0: TRANSPORTABLE 692 BHP (INTERMITTENT) CATERPILLAR MODEL 3456 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 20)

N-9736-4-0: TRANSPORTABLE 599 BHP (INTERMITTENT) CATERPILLAR MODEL 3406 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 23)

N-9736-5-0: 280 BHP CUMMINS MODEL QSL 9 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 23)

### **VI. Emission Control Technology Evaluation**

The project involves three Tier 1 certified diesel-fired IC engines (ATCs '-1-0, '-3-0, and '-4-0) and one Tier 2 certified diesel-fired IC engine (ATC '-5-0). All IC engines are fired on very low-sulfur diesel fuel.

As discussed in Appendix E of this evaluation, the IC engines meet the Best Available Control Technology (BACT) requirements of District Rule 2201 at the time of installation. In addition, the engines meet the latest ARB/EPA emissions standards at the time of installation for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix C for copies of ARB executive orders).

Each engine is equipped with Positive Crankcase Ventilation (PCV) system, which reduces crankcase VOC and PM<sub>10</sub> emissions by at least 90% over an uncontrolled crankcase vent.

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO<sub>x</sub> emissions by over 99% from standard diesel fuel.

## VII. General Calculations

### A. Assumptions

To streamline emission calculations, PM<sub>2.5</sub> emissions are assumed to be equal to PM<sub>10</sub> emissions. Only if needed to determine if a project is a Federal major modification for PM<sub>2.5</sub> will specific PM<sub>2.5</sub> emission calculations be performed.

- All calculations and physical constants used are corrected to Standard Conditions as defined in District Rule 1020, Section 3.47 (60 °F and 14.7 lb/in<sup>2</sup>).
- The potential to emit for SO<sub>x</sub> will be based on the use of ultra-low sulfur diesel (0.0015% fuel S by weight).
- Emergency operating schedule: 24 hours/day (worst case)
- Non-emergency operating schedule:

District Rule 4702, Section 4.3.1 specifies a non-emergency operating limit of 100 hours per year for each emergency IC engine associated with this project. However, Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines, has the following more stringent non-emergency operation requirements based on the diesel PM emission rate and whether the engine is considered new or in-use for ATCM purpose (see ATCM discussion in Section VIII of this evaluation):

ATC	IC Engine	Non-emergency operating schedule
N-9736-1-0	660 bhp Caterpillar Model 3406	30 hours/year
N-9736-3-0	692 bhp Caterpillar Model 3456	50 hours/year
N-9736-4-0	599 bhp Caterpillar Model 3406	30 hours/year
N-9736-5-0	280 bhp Cummins Model QSL 9	50 hours/year

- Density of diesel fuel: 7.1 lb/gal
- EPA F-factor (adjusted to 60 °F): 9,051 dscf/MMBtu
- Diesel fuel heating value: 137,000 Btu/gal
- BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr
- Thermal efficiency of each engine: commonly ≈ 35%
- PM<sub>10</sub> fraction of diesel exhaust: 0.96 (CARB, 1988)
- Conversion factor: 1.34 bhp/kw

**B. Emission Factors**

For each diesel-fired IC engine, the emissions factors for NOx, CO, VOC, and PM<sub>10</sub> will be based on the CARB executive orders. The SOx emission factor will be calculated using the mass balance equation below based on the sulfur content in the diesel fuel (0.0015% sulfur):

$$\frac{0.000015 \text{ lb} \cdot \text{S}}{\text{lb} \cdot \text{fuel}} \times \frac{7.1 \text{ lb} \cdot \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} \cdot \text{SO}_2}{1 \text{ lb} \cdot \text{S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ hp input}}{0.35 \text{ hp out}} \times \frac{2,542.5 \text{ Btu}}{\text{hp} \cdot \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} \cdot \text{SO}_x}{\text{hp} \cdot \text{hr}}$$

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

Diesel-fired IC Engine Emission Factors		
Pollutant	g/bhp-hr	Source
NOx	6.6	CARB Executive Order U-R-1-118 Engine Family YCPXL14.6MRJ (see Appendix C)
SOx	0.0051	Based on Mass Balance Above
PM <sub>10</sub>	0.3	CARB Executive Order U-R-1-118 Engine Family YCPXL14.6MRJ (see Appendix C)
CO	2.7	
VOC	0.1	

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

Diesel-fired IC Engine Emission Factors			
Pollutant	g/kw-hr	g/bhp-hr	Source
NOx	5.6	4.2	CARB Executive Order U-R-1-167 Engine Family 1CPXL15.8ESK (see Appendix C)
SOx	--	0.0051	Based on Mass Balance Above
PM <sub>10</sub>	0.09	0.07	CARB Executive Order U-R-1-167 Engine Family 1CPXL15.8ESK (see Appendix C)
CO	0.7	0.5	
VOC	0.1	0.07	

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

Diesel-fired IC Engine Emission Factors		
Pollutant	g/bhp-hr	Source
NOx	6.6	CARB Executive Order U-R-1-118 Engine Family YCPXL14.6MRJ (see Appendix C)
SOx	0.0051	Based on Mass Balance Above
PM <sub>10</sub>	0.3	CARB Executive Order U-R-1-118 Engine Family YCPXL14.6MRJ (see Appendix C)
CO	2.7	
VOC	0.1	

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

Based on CARB Executive Order U-R-002-0247 for engine family 4CEXL0540AAA (see Appendix C), the engine has certified NOx + VOC emissions of 5.7 g/kw-hr (equivalent to 4.3 b/bhp-hr). It is assumed that NOx + VOC emission factor is split 95% NOx (4.1 b/bhp-hr) and 5% VOC (0.2 b/bhp-hr) per the Carl Moyer program. Thus:

Diesel-fired IC Engine Emission Factors			
Pollutant	g/kw-hr	g/bhp-hr	Source
NOx	5.7 (NOx + VOC)	4.1	CARB Executive Order U-R-002-0247 Engine Family 4CEXL0540AAA (see Appendix C)
SOx	--	0.0051	Based on Mass Balance Above
PM <sub>10</sub>	0.14	0.1	CARB Executive Order U-R-002-0247 Engine Family 4CEXL0540AAA (see Appendix C)
CO	1.7	1.3	
VOC	--	0.2	

**C. Calculations**

**1. Pre-Project Potential to Emit (PE1)**

The proposed IC engines are considered new emission units; therefore, PE1 = 0 for all pollutants for each IC engine.

**2. Post-Project Potential to Emit (PE2)**

The daily and annual PE2 for each IC engine are calculated using the equations below and summarized in the following tables:

$$\text{Daily PE2 (lb-pollutant/day)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/day)} / 453.6 \text{ g/lb}$$

$$\text{Annual PE2 (lb-pollutant/yr)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/yr)} / 453.6 \text{ g/lb}$$

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

Post Project Emissions (PE2)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Operation (hrs/day)	Annual Operation (hrs/year)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NOx	6.6	660	24	30	230.5	288
SOx	0.0051	660	24	30	0.2	0
PM <sub>10</sub>	0.3	660	24	30	10.5	13
CO	2.7	660	24	30	94.3	118
VOC	0.1	660	24	30	3.5	4

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

<b>Post Project Emissions (PE2)</b>						
<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Operation (hrs/day)</b>	<b>Annual Operation (hrs/year)</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>
NOx	4.2	692	24	50	<b>153.8</b>	<b>320</b>
SOx	0.0051	692	24	50	<b>0.2</b>	<b>0</b>
PM <sub>10</sub>	0.07	692	24	50	<b>2.6</b>	<b>5</b>
CO	0.5	692	24	50	<b>18.3</b>	<b>38</b>
VOC	0.07	692	24	50	<b>2.6</b>	<b>5</b>

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

<b>Post Project Emissions (PE2)</b>						
<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Operation (hrs/day)</b>	<b>Annual Operation (hrs/year)</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>
NOx	6.6	599	24	30	<b>209.2</b>	<b>261</b>
SOx	0.0051	599	24	30	<b>0.2</b>	<b>0</b>
PM <sub>10</sub>	0.3	599	24	30	<b>9.5</b>	<b>12</b>
CO	2.7	599	24	30	<b>85.6</b>	<b>107</b>
VOC	0.1	599	24	30	<b>3.2</b>	<b>4</b>

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

<b>Post Project Emissions (PE2)</b>						
<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Operation (hrs/day)</b>	<b>Annual Operation (hrs/year)</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>
NOx	4.1	280	24	50	<b>60.7</b>	<b>127</b>
SOx	0.0051	280	24	50	<b>0.1</b>	<b>0</b>
PM <sub>10</sub>	0.1	280	24	50	<b>1.5</b>	<b>3</b>
CO	1.3	280	24	50	<b>19.3</b>	<b>40</b>
VOC	0.2	280	24	50	<b>3.0</b>	<b>6</b>

**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.

ATC N-9736-6-0 was recently issued to the facility under project N-1210977 to install a 335 bhp Tier 4 F certified diesel-fired emergency IC engine powering a floodwater pump. It will be assumed that ATC '6-0 is implemented, so SSPE1 is based on emission calculations performed in project N-1210977 as below:



SSPE1 (lb/year)					
Permit Unit	NOx	SOx	PM <sub>10</sub>	CO	VOC
ATC N-9736-6-0	10	0	1	5	3
<b>SSPE1</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>3</b>

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)					
Permit Unit	NOx	SOx	PM <sub>10</sub>	CO	VOC
ATC N-9736-1-0	288	0	13	118	4
ATC N-9736-3-0	320	0	5	38	5
ATC N-9736-4-0	261	0	12	107	4
ATC N-9736-5-0	127	0	3	40	6
ATC N-9736-6-0	10	0	1	5	3
<b>SSPE2</b>	<b>1,006</b>	<b>0</b>	<b>34</b>	<b>308</b>	<b>22</b>

#### 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), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

<b>Rule 2201 Major Source Determination (lb/year)</b>						
	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>CO</b>	<b>VOC</b>
SSPE1	10	0	1	1	5	3
SSPE2	1,006	0	34	34	308	22
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

Note: PM<sub>2.5</sub> assumed to be equal to PM<sub>10</sub>

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.

<b>PSD Major Source Determination (tons/year)</b>						
	<b>NO<sub>2</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>CO</b>	<b>PM</b>	<b>PM<sub>10</sub></b>
Estimated Facility PE before Project Increase*	0.005	0.002	0	0.003	0.001	0.001
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	No	No	No	No	No	No

\*Calculated by dividing SSPE1 by 2,000 lb/ton.

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

**6. Baseline Emissions (BE)**

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 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 District Rule 2201.

Since all the IC engines associated with this project are considered new emissions units for the purpose of this evaluation, BE = PE1 = 0 for all pollutants.

## **7. SB 288 Major Modification**

40 CFR Part 51.165 defines a SB 288 Major Modification as any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.

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 and no further discussion is required.

## **8. Federal Major Modification / New Major Source**

### **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.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification and no further discussion is required.

### **New Major Source**

As demonstrated above, this facility is not becoming a Major Source as a result of this project, therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

## **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)

- NO<sub>2</sub> (as a primary pollutant)
- SO<sub>2</sub> (as a primary pollutant)
- CO
- PM
- PM<sub>10</sub>

**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.

<b>PSD Major Source Determination: Potential to Emit (tons/year)</b>						
	<b>NO<sub>2</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>CO</b>	<b>PM</b>	<b>PM<sub>10</sub></b>
Total PE from New and Modified Units	0.5	0.01	0.00	0.15	0.02	0.02
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	No	No	No	No	No	No

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. Detailed QNEC calculations are included in Appendix G.

## VIII. Compliance Determination

### Rule 2201 New and Modified Stationary Source Review Rule

#### A. Best Available Control Technology (BACT)

##### 1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, 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<sup>1</sup>:

- 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 Adjusted Increase in Permitted Emissions (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.

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

As discussed in Section I, the project involves new emergency IC engines. Additionally, as determined in Sections VII.C.7 and VII.C.8, this project does not result in an SB288 Major Modification or a Federal Major Modification, respectively. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.

The daily emissions from each new IC engine are compared to the BACT threshold levels in the following table:

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

New Emissions Unit BACT Applicability				
Pollutant	Daily PE2 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	230.5	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	10.5	> 2.0	n/a	Yes
CO	94.3	> 2.0 and SSPE2 ≥ 200,000 lb/yr	308	No
VOC	3.5	> 2.0	n/a	Yes

<sup>1</sup> 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.

As shown above, BACT is triggered for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions from this IC engine.

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily PE2 (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	153.8	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	2.6	> 2.0	n/a	Yes
CO	18.3	> 2.0 and SSPE2 ≥ 200,000 lb/yr	308	No
VOC	2.6	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions from this IC engine.

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily PE2 (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	209.2	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	9.5	> 2.0	n/a	Yes
CO	85.6	> 2.0 and SSPE2 ≥ 200,000 lb/yr	308	No
VOC	3.2	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions from this IC engine.

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>Daily PE2 (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	60.7	> 2.0	n/a	Yes
SO <sub>x</sub>	0.1	> 2.0	n/a	No
PM <sub>10</sub>	1.5	> 2.0	n/a	No
CO	19.3	> 2.0 and SSPE2 ≥ 200,000 lb/yr	308	No
VOC	3.0	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NOx and VOC emissions from this IC engine.

**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.

**d. SB 288/Federal Major Modification**

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. Therefore BACT is not triggered for any pollutant.

**2. BACT Guideline**

The following table summarizes the installation dates for the IC engines associated with this project along with the applicable District’s BACT Clearinghouse Guidelines at the time of installation for each IC engine (see Appendix D):

ATC	Engine	Install Date	BACT Guideline
N-9736-1-0	660 bhp Caterpillar Model 3406	2002	3.1.3 (see Appendix D) (Emergency Diesel IC Engines ≥ 400 bhp)
N-9736-3-0	692 bhp Caterpillar Model 3456	2002	
N-9736-4-0	599 bhp Caterpillar Model 3406	2002	
N-9736-5-0	280 bhp Cummins Model QSL 9	01/09/2006	3.1.2 (see Appendix D) (Emergency Diesel IC Engines ≥ 175 bhp and < 400 bhp)

In addition, current BACT Guideline 3.1.1 is also applicable to these IC engines (see Appendix D).

**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 (see Appendix E), BACT has been satisfied with the following:

- NOx: Certified NOx emissions of 6.9 g/bhp-hr or less
- PM<sub>10</sub>: PM<sub>10</sub> emissions of 0.1 g/bhp-hr or less (Note: If T-BACT is triggered – applicable to permit unit ‘-3-0 only)

- PM<sub>10</sub> emissions of 0.4 g/bhp-hr or less (Note: If T-BACT is not triggered – applicable to permit units ‘-1-0 and ‘-4-0)  
VOC: 0.14 g-VOC/bhp-hr (for units ‘-1-0, ‘-3-0, and ‘-4-0)  
Positive crankcase ventilation (for unit ‘-5-0 only)

Therefore, the following conditions will be listed on the ATCs to ensure compliance with BACT requirements:

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

The following conditions will ensure compliance with BACT requirements for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions:

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 6.6 g-NO<sub>x</sub>/bhp-hr, 2.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

The following conditions will ensure compliance with BACT requirements for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions:

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 4.2 g-NO<sub>x</sub>/bhp-hr, 0.5 g-CO/bhp-hr, or 0.07 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.07 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

The following conditions will ensure compliance with BACT requirements for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions:

- {edited 4471} Emissions from this IC engine shall not exceed any of the following limits: 6.6 g-NO<sub>x</sub>/bhp-hr, 2.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]



ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

The following conditions will ensure compliance with BACT requirements for NOx and VOC emissions:

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 4.1 g-NOx/bhp-hr, 1.3 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system which recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]

**B. Offsets**

**1. Offset Applicability**

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NOx	SOx	PM <sub>10</sub>	CO	VOC
SSPE2	1,006	0	34	308	22
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	No

**2. Quantity of District Offsets Required**

As shown in the table above, no offset thresholds are exceeded with this project. Further, since this project only involves emergency IC engines, the offset exemption from Section 4.6.2 of District Rule 2201 is applicable to this project. Therefore, offsets are not required for this project and District offset calculations are not necessary.

**C. Public Notification**

**1. Applicability**

Pursuant to District Rule 2201, Section 5.4, 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,
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
- e. Any project which results in a Title V significant permit modification

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

As shown in Section VII.C.5 above, this existing minor source facility is not becoming a Major Source as a result of this project. Therefore, this facility is not a New Major Source and this project does not constitute an SB 288 or a Federal Major Modification. Consequently, public noticing for this project for New Major Source, Federal Major Modification, or SB 288 Major Modification purposes is not required.

**b. PE > 100 lb/day**

The PE2 for each new IC engine is compared to the daily PE Public Notice thresholds in the following tables:

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
<b>Pollutant</b>	<b>PE2 (lb/day)</b>	<b>Public Notice Threshold</b>	<b>Public Notice Triggered?</b>
NOx	230.5	100 lb/day	Yes
SOx	0.2	100 lb/day	No
PM <sub>10</sub>	10.5	100 lb/day	No
CO	94.3	100 lb/day	No
VOC	3.5	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required for this IC engine.

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
<b>Pollutant</b>	<b>PE2 (lb/day)</b>	<b>Public Notice Threshold</b>	<b>Public Notice Triggered?</b>
NO <sub>x</sub>	153.8	100 lb/day	Yes
SO <sub>x</sub>	0.2	100 lb/day	No
PM <sub>10</sub>	2.6	100 lb/day	No
CO	18.3	100 lb/day	No
VOC	2.6	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required for this IC engine.

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
<b>Pollutant</b>	<b>PE2 (lb/day)</b>	<b>Public Notice Threshold</b>	<b>Public Notice Triggered?</b>
NO <sub>x</sub>	209.2	100 lb/day	Yes
SO <sub>x</sub>	0.2	100 lb/day	No
PM <sub>10</sub>	9.5	100 lb/day	No
CO	85.6	100 lb/day	No
VOC	3.2	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required for this IC engine.

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
<b>Pollutant</b>	<b>PE2 (lb/day)</b>	<b>Public Notice Threshold</b>	<b>Public Notice Triggered?</b>
NO <sub>x</sub>	60.7	100 lb/day	No
SO <sub>x</sub>	0.1	100 lb/day	No
PM <sub>10</sub>	1.5	100 lb/day	No
CO	19.3	100 lb/day	No
VOC	3.0	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is not required for this IC engine.

**c. Offset Threshold**

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NOx	10	1,006	20,000 lb/year	No
SOx	0	0	54,750 lb/year	No
PM <sub>10</sub>	1	34	29,200 lb/year	No
CO	5	308	200,000 lb/year	No
VOC	3	22	20,000 lb/year	No

As demonstrated 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?
NOx	1,006	10	996	20,000 lb/year	No
SOx	0	0	0	20,000 lb/year	No
PM <sub>10</sub>	34	1	33	20,000 lb/year	No
CO	308	5	303	20,000 lb/year	No
VOC	22	3	19	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required for this purpose.

**e. Title V Significant Permit Modification**

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

## 2. Public Notice Action

As discussed above, public noticing is required for this project for NO<sub>x</sub> emissions in excess of 100 lb/day for IC engines under ATCs '-1-0, '-3-0, and '-4-0. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website prior to the issuance of the ATCs for these IC engines.

### D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

For these IC engines, the DELs are stated in the form of emission factors (g/hp-hr), the maximum engine horsepower rating on the equipment description, and the maximum operational time of 24 hours per day.

#### **Proposed Rule 2201 (DEL) Conditions:**

The following conditions stating emission factors (g/bhp-hr) will be listed on ATCs to ensure compliance with DEL requirements:

##### ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 6.6 g-NO<sub>x</sub>/bhp-hr, 2.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

##### ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 4.2 g-NO<sub>x</sub>/bhp-hr, 0.5 g-CO/bhp-hr, or 0.07 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.07 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 6.6 g-NOx/bhp-hr, 2.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

- {edited 4771} Emissions from this IC engine shall not exceed any of the following limits: 4.1 g-NOx/bhp-hr, 1.3 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {edited 4772} Emissions from this IC engine shall not exceed 0.1 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

All ATCs:

DEL for SOx is established by the sulfur content of the fuel being combusted in the engines. Therefore, the following condition will be listed on the ATCs to ensure compliance:

- {4258} 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]

## **E. Compliance Assurance**

### **1. Source Testing**

Pursuant to District Policy APR 1705, source testing is not required for emergency standby IC engines to demonstrate compliance with District Rule 2201.

### **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. In addition, as required by District Rule 4702, *Internal Combustion Engines*, these IC engines are also subject to recordkeeping requirements of District Rule 4702. Therefore, recordkeeping requirements, in accordance with District Rules 2201 and 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

#### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

#### **F. Ambient Air Quality Analysis (AAQA)**

Section 4.14 of District Rule 2201 requires that an AAQA 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 Appendix F of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for the state's PM<sub>10</sub> as well as federal and state PM<sub>2.5</sub> thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM<sub>10</sub> and PM<sub>2.5</sub>.

#### **Rule 2410 Prevention of Significant Deterioration**

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

#### **Rule 2520 Federally Mandated Operating Permits**

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

#### **Rule 4001 New Source Performance Standards (NSPS)**

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

##### **40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

The District has not been delegated the authority to implement Subpart IIII requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

#### **Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)**

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63.

## **40 CFR 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Emissions (RICE)**

The District has not been delegated the authority to implement NESHAP regulations for Area Source requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

### **Rule 4101 Visible Emissions**

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). Therefore, the following condition will be listed on the ATCs to ensure compliance:

- {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]

### **Rule 4102 Nuisance**

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 these operations, provided the equipment is well maintained. Therefore, the following condition will be listed on the ATCs to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

### **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 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 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District's significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1. As outlined by the HRA Summary in Appendix F of this report, the emissions increases for this project was determined to be less than significant.

According to the Technical Services Memo for this project, the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.



The resulting prioritization score, acute hazard index, chronic hazard index, and cancer risk for this project are summarized in the following table:

Permit Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
N-9736-1-0	30	NA <sup>1</sup>	0.00	1.43E-08	No	Yes
N-9736-3-0	11.5	NA <sup>1</sup>	0.00	2.07E-06	Yes	Yes
N-9736-4-0	27.7	NA <sup>1</sup>	0.00	8.88E-08	No	Yes
N-9736-5-0	6.93	NA <sup>1</sup>	0.00	1.38E-08	No	Yes
<b>Project Totals</b>	>1	NA <sup>1</sup>	0.00	2.19E-06		
<b>Facility Totals</b>	>1	0.00	0.00	2.20E-06		

Notes:

1. Acute Hazard Index was not calculated for permit units -1, -3, -4, & -5 since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.
2. Permit units -3 and -4 have the ability to operation at two separate specified locations. Risks for these units reflect the worst case locations.

### Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million.

#### ATCs N-9736-1-0, '-4-0, and '-5-0 (T-BACT Not Triggered):

As demonstrated above, T-BACT is not required for IC engines under ATCs N-9736-1-0, '-4-0, and '-5-0, because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

#### ATCs N-9736-3-0 (T-BACT Triggered):

As demonstrated above, T-BACT is required for this engine because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this engine T-BACT is triggered for PM<sub>10</sub>. T-BACT is satisfied with BACT for PM<sub>10</sub>, as discussed in Appendix E), which is PM<sub>10</sub> emissions from this engine of 0.1 g/bhp-hr or less. The engine under ATC '-3-0 has a PM<sub>10</sub> emissions factor of 0.07 g/bhp-hr, as presented previously in Section VII.B. Therefore, compliance with the District's Risk Management Policy is expected.

In accordance with District policy APR 1905, no further analysis is required, and compliance with District Rule 4102 requirements is expected.

See Appendix F: Health Risk Assessment Summary

The following conditions will be listed on ATCs to ensure compliance with the assumptions made for the risk management review:

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

- {edited 4772} Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

- {edited 4772} Emissions from this IC engine shall not exceed 0.1 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

All ATCs:

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]

**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. Based on PM<sub>10</sub> emission factor from Section VII.B of this document, the exhaust grain loading (grain/dscf) for each engine is calculated below:

ATC N-9736-1-0 and -4-0: (660 bhp and 599 bhp Caterpillar Model 3406 IC Engines)

$$0.3 \quad \frac{g}{hp \cdot hr} \times \frac{1hp \cdot hr}{2,5425Btu} \times \frac{10^6 Btu}{9,051dscf} \times \frac{0.35Btu_{out}}{1Btu_{in}} \times \frac{15.43grain}{g} = 0.07 \quad \frac{grain}{dscf}$$

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

$$0.07 \quad \frac{g}{hp \cdot hr} \times \frac{1hp \cdot hr}{2,5425Btu} \times \frac{10^6 Btu}{9,051dscf} \times \frac{0.35Btu_{out}}{1Btu_{in}} \times \frac{15.43grain}{g} = 0.016 \quad \frac{grain}{dscf}$$

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

$$0.1 \quad \frac{g}{hp \cdot hr} \times \frac{1hp \cdot hr}{2,5425Btu} \times \frac{10^6 Btu}{9,051dscf} \times \frac{0.35Btu_{out}}{1Btu_{in}} \times \frac{15.43grain}{g} = 0.023 \quad \frac{grain}{dscf}$$

Since the exhaust grain loading for each engine is less than 0.1 grain/dscf, compliance with this rule is expected. Therefore, the following condition will be listed on ATCs to ensure compliance:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

**Rule 4701 Internal Combustion Engines - Phase 1**

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), 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 PTO.

The engines associated with this project are also subject to District Rule 4702, Internal Combustion Engines. Since emissions limits of District Rule 4702 and all other requirements are equivalent to or more stringent than District Rule 4701 requirements for emergency engines, compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

## **Rule 4702 Internal Combustion Engines**

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and sulfur oxides (SO<sub>x</sub>) from internal combustion engines.

This rule applies to any internal combustion engine rated at 25 brake horsepower or greater.

Pursuant to Section 4.3, except for the requirements of Section 6.2.3, the requirements of this rule shall not apply to an internal combustion engine that meets the following conditions:

- 1) The engine is operated exclusively to preserve or protect property, human life, or public health during a disaster or state of emergency, such as a fire or flood, and
- 2) Except for operations associated with Section 4.3.1.1, the engine is limited to operate no more than 100 hours per calendar year as determined by an operational nonresettable elapsed operating time meter, for periodic maintenance, periodic readiness testing, and readiness testing during and after repair work of the engine, and
- 3) The engine is operated with a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

Therefore, the emergency IC engines involved with this project will only have to meet the requirements of Section 6.2.3 of this Rule.

Section 6.2.3 requires that an owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and submitted to the APCO upon request and at the end of each calendar year in a manner and form approved by the APCO. Therefore, the following conditions will be listed on the ATCs to ensure compliance:

- {edited 3489} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

In addition, the following conditions will be listed on the ATC to ensure compliance:

- {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
- {edited 3807} An emergency situation is an unscheduled event caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]
- {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

Per Section 4.3 of Rule 4702, each engine associated with this project is limited to operate no more than 100 hours per calendar year as determined by an operational nonresettable elapsed operating time meter, for periodic maintenance, periodic readiness testing, and readiness testing during and after repair work of the engine. However, Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines, has more stringent non-emergency operation requirements based on the diesel PM emission rate and whether the engine is considered new or in-use for ATCM purpose (see ATCM discussion later in this evaluation). Therefore, the following conditions will be listed on the ATCs to ensure compliance with the non-emergency operational requirements of District Rule 4702 and ATCM:

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

- {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

- {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

- {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

- {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

**Rule 4801 Sulfur Compounds**

Rule 4801 requires that sulfur compound emissions (as SO<sub>2</sub>) 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 SO<sub>2</sub>

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

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

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

Since 1.0 ppmv is ≤ 2,000 ppmv, each of these engines is expected to comply with Rule 4801. Therefore, the following condition will be listed on the ATCs as a mechanism to ensure compliance:

- {4258} 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]

**California Health & Safety Code 42301.6 (School Notice)**

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

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

Fuel and Fuel Additive Requirements:

This regulation also stipulates that as of January 1, 2006 an owner or operator of a new or in-use stationary diesel-fueled CI emergency standby engine shall fuel the engine with CARB Diesel Fuel.

Therefore, the fuel requirements are applicable to each engine involved with this project. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATCs to ensure compliance:

- {4258} 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]

At-School and Near-School Provisions:

This regulation stipulates that no owner or operator shall operate a new stationary emergency diesel-fueled CI engine, with a PM<sub>10</sub> emissions factor > than 0.01 g/bhp-hr, for non-emergency use, including maintenance and testing, during the following periods:

1. Whenever there is a school sponsored activity, if the engine is located on school grounds, and
2. Between 7:30 a.m. and 3:30 p.m. on days when school is in session, if the engine is located within 500 feet of school grounds.

The District has verified that the engines are not located within 500 feet of a K-12 school. Therefore, conditions prohibiting non-emergency usage of the engine during school hours will not be placed on the permit.

Recordkeeping Requirements:

This regulation stipulates that as of January 1, 2005, each owner or operator of an emergency diesel-fueled CI engine shall keep a monthly log of usage that shall list and document the nature of use for each of the following:

- a. Emergency use hours of operation;
- b. Maintenance and testing hours of operation;
- c. Hours of operation for emission testing;
- d. Initial start-up hours; and
- e. If applicable, hours of operation to comply with the testing requirements of National Fire Protection Association (NFPA) 25 — “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,” 1998 edition;
- f. Hours of operation for all uses other than those specified in sections ‘a’ through ‘d’ above; and
- g. For in-use emergency diesel-fueled engines, the fuel used. The owner or operator shall document fuel use through the retention of fuel purchase records that account for all fuel used in the engine and all fuel purchased for use in the engine, and, at a minimum, contain the following information for each individual fuel purchase transaction:
  - I. Identification of the fuel purchased as either CARB Diesel, or an alternative diesel fuel that meets the requirements of the Verification Procedure, or an alternative fuel, or CARB Diesel fuel used with additives that meet the requirements of the Verification Procedure, or any combination of the above;
  - II. Amount of fuel purchased;

- III. Date when the fuel was purchased;
- IV. Signature of owner or operator or representative of owner or operator who received the fuel; and
- V. Signature of fuel provider indicating fuel was delivered.

The above stated recordkeeping requirements are applicable to each engine and the following conditions (previously proposed in this engineering evaluation) will be listed on the ATCs to ensure compliance:

- {edited 3489} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
- {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

#### PM Emissions and Hours of Operation Requirements for New Diesel Engines:

##### ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

As stated earlier, the engine under ATC '-5-0 is new (installed after January 1, 2005) for ATCM purposes. This regulation stipulates that as of January 1, 2005, no person shall operate any new stationary emergency diesel-fueled CI engine that has a rated brake horsepower greater than 50, unless it meets all of the following applicable emission standards and operating requirements.

1. Emits diesel PM at a rate greater than 0.01 g/bhp-hr or less than or equal to 0.15 g/bhp-hr; or
2. Meets the current model year diesel PM standard specified in the Off-Road Compression Ignition Engine Standards for off-road engines with the same maximum rated power (Title 13 CCR, Section 2423), whichever is more stringent; and
3. Does not operate more than 50 hours per year for maintenance and testing purposes. Engine operation is not limited during emergency use and during emissions source testing to show compliance with the ATCM.

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



- {edited 4772} Emissions from this IC engine shall not exceed 0.1 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

PM Emissions and Hours of Operation Requirements for Modified “In-Use” Diesel Engines:

ATCs N-9736-1-0, ‘-3-0, and ‘-4-0 (660 bhp, 692 bhp, and 599 bhp IC Engines, respectively)

Engines that have a signed purchase agreement prior to January 1, 2005 are considered to be “in-use” engines per the ATCM. Engines under ATCs ‘-1-0, ‘-3-0, and ‘-4-0 were installed in 2002, so these three engines are considered “in-use” engines for compliance with the ATCM.

This regulation stipulates that as of January 1, 2008, no person that owns three or fewer in-use engines shall operate any in-use stationary emergency diesel-fueled CI engine that has a rated brake horsepower greater than 50, is being physically modified, and that was manufactured from 1995 to current, unless it meets the following applicable emission standards and operating requirements.

ATC N-9736-1-0 and ‘-4-0: (660 bhp and 599 bhp Caterpillar Model 3406 IC Engines, respectively – PM10 EF 0.3 g/bhp-hr)

1. Emits diesel PM at a rate greater than 0.15 g/bhp-hr or less than or equal to 0.40 g/bhp-hr; and
2. Does not operate more than 21 to 30 hours per year for maintenance and testing purposes after January 1, 2008. Engine operation is not limited during emergency use and during emissions source testing to show compliance with the ATCM.

Therefore, the following conditions (previously proposed in this engineering evaluation) will be listed on the ATCs ‘-1-0 and ‘-4-0 to ensure compliance:

- {edited 4772} Emissions from this IC engine shall not exceed 0.3 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine (PM<sub>10</sub> EF 0.07 g/bhp-hr)

1. Emits diesel PM at a rate greater than 0.01 g/bhp-hr or less than or equal to 0.15 g/bhp-hr; and
2. Does not operate more than 31 to 50 hours per year for maintenance and testing purposes after January 1, 2008. Engine operation is not limited during emergency use and during emissions source testing to show compliance with the ATCM.

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

- {edited 4772} Emissions from this IC engine shall not exceed 0.07 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

In addition, ATCM requires that a non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. The following condition will be included on the permit:

- {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

### **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**

#### District is a Lead Agency & GHG emissions increases are from the combustion of fossil fuel other than jet fuels

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 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.

### **District CEQA Findings**

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing or former use. Furthermore, the District determined that the activity will not have a significant effect on the environment. Therefore, the District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (Existing Facilities), and finds that the project is exempt per the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

### **Indemnification Agreement/Letter of Credit Determination**

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

## **IX. Recommendation**

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATCs N-9736-1-0, '-3-0, '-4-0, and '-5-0 subject to the permit conditions on the attached draft ATCs in Appendix A.

**X. Billing Information**

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-9736-1-0	3020-10-D	660 bhp IC engine	\$577
N-9736-3-0	3020-10-D	692 bhp IC engine	\$577
N-9736-4-0	3020-10-D	599 bhp IC engine	\$577
N-9736-5-0	3020-10-C	280 bhp IC engine	\$290

**Appendixes**

- A: Draft ATCs
- B: Facility Maps and Engine Locations
- C: CARB Executive Orders
- D: BACT Guidelines
- E: BACT and T-BACT Analysis
- F: HRA and AAQA Summary
- G: Quarterly Net Emissions Change (QNEC)

# **APPENDIX A**

## **Draft ATCs**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-9736-1-0

**LEGAL OWNER OR OPERATOR:** RECLAMATION DISTRICT 2030

**MAILING ADDRESS:** 3520 BROOKSIDE RD STE 141  
STOCKTON, CA 95219

**LOCATION:** 111 N ZUCKERMAN RD  
STOCKTON, CA 95206

**EQUIPMENT DESCRIPTION:**

TRANSPORTABLE 660 BHP (INTERMITTENT) CATERPILLAR MODEL 3406 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 8)

**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. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} 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]
7. Emissions from this IC engine shall not exceed any of the following limits: 6.6 g-NOx/bhp-hr, 2.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.3 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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.

Samir Sheikh, Executive Director / APCCO

**Brian Clements, Director of Permit Services**

N-9736-1-0 : Nov 16 2021 2:59PM -- AHMADS : Joint Inspection NOT Required

9. An emergency situation is an unscheduled event caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
10. {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
11. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
12. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
13. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT



San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-9736-3-0

**LEGAL OWNER OR OPERATOR:** RECLAMATION DISTRICT 2030

**MAILING ADDRESS:** 3520 BROOKSIDE RD STE 141  
STOCKTON, CA 95219

**LOCATION:** 111 N ZUCKERMAN RD  
STOCKTON, CA 95206

**EQUIPMENT DESCRIPTION:**

TRANSPORTABLE 692 BHP (INTERMITTENT) CATERPILLAR MODEL 3456 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 20)

**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. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} 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]
7. Emissions from this IC engine shall not exceed any of the following limits: 4.2 g-NOx/bhp-hr, 0.5 g-CO/bhp-hr, or 0.07 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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.

Samir Sheikh, Executive Director / APCCO

**Brian Clements, Director of Permit Services**

N-9736-3-0 : Nov 16 2021 3:00PM -- AHMADS : Joint Inspection NOT Required

9. An emergency situation is an unscheduled event caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
10. {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
11. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
12. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
13. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-9736-4-0

**LEGAL OWNER OR OPERATOR:** RECLAMATION DISTRICT 2030

**MAILING ADDRESS:** 3520 BROOKSIDE RD STE 141  
STOCKTON, CA 95219

**LOCATION:** 111 N ZUCKERMAN RD  
STOCKTON, CA 95206

**EQUIPMENT DESCRIPTION:**

TRANSPORTABLE 599 BHP (INTERMITTENT) CATERPILLAR MODEL 3406 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 23)

**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. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
6. {4258} 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]
7. Emissions from this IC engine shall not exceed any of the following limits: 6.6 g-NOx/bhp-hr, 2.7 g-CO/bhp-hr, or 0.1 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.3 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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.

Samir Sheikh, Executive Director / APCO

**Brian Clements, Director of Permit Services**

N-9736-4-0 : Nov 16 2021 3:00PM -- AHMADS : Joint Inspection NOT Required

9. An emergency situation is an unscheduled event caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
10. {3811} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
11. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
12. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
13. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-9736-5-0

**LEGAL OWNER OR OPERATOR:** RECLAMATION DISTRICT 2030  
**MAILING ADDRESS:** 3520 BROOKSIDE RD STE 141  
STOCKTON, CA 95219

**LOCATION:** 111 N ZUCKERMAN RD  
STOCKTON, CA 95206

**EQUIPMENT DESCRIPTION:**

280 BHP CUMMINS MODEL QSL 9 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FLOODWATER PUMP (LOCATION ID# CP 23)

**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. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]
6. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
7. {4258} 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]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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.

Samir Sheikh, Executive Director / APCO

**Brian Clements, Director of Permit Services**

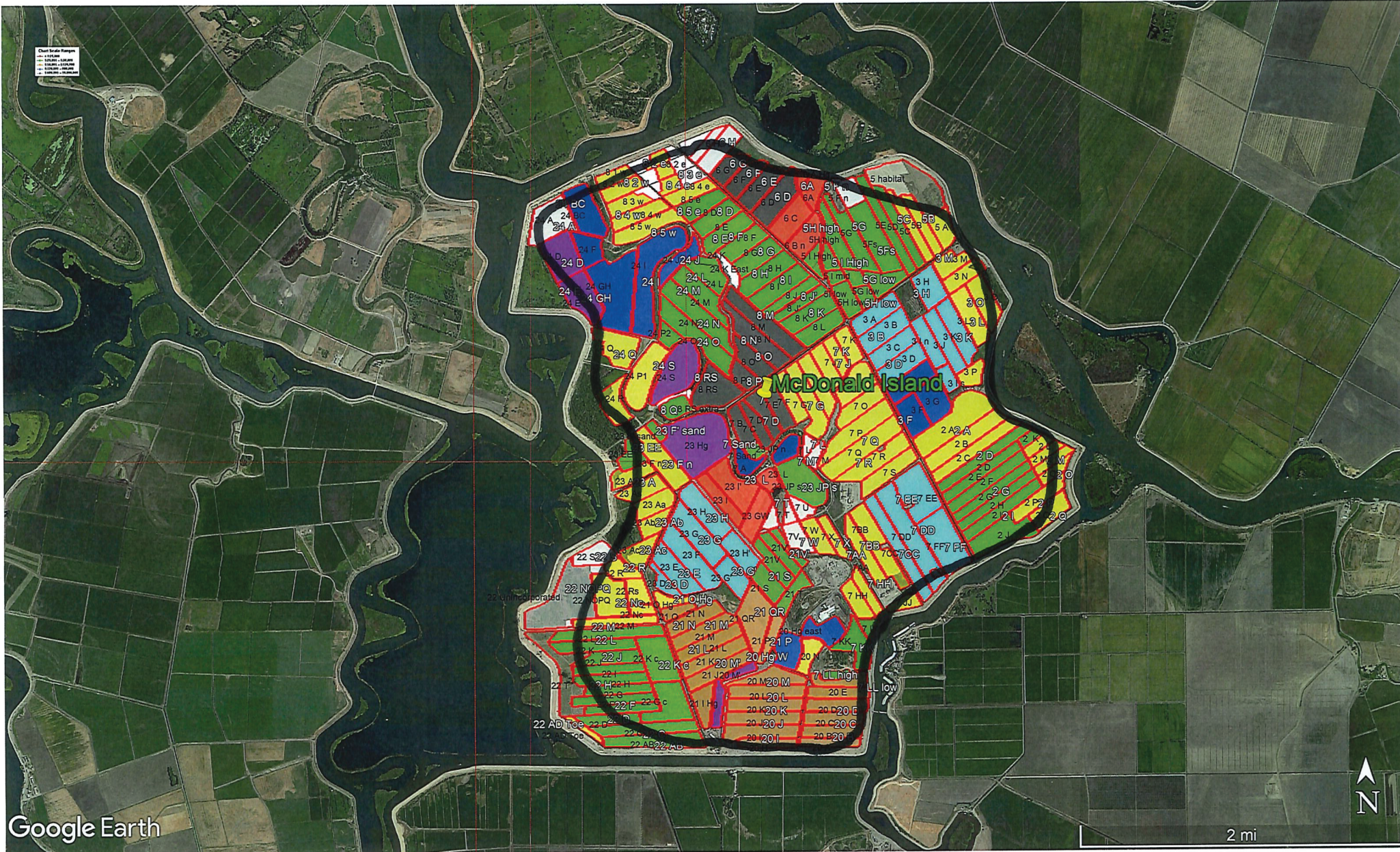
N-9736-5-0 : Nov 16 2021 3:01PM -- AHMADS : Joint Inspection NOT Required

8. Emissions from this IC engine shall not exceed any of the following limits: 4.1 g-NO<sub>x</sub>/bhp-hr, 1.3 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
9. Emissions from this IC engine shall not exceed 0.1 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
10. An emergency situation is an unscheduled event caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702 and 17 CCR 93115]
11. {3810} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
12. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, and the purpose of the operation (for example: load testing, weekly testing, etc.). For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
13. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
14. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

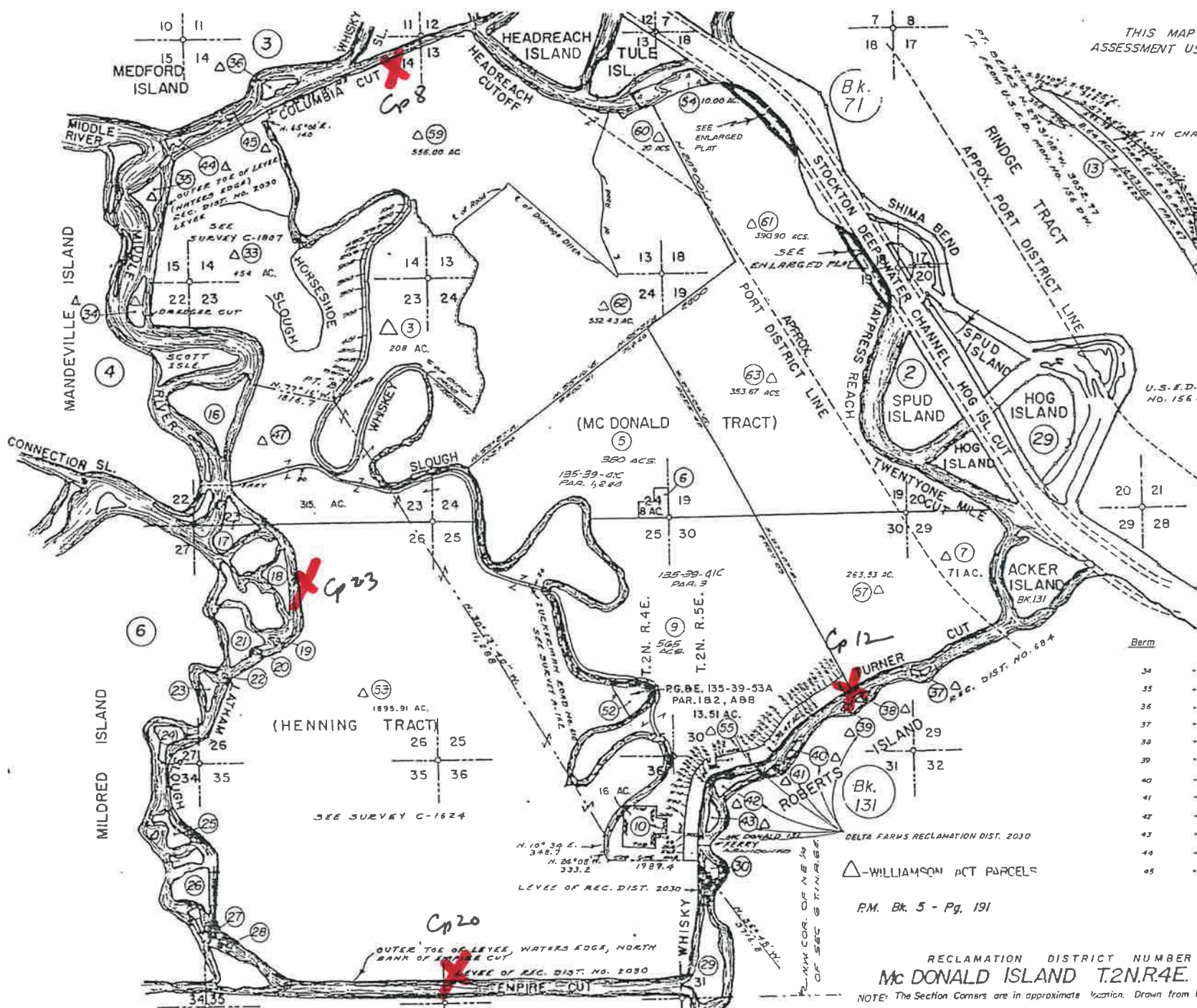
## **APPENDIX B**

### **Facility Maps and Engine Locations**





THIS MAP FOR ASSESSMENT USE ONLY



SCALE: 1"=2000'

enlarged plat  
SCALE: 1"=1000'

Berm	Acres	Berm	Acres
SEE SURVEY C3480			
16	-	16	31.70
17	-	17	13.50
18	-	18	6.20
19	-	19	0.10
20	-	20	0.10
21	-	21	14.10
22	-	22	0.10
23	-	23	2.70
24	-	24	4.30
25	-	25	4.50
26	-	26	13.50
27	-	27	0.50
28	-	28	0.50
29	-	29	16.50
30	-	30	1.20

DELTA FARMS RECLAMATION DIST. 2030  
 △-WILLIAMSON ACT PARCELS

P.M. Bk. 5 - Pg. 191

RECLAMATION DISTRICT NUMBER 2030  
**Mc DONALD ISLAND T.2N.R.4E. - T.2N.R.5E.**  
 NOTE: The Section Corners are in approximate location. Drawn from U.S. Geological Survey Quad maps.

## **APPENDIX C**

### **CARB Executive Orders**

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-118  
Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board at Sections 43000.5, 43013, and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned at Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9; and

IT IS ORDERED AND RESOLVED: That the following diesel engines and the exhaust emission control systems produced by the manufacturer are certified as described below for use in heavy-duty off-road equipment:

Model Year: 2000

Typical Equipment Usage: Tractor, Generator and Industrial equipment

Engine Power Ratings Range: 175 – 750 horsepower, inclusive

Fuel Type: Diesel

<u>Engine Family</u>	<u>Displacement</u>		<u>Exhaust Emission Control Systems and Special Features</u>
	<u>Liters</u>	<u>Cubic Inches</u>	
YCPXL14.6MRJ	14.6	895	Smoke Puff Limiter Turbocharger Charge Air Cooler

The engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values in grams per brake horsepower-hour (g/hp-h) for total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak-values from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

	<u>Exhaust Emissions (g/hp-h)</u>				<u>Smoke Opacity (%)</u>		
	<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.1	2.7	6.6	0.3	15	5	30


BE IT FURTHER RESOLVED: That the listed engine models comply with "Exhaust Emission Standards and Test Procedures—Heavy-Duty Off-Road Diesel-Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with "Emission Control Labels—1996 and Later Heavy-Duty Off-Road Diesel-Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 *et seq.*).

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

Executed at El Monte, California this 7 day of December 1999.

  
R. B. Summerfield, Chief  
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

EO: U-R-1-118

Process Code: **New Submission**

Manufacturer: **CATERPILLAR INC.**

**NA**

EPA Engine Family: **YCPXL14.6MRJ**

Manufacturer Family Name:

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
Note: Peak HP and Peak Torque		fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change.	TC-CAC, SPL
1 - Cert Engine	3406	599 @ 1800	352	213.4	2045 @ 1350	405	183.9	EM, DI, TC, SPL,
2	3406	328 @ 2100	182	128.6	1215 @ 1200	234	94.3	EM, D <del>C</del> AC, SPL,
3	3406	325 @ 2100	178	126.0	1260 @ 1200	251	101.0	EM, D <del>C</del> AC, SPL,
4	3406	338 @ 2100	184	130.2	1259 @ 1200	245	98.9	EM, D <del>C</del> AC, SPL,
5	3406	341 @ 2100	186	131.6	1240 @ 1200	242	97.6	EM, D <del>C</del> AC, SPL,
6	3406	328 @ 2100	182	128.6	1215 @ 1200	233	94.3	EM, D <del>C</del> AC, SPL,
7	3406	328 @ 2100	182	128.6	1215 @ 1200	233	94.3	EM, D <del>C</del> AC, SPL,
8	3406	289 @ 1850	166	103.3	1029 @ 1200	205	82.7	EM, D <del>C</del> AC, SPL,
9	3406	264 @ 1900	142	91.0	957 @ 1200	188	76.1	EM, D <del>C</del> AC, SPL,
10	3406	355 @ 2000	187	125.5	1201 @ 1200	246	99.5	EM, D <del>C</del> AC, SPL,
11	3406	400 @ 2000	213	143.1	1361 @ 1400	281	132.4	EM, D <del>C</del> AC, SPL,
12	3406	420 @ 2000	227	153.0	1448 @ 1200	301	122.0	EM, D <del>C</del> AC, SPL,
13	3406	460 @ 2100	237	167.1	1461 @ 1400	281	132.4	EM, D <del>C</del> AC, SPL,
14	3406	325 @ 1800	190	114.9	1153 @ 1200	239	96.6	EM, D <del>C</del> AC, SPL,
15	3406	345 @ 1800	201	122.0	1233 @ 1200	260	105.0	EM, D <del>C</del> AC, SPL,
16	3406	325 @ 2000	174	116.8	1099 @ 1400	220	103.7	EM, D <del>C</del> AC, SPL,
17	3406	340 @ 2000	181	121.9	1161 @ 1400	226	109.5	EM, D <del>C</del> AC, SPL,
18	3406	325 @ 1800	190	114.9	1153 @ 1200	243	98.1	EM, D <del>C</del> AC, SPL,
19	3406	345 @ 1800	201	122.0	1233 @ 1200	260	105.0	EM, D <del>C</del> AC, SPL,
20	3406	325 @ 2100	168	118.9	1089 @ 1400	218	102.8	EM, D <del>C</del> AC, SPL,
21	3406	335 @ 2100	174	122.9	1133 @ 1400	227	106.9	EM, D <del>C</del> AC, SPL,
22	3406	335 @ 2100	174	122.9	1133 @ 1400	218	102.6	EM, D <del>C</del> AC, SPL,
23	3406	500 @ 2100	255	180.0	1600 @ 1400	296	139.4	EM, D <del>C</del> AC, SPL,
24	3406	360 @ 1800	208	126.0	1264 @ 1200	262	106.0	EM, D <del>C</del> AC, SPL,
25	3406	360 @ 2000	192	129.0	1213 @ 1400	246	116.0	EM, D <del>C</del> AC, SPL,
26	3406	360 @ 1800	208	126.0	1251 @ 1200	262	106.0	EM, D <del>C</del> AC, SPL,
27	3406	360 @ 2100	188	133.0	1202 @ 1400	240	113.0	EM, D <del>C</del> AC, SPL,
28	3406	380 @ 2100	201	142.0	1287 @ 1400	260	123.0	EM, D <del>C</del> AC, SPL,
29	3406	400 @ 2100	249	150.0	1369 @ 1400	278	131.0	EM, D <del>C</del> AC, SPL,
30	3406	390 @ 2100	201	141.9	1331 @ 1400	258	121.2	EM, D <del>C</del> AC, SPL,
31	3406	435 @ 2100	227	160.4	1505 @ 1400	293	138.1	EM, D <del>C</del> AC, SPL,
32	3406	347 @ 1900	189	120.8	1219 @ 1200	243	98.3	EM, D <del>C</del> AC, SPL,
33	3406	382 @ 1900	208	133.2	1364 @ 1200	273	110.2	EM, D <del>C</del> AC, SPL,

34	3406	440 @ 1800	251	15.0	1495 @ 1350	292	132.4	EM, TC, SPL
35	3406	375 @ 1800	215	13.0	1317 @ 1200	271	109.3	EM, DÇAC, SPL
36	3406	390 @ 2000	207	139.3	1339 @ 1400	259	122.0	EM, DÇAC, SPL
37	3406	400 @ 1800	227	137.6	1430 @ 1200	283	114.2	EM, DÇAC, SPL
38	3406	400 @ 1900	219	140.2	1379 @ 1200	278	112.4	EM, DÇAC, SPL
39	3406	375 @ 2000	198	133.3	1280 @ 1400	247	116.3	EM, DÇAC, SPL
40	3406	400 @ 2000	212	142.7	1379 @ 1400	267	125.7	EM, DÇAC, SPL
41	3406	375 @ 2100	193	136.2	1270 @ 1400	245	115.5	EM, DÇAC, SPL
42	3406	400 @ 2100	206	145.8	1369 @ 1400	265	124.9	EM, DI, TC, SPL
43	3406	435 @ 2100	227	160.5	1505 @ 1400	293	138.1	EM, DÇAC, SPL
44	3406	485 @ 2100	257	181.9	1680 @ 1400	332	156.2	EM, DÇAC, SPL
45	3406	385 @ 1800	218	132.2	1244 @ 1350	249	113.0	EM, DÇAC, SPL
46	3406	440 @ 2000	231	155.4	1398 @ 1400	269	126.9	EM, DÇAC, SPL
47	3406	440 @ 1800	251	151.9	1495 @ 1350	292	132.4	EM, DÇAC, SPL
48	3406	440 @ 1900	242	154.8	1462 @ 1350	285	129.6	EM, DÇAC, SPL
49	3406	440 @ 2000	231	155.4	1398 @ 1400	269	126.9	EM, DÇAC, SPL

TC, CAC, SPL  
 ↑  
 CAC

YCPXL14.6MRJ

EO: U-R-1-118

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-167  
Relating to Certification of New Off-Road Compression-Ignition Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board (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-45-9;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and exhaust emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Crane, Tractor, Generator and Other Industrial Equipment

Fuel Type: Diesel

<u>Engine Family</u>	Engine Displacement <u>(liters)</u>	Useful Life <u>(hours)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
1CPXL15.8ESK	15.8	8000	Engine Control Module Turbocharger Charge Air Cooler Direct Diesel Injection

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values for hydrocarbons (HC), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), or non-methane hydrocarbons plus NO<sub>x</sub> (NMHC+NO<sub>x</sub>) and particulate matter (PM) (units are expressed in grams per kilowatt-hour (g/kw-hr)), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423, as amended by Board approval on January 28, 2000):

<u>Engine Power Rating (kw)</u>	<u>Emission Standard Category</u>	<u>Exhaust Emissions (g/kw-hr)</u>				<u>Smoke Opacity (%)</u>		
		<u>HC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
450≤KW≤560	Tier 1 Standard Certification	1.3	9.2	11.4	0.54	20	15	50
		0.1	5.6	0.7	0.09	7	1	10
225≤KW<450	Tier 2 Standard Certification	<u>NMHC+NO<sub>x</sub></u>	<u>CO</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>	
		6.4	3.5	0.20	20	15	50	
		5.8	0.7	0.09	6	1	11	

BE IT FURTHER RESOLVED: That, at the request of the manufacturer, the listed engine models are **conditionally certified** to, and shall be required to comply with, all amendments to Title 13, California Code of Regulations, Sections 2420 through 2427 adopted by the Board on January 28, 2000 at its hearing "TO CONSIDER AMENDMENTS TO OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS: 2000 AND LATER EMISSION STANDARDS, COMPLIANCE REQUIREMENTS AND TEST PROCEDURES." The listed engine models comply with all such amendments, including, but not limited to:


- the amended "Emission Control Labels—1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year;
- the Board's amended emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426) for the listed engine models, as demonstrated by materials submitted by the manufacturer; and
- new California requirements for the Selective Enforcement Audit (SEA) for the listed engine models, as demonstrated by the manufacturer's submission of materials.

BE IT FURTHER RESOLVED: That the conditional certification described in the paragraph above is conditioned on the amendments being approved by the California Office of Administrative Law (OAL) pursuant to Government Code Section 11349.3, and where necessary, authorized by the Administrator of the U. S. Environmental Protection Agency (U.S. EPA) pursuant to Section 209(e)(2) of the Federal Clean Air Act. In the event that the OAL disapproves the amendments or the U.S. EPA decides not to authorize them, the ARB shall notify the manufacturer that the listed engine models must comply with the "California Exhaust Emission Standards and Test Procedures for 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Sections 2420 through 2427) adopted on May 12, 1993, as applicable. Failure to demonstrate compliance within 45 days after notification by the Air Resources Board shall be cause for the Board to revoke the Executive Order and deem the listed engine models uncertified.

The conditional certification described herein is not conditioned on further U.S. EPA action on amendments determined by the Board to be within the scope of an existing U.S. EPA authorization.

Engines certified under this Executive Order must conform to the above requirements under Title 13, California Code of Regulations, Chapter 9, Article 4, and all other applicable California emission laws and regulations.

Executed at El Monte, California this 21<sup>st</sup> day of December 2000.

  
R. B. Summerfield, Chief  
Mobile Source Operations Division



ATTN. MENT


# Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**  
Engine category: **Nonroad Over 50 Hp**  
EPA Engine Family: **1CPXL15.8ESK**  
Mfr Family Name: **NA**  
Process Code: **New Submission**

U-R-1-167

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
1-Cert Engine	3456	680 @ 2100	336	237.6	2296 @ 1400	448	211.0	EM, DI, TC, ECM,
2	3456	692 @ 1800	381	230.8	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
3	3456	692 @ 1800	381	230.8	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
4	3456	616 @ 1800	338	204.5	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
5	3456	616 @ 1800	338	204.5	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
6	3456	613 @ 1800	424	214.2	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
7	3456	613 @ 1800	424	214.2	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
8	3456	553 @ 1500	378	190.5	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
9	3456	553 @ 1500	378	190.5	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
10	3456	493 @ 1500	338	170.8	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
11	3456	493 @ 1500	338	170.8	N/A	N/A	N/A	EM, DI, TC, ECM,
12	3456	616 @ 1800	338	204.5	N/A	N/A	N/A	EM, DI, <del>CAC</del> , ECM,
13	3456	600 @ 2100	292	206.4	2029 @ 1400	397	186.8	EM, DI, <del>CAC</del> , ECM,
14	3456	512 @ 2100	255	179.9	1820 @ 1400	348	163.9	EM, DI, <del>CAC</del> , ECM,
15	3456	660 @ 2100	326	230.0	2232 @ 1400	430	202.5	EM, DI, <del>CAC</del> , ECM,
16	3456	500 @ 2100	247	174.2	1691 @ 1400	317	149.3	EM, DI, <del>CAC</del> , ECM,
17	3456	550 @ 2100	268	189.3	1859 @ 1400	353	166.3	EM, DI, <del>CAC</del> , ECM,
18	3456	630 @ 2100	308	217.7	2130 @ 1400	411	193.7	EM, DI, <del>CAC</del> , ECM,
19	3456	500 @ 2100	292	206.4	2029 @ 1400	396	186.5	EM, DI, <del>CAC</del> , ECM,
20	3456	552 @ 2100	307	186.1	1851 @ 1400	368	173.4	EM, DI, <del>CAC</del> , ECM,
21	3456	650 @ 2000	326	219.2	2021 @ 1500	375	189.0	EM, DI, <del>CAC</del> , ECM,

CAC  
↑  
DI, TC, CAC, ECM

 <b>AIR RESOURCES BOARD</b>	<b>Cummins Inc.</b>	<b>EXECUTIVE ORDER U-R-002-0247</b>
		New Off-Road Compression-Ignition Engines

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 engine and emission control system 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)
2004	4CEXL0540AAA	8.8	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Powertrain Control Module			Tractor	

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 < 225	Tier 2	STD	N/A	N/A	6.6	3.5	0.20	20	15	50
225 ≤ kW < 450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	5.7	1.7	0.14	13	12	21

**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 25<sup>TH</sup> day of November 2003.



Allen Lyons, Chief  
 Mobile Source Operations Division

# Engine Model Summary Form

ATTACHMENT Pg 1 of 1

U-R-002-0247

**Manufacturer:** Cummins Inc.  
**Engine category:** Nonroad CI  
**EPA Engine Family:** 4CEXL0540AAA  
**Mfr Family Name:** A563  
**Process Code:** New Submission

1. Engine Code	2. Engine Model	3. BHP@RPM (SAE Gross)	4. Fuel Rate: mm <sup>3</sup> /stroke @ peak HP (for diesel only)	5. Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6. Torque @ RPM (SEA Gross)	7. Fuel Rate: mm <sup>3</sup> /stroke@peak torque	8. Fuel Rate: (lbs/hr)@peak torque	9. Emission Control Device Per SAE J1930
8477:FR9106	QSL9-C	325@2000	164	110.6	1150@1400	214	101.0	PCM, TC, CAC
8478:FR91071	QSL9-C	325@2100	167	118.0	1097@1400	205	96.8	PCM, TC, CAC
8478:FR91072	QSL9-C	330@2100	172	121.8	1133@1400	210	99.0	PCM, TC, CAC
8478:FR91073	QSL9-C	300@2100	155	110.1	1075@1400	203	95.7	PCM, TC, CAC
8478:FR91074	QSL9-C	280@2100	147	104.2	1050@1400	198	93.5	PCM, TC, CAC
8478:FR91075	QSL9-C	325@2000	166	112.0	1130@1400	212	100.1	PCM, TC, CAC
8478:FR91076	QSL9-C	280@2000	150	100.9	1000@1400	191	90.2	PCM, TC, CAC
8478:FR91077	QSL9-C	330@1800	191	116.7	1075@1400	203	95.7	PCM, TC, CAC
8478:FR91078	QSL9-C	300@1800	172	104.7	1000@1400	191	90.2	PCM, TC, CAC
8478:FR91079	QSL9-C	280@1800	161	97.7	950@1400	182	85.8	PCM, TC, CAC
8478:FR91081	QSL9-C	342@1800	197	119.5	1130@1400	212	100.0	PCM, TC, CAC
8479:FR91080	QSL9-C	250@2200	121	89.3	775@1400	150	70.8	PCM, TC, CAC

## **APPENDIX D**

### **BACT Guidelines**

# Appendix C

## Best Available Control Technology (BACT) Guideline 3.1.2\*

Last Update: June 30, 2001

Emission Unit: Emergency Diesel I.C. Engine  $\geq 175$  hp and  $< 400$  hp

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Positive crankcase ventilation		
SO <sub>x</sub>	Low-sulfur diesel fuel (500 ppmw sulfur or less) or Very Low-sulfur diesel fuel (15 ppmw sulfur or less), where available.		
NO <sub>x</sub>	Certified NO <sub>x</sub> emissions of 6.9 g/bhp-hr or less.		
PM <sub>10</sub>	0.1 grams/bhp-hr (if TBACT is triggered) 0.4 grams/bhp-hr (if TBACT is not triggered)		

1. Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM<sub>10</sub> emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement.
2. A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

**San Joaquin Valley  
Unified Air Pollution Control District**

**Best Available Control Technology (BACT) Guideline 3.1.3\***

Last Update: June 30, 2001

**Emission Unit: Emergency Diesel I.C. Engine -  $\geq$  400 hp**

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Positive crankcase ventilation		
CO	2.0 grams/brake horsepower-hour	$\leq$ 1.4 grams/bhp-hr	
SO <sub>x</sub>	Low-sulfur diesel fuel (500 ppmw sulfur or less) or Very Low-sulfur diesel fuel (15 ppmw sulfur or less), where available.		
NO <sub>x</sub>	Certified emissions of 6.9 g/bhp-hr or less		
PM <sub>10</sub>	0.1 grams/bhp-hr (if TBACT is triggered) 0.4 grams/bhp-hr (if TBACT is not triggered)		

1. Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM<sub>10</sub> emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement.
2. A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

**\*This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 3.1.1\***

Last Update: 6/13/2019

**Emergency Diesel-Fired IC Engine**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	Latest EPA Tier Certification level for applicable horsepower range		
SOx	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	0.15 g/bhp-hr or the latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent (ATCM)		
NOx	Latest EPA Tier Certification level for applicable horsepower range		
CO	Latest EPA Tier Certification level for applicable horsepower range		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a State Implementation Plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**\*This is a Summary Page for this Class of Source**

## **APPENDIX E**

### **BACT and T-BACT Analysis**



# **BACT and T-BACT Analysis for the Emergency IC Engines**

## **A. ATCs N-9736-1-0, '-3-0, and '-4-0 (IC Engines > 400 bhp):**

As stated in Section I of this document, these IC engines were installed in 2002 and each IC engine is rated greater than 400 bhp. Therefore, BACT Guideline 3.1.3 (6/30/2001 version) was applicable to these IC engines at the time of installation (see Appendix D). As discussed under BACT discussion in Section VIII of this document, each of these IC engines triggered BACT for NO<sub>x</sub>, PM<sub>10</sub>, and VOC emissions, therefore, the following BACT analysis will address all three engines for streamlining purpose. In addition, IC engine under ATC '-3-0 also triggered T-BACT for PM<sub>10</sub> emissions, so BACT analysis for PM<sub>10</sub> emissions below will also include T-BACT analysis for PM<sub>10</sub> emissions for unit '-3-0.

### **1. BACT Analysis for NO<sub>x</sub> Emissions:**

#### **a. Step 1 - Identify all control technologies**

The following NO<sub>x</sub> control options are identified for these IC engines:

- Certified emissions of 6.9 g/bhp-hr or less (BACT 3.1.3 at time of installation – last updated 6/30/2001)
- Latest EPA Tier certification level for applicable horsepower range (current BACT 3.1.1 – last updated 6/13/2019)

No technologically feasible controls or alternate basic equipment are identified in either of the two BACT guidelines listed above.

Per District practice, when equipment requiring a permit was installed without first getting an ATC, a current BACT analysis must be performed to ensure compliance with the BACT requirements of District Rule 2201. If the equipment was installed without BACT (i.e., BACT at the time of installation), a complete current BACT analysis shall be performed, exactly as if it were a new proposal. However, if the equipment was installed with BACT (i.e., BACT at the time of installation), or if BACT did not exist at the time of installation, the current BACT analysis is limited to the types of controls that can be applied to the specific equipment that was already installed.

Since the IC engines associated with this project were installed with BACT at time of installation, this BACT analysis is limited to only the types of controls that can be applied (add on controls) to these engines. Since latest EPA Tier certification level for existing IC engines would be Tier 4F, the following control option is identified as an add-on control that could be retrofitted for existing engines to meeting Tier 4 F certification level:

- Selective Catalytic Reduction (SCR)

SCR decreases NO<sub>x</sub> emissions by using a catalyst and the injection of a reducing agent such as ammonia or urea to convert NO<sub>x</sub> into water and nitrogen. This is accomplished when the catalyst lowers the temperature of the reaction that is needed to convert NO<sub>x</sub> into water and nitrogen. Once the engine exhaust heats up to at least 260 °C, the catalyst

activates and the reducing agent is added into the exhaust stream. The aforementioned chemical reaction then takes place which reduces the NOx emissions by approximately 95%.

**b. Step 2 - Eliminate technologically infeasible options**

The only add-on control option (SCR) listed in Step 1 is not technologically infeasible.

**c. Step 3 - Rank remaining options by control effectiveness**

The following is the only retrofit control option remaining (add-on control):

- Selective Catalytic Reduction (SCR)

**d. Step 4 - Cost Effectiveness Analysis**

Selective Catalytic Reduction (SCR) – Add-on Control

(A). Emission Reduction:

Based on the NOx potential emissions calculated in Section VII.C.2 of this evaluation and assuming a NOx control efficiency of 95%<sup>2</sup> from the installation of a SCR system, the amount of NOx emissions reduction is calculated as below and summarized in the following table:

$$\text{NOx Emission Reductions} = \text{Annual PE}_{\text{NOx}} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall CE (95\%)}$$

ATC	Annual PE2 (lb-NOx/year)	NOx Emission Reduction (lb-NOx/year)
N-9736-1-0	288	0.14
N-9736-3-0	320	0.15
N-9736-4-0	261	0.12

(B). Total Capital Cost Investment (TCI)

Based on ARB's 2010 article titled "Analysis of the Technical Feasibility and Costs of After-Treatment Controls on New Emergency Standby Engines"<sup>3</sup>, the average capital cost of installing a SCR system on an engine is \$80/hp.

Based on the Consumer Price Index Inflation Calculator ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)), the average capital cost of \$80.00 in Jan 2010 is adjusted to \$101.00 in August 2021.

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<sup>2</sup> Based on ARB's document referenced in the link below, a well-designed SCR system can reduce NOx emissions up to 95%.

<sup>3</sup> <https://ww2.arb.ca.gov/sites/default/files/classic/regact/2010/atcm2010/atcmappb.pdf>

In addition, according to the ARB's article identified above, this average capital cost does not include the cost of installation, which according to the SCR manufacturers could increase capital cost by 25% to over 100%. To be conservative, the District will assume a minimum 25% SCR installation cost. Thus:

$$\text{SCR Capital Cost} = \text{Cost/hp} \times \text{bhp rating} = \$101/\text{hp} \times \text{Engine Rating (bhp)}$$

ATC	Engine Rating (bhp)	SCR Capital Cost
N-9736-1-0	660	\$66,660
N-9736-3-0	692	\$69,892
N-9736-4-0	599	\$60,499

$$\text{Cost of Installation} = \text{SCR Capital Cost} \times 25\% = \$75,500 \times 0.25 = \$18,875$$

ATC	SCR Capital Cost	Cost of Installation
N-9736-1-0	\$66,660	\$16,665.00
N-9736-3-0	\$69,892	\$17,473.00
N-9736-4-0	\$60,499	\$15,124.75

$$\text{Total Capital Investment} = \text{SCR Capital Cost} + \text{Cost of Installation}$$

ATC	SCR Capital Cost	Cost of Installation	Total Capital Investment
N-9736-1-0	\$66,660	\$16,665.00	\$83,325.00
N-9736-3-0	\$69,892	\$17,473.00	\$87,365.00
N-9736-4-0	\$60,499	\$15,124.75	\$75,623.75

### Annualized Capital Costs

$$\text{Annualized Capital Investment} = \text{Total Capital Investment} \times \text{Amortization Factor}$$

$$\text{Amortization Factor} = \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1} \quad \text{District policy, amortizing over 10 years at 10\%}$$

$$\text{Therefore, Annualized Capital Investment} = \text{Total Capital Investment} \times \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1}$$

ATC	Total Capital Investment	Annualized Capital Investment
N-9736-1-0	\$83,325.00	\$13,560.76
N-9736-3-0	\$87,365.00	\$14,218.25
N-9736-4-0	\$75,623.75	\$12,307.42

### (C). Cost Effectiveness of a SCR with 95% Capture

$$\text{Cost Effectiveness} = \text{Annualized Capital Costs (\$/year)} \div \text{Emission Reduction (ton-NOx/year)}$$

ATC	Annualized Capital Investment	Emission Reduction (lb-NOx/year)	Cost Effectiveness
N-9736-1-0	\$13,560.76	0.14	\$99,128.36
N-9736-3-0	\$14,218.25	0.15	\$93,541.13
N-9736-4-0	\$12,307.42	0.12	\$99,273.38

As shown above, the capital cost of SCR system with 95% capture efficiency is greater than the District's NOx cost-effectiveness threshold of \$24,500/ton for each IC engine. Therefore, the NOx control option is not cost effective and is being removed from further consideration for this project.

#### e. Step 5 - Select BACT

BACT for NOx emissions from these emergency diesel IC engines (> 400 bhp) is having certified emissions of 6.9 g-NOx/bhp-hr or less. As show in CARB certification executive orders in Appendix C, each of the proposed IC engines has certified NOx emissions of less than 6.9 g/bhp-hr; therefore, BACT for NOx emissions is satisfied.

## 2. BACT and T-BACT Analysis for PM10 Emissions:

### a. Step 1 - Identify all control technologies

The following PM10 control options are identified for these IC engines:

- 0.1 g/bhp-hr or less (if T-BACT is trigged) or 0.4 g/bhp-hr (if T-BACT is not triggered) (BACT 3.1.3 at time of installation – last updated 6/30/2001)
- 0.15 g/bhp-hr or latest EPA Tier certification level for applicable horsepower range, whichever is more stringent (current BACT 3.1.1 – last updated 6/13/2019)

No technologically feasible controls or alternate basic equipment are identified in either of the two BACT guidelines listed above.

Since current BACT 3.1.1 requires PM10 emission factor of 0.15 g/bhp-hr or latest EPA Tier certification level for applicable horsepower range, the following table summarizes the PM10 emission factor for each engine, rating, and the applicable Tier 4 F emission standard based on the power rating:<sup>4</sup>

ATC	PM10 EF (g-PM10/bhp-hr)	Engine Rating (bhp)	Tier 4 F PM10 standard based on Power Rating
N-9736-1-0	0.3	660	0.01
N-9736-3-0	0.07	692	0.01
N-9736-4-0	0.3	599	0.01

<sup>4</sup> <https://ww2.arb.ca.gov/resources/documents/non-road-diesel-engine-certification-tier-chart>

Since each engine has a PM<sub>10</sub> emission factor greater than Tier 4 F emission standard of 0.01 g-PM<sub>10</sub>/bhp-hr, it would need to be retrofitted with an add-control device in order to meet the latest Tier certification standard. The following add-on control device has been identified:

- Diesel Particulate Filter (DPF)

The DPF's primary function is to decrease the level of PM<sub>10</sub> emissions produced by an engine. This is accomplished through the use of the DPF's porous filter which allows gases to pass through while capturing solid materials. A DPF is identified as an add-on control option. However, once the DPF is full, it ceases to function at full efficiency and must be regenerated. This means either burning off the excess carbon in the filter, cleaning it out, or replacing it. Since emergency standby IC engines, which frequently go through cold starts, do not reach temperatures high enough to burn off residual carbon, the filters must be replaced or cleaned regularly.

#### **b. Step 2 - Eliminate technologically infeasible options**

The control option listed in Step 1 is not technologically infeasible.

#### **c. Step 3 - Rank remaining options by control effectiveness**

The following is the only control option remaining:

1. DPF filter (add-on control) to meet 0.15 g/bhp-hr or latest EPA Tier certification level for applicable horsepower range, whichever is more stringent (current BACT 3.1.1 – last updated 6/13/2019)
2. 0.1 g/bhp-hr or less (if T-BACT is triggered) or 0.4 g/bhp-hr (if T-BACT is not triggered) (BACT 3.1.3 at time of installation – last updated 6/30/2001)

#### **d. Step 4 - Cost effectiveness analysis**

##### Diesel Particulate Filter (DPF)

##### (A). Emission Reduction:

Based on the PM<sub>10</sub> potential emissions calculated in Section VII.C.2 of this evaluation and assuming a PM<sub>10</sub> control efficiency of 85%<sup>5</sup> from the installation of a DPF system, the amount of PM<sub>10</sub> emissions reduced is calculated as below and summarized in the following table:

$$\text{PM}_{10} \text{ Emission Reductions} = \text{Annual PE}_{\text{PM}_{10}} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall CE (85\%)}$$

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<sup>5</sup> Based on the aforementioned ARB document referenced in the NO<sub>x</sub> BACT analysis, a well-designed DPF system can reduce PM<sub>10</sub> emissions up to 85%.

ATC	Annual PE2 (lb-PM10/year)	PM10 Emission Reduction (lb-PM10/year)
N-9736-1-0	13	0.0062
N-9736-3-0	5	0.0024
N-9736-4-0	12	0.0057

(B). Total Capital Cost Investment (TCI)

Based on ARB's 2010 article titled "Analysis of the Technical Feasibility and Costs of After-Treatment Controls on New Emergency Standby Engines", the average capital cost of installing a DPF on an engine is \$39/hp which includes price of installation.

Based on the Consumer Price Index Inflation Calculator ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)), the average capital cost of \$39 in Jan 2010 is adjusted to \$49.24 in August 2021.

DPF Capital Cost = Cost/hp x BHP rating = \$49.24/hp x Engine Rating (bhp)

ATC	Engine Rating (bhp)	DPF Capital Cost
N-9736-1-0	660	\$32,498.40
N-9736-3-0	692	\$34,074.08
N-9736-4-0	599	\$29,494.76

Annualized Capital Costs

Annualized Capital Investment = Total Capital Investment x Amortization Factor

Amortization Factor =  $\frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1}$  District policy, amortizing over 10 years at 10%

Therefore, Annualized Capital Investment = \$36,995 x  $\frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1}$

ATC	Total Capital Investment	Annualized Capital Investment
N-9736-1-0	\$32,498.40	\$5,288.96
N-9736-3-0	\$34,074.08	\$5,545.40
N-9736-4-0	\$29,494.76	\$4,800.14

(C). Cost Effectiveness of a DPF with 85% Capture

Cost Effectiveness = Annualized Capital Costs (\$/year) ÷ Emission Reduction (ton-PM<sub>10</sub>/year)

ATC	Annualized Capital Investment	Emission Reduction (lb-PM10/year)	Cost Effectiveness
N-9736-1-0	\$5,288.96	0.0062	\$856,512.54
N-9736-3-0	\$5,545.40	0.0024	\$2,334,905.10
N-9736-4-0	\$4,800.14	0.0057	\$842,129.19

The cost to operate a DPF with 85% capture efficiency is greater than the District's PM<sub>10</sub> cost-effectiveness threshold of \$11,400/ton. Therefore, the PM<sub>10</sub> control option is not cost effective and is being removed from consideration for this project.

#### **e. Step 5 - Select BACT**

BACT for PM<sub>10</sub> emissions from these emergency diesel IC engines (> 400 bhp) is having certified emissions of 0.1 g/bhp-hr or less (if T-BACT is triggered) or 0.4 g/bhp-hr (if T-BACT is not triggered). As show in CARB certification executive orders in Appendix C, each of the proposed IC engines has certified PM<sub>10</sub> emissions of less than 0.4 g/bhp-hr; therefore BACT for PM<sub>10</sub> emissions is satisfied for each IC engine. Additionally, IC engine under ATC '3-0 has certified PM<sub>10</sub> emissions of less than 0.1 g/bhp-hr; therefore, T-BACT for PM<sub>10</sub> emissions is also satisfied for this IC engine

### **3. BACT Analysis for VOC Emissions:**

#### **a. Step 1 - Identify all control technologies**

The following VOC control options are identified for these IC engines:

- Positive crankcase ventilation (BACT 3.1.3 at time of installation – last updated 6/30/2001)
- Latest EPA Tier certification level for applicable horsepower range (current BACT 3.1.1 – last updated 6/13/2019)

No technologically feasible controls or alternate basic equipment are identified in either of the two BACT guidelines listed above.

#### **b. Step 2 - Eliminate technologically infeasible options**

There is no technologically infeasible control option to be eliminated.

#### **c. Step 3 - Rank remaining options by control effectiveness**

1. Latest EPA Tier certification level for applicable horsepower range (current BACT 3.1.1 – last updated 6/13/2019)
2. Positive crankcase ventilation (BACT 3.1.3 at time of installation – last updated 6/30/2001)

#### **d. Step 4 - Cost effectiveness analysis**

As indicated above, current BACT Guideline 3.1.1 requires latest EPA Tier certification level for applicable horsepower range. The following table summarizes the VOC emission factor for each engine, rating, and the applicable Tier 4 F emission standard based on the power rating:<sup>6</sup>

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<sup>6</sup> <https://ww2.arb.ca.gov/resources/documents/non-road-diesel-engine-certification-tier-chart>

ATC	VOC EF (g-VOC/bhp-hr)	Engine Rating (bhp)	Tier 4 F VOC standard based on Power Rating
N-9736-1-0	0.1	660	0.14
N-9736-3-0	0.07	692	0.14
N-9736-4-0	0.1	599	0.14

As summarized in the table above, each IC engine has VOC emission factor lower than Tier 4F emission standard; therefore, each IC engine meets the latest Tier certification level for VOC emissions.

Since each IC engine meets the most stringent control option, a cost effectiveness analysis is not required.

**e. Step 5 - Select BACT**

BACT for VOC emissions from these emergency standby diesel IC engines (> 400 bhp) is to meet Tier 4 F emission standard of 0.14 g-VOC/bhp-hr. Each of the IC engines associated with this project has a VOC emission factor lower than Tier 4 F emission standard; therefore BACT for VOC emissions is satisfied.

**B. ATC N-9736-5-0 (280 bhp IC Engine):**

As stated in Section I of this document, this 280 bhp IC engine was installed in 2006. Therefore, BACT Guideline 3.1.2 for emergency diesel IC engines  $\geq 175$  bhp and  $< 400$  bhp (6/30/2001 version) was applicable to this IC engine (see Appendix D) at the time of installation. As discussed under BACT discussion in Section VIII of this evaluation, this IC engine triggered BACT for NOx and VOC emissions.

**1. BACT Analysis for NOx Emissions:**

**a. Step 1 - Identify all control technologies**

The following NOx control options are identified for this IC engine:

- Certified NOx emissions of 6.9 g/bhp-hr or less (BACT 3.1.2 at time of installation – last updated 6/30/2001)
- Latest EPA Tier certification level for applicable horsepower range (current BACT 3.1.1 – last updated 6/13/2019)

No technologically feasible controls or alternate basic equipment are identified in either of the two BACT guidelines listed above.

Per District practice, when equipment requiring a permit was installed without first getting an ATC, a current BACT analysis must be performed to ensure compliance with the BACT requirements of District Rule 2201. If the equipment was installed without BACT (i.e.,



BACT at the time of installation), a complete current BACT analysis shall be performed, exactly as if it were a new proposal. However, if the equipment was installed with BACT at the time of installation, the current BACT analysis is limited to the types of controls that can be applied to the specific equipment that was already installed.

Since the IC engine '5-0 was installed with BACT at time of installation, this BACT analysis is limited to only the types of controls that can be applied (add on controls) to these engines. Since latest EPA Tier certification level for existing IC engines would be Tier 4F, the following control option is identified as an add-on control that could be retrofitted for existing engine to meeting Tier 4F certification level:

- Selective Catalytic Reduction (SCR)

SCR decreases NOx emissions by using a catalyst and the injection of a reducing agent such as ammonia or urea to convert NOx into water and nitrogen. This is accomplished when the catalyst lowers the temperature of the reaction that is needed to convert NOx into water and nitrogen. Once the engine exhaust heats up to at least 260 °C, the catalyst activates and the reducing agent is added into the exhaust stream. The aforementioned chemical reaction then takes place which reduces the NOx emissions by approximately 95%.

**b. Step 2 - Eliminate technologically infeasible options**

The only add-on control option (SCR) listed in Step 1 is not technologically infeasible.

**c. Step 3 - Rank remaining options by control effectiveness**

The following is the only retrofit control option remaining (add-on control):

- Selective Catalytic Reduction (SCR)

**d. Step 4 - Cost Effectiveness Analysis**

Selective Catalytic Reduction (SCR) – Add-on Control

(A). Emission Reduction:

Based on the NOx potential emissions calculated in Section VII.C.2 of this evaluation and assuming a NOx control efficiency of 95% from the installation of a SCR system, the amount of NOx emissions reduction is calculated as below and summarized in the following table:

NOx Emission Reductions = Annual PE<sub>NOx</sub> × 1 tons/2,000 lb × Overall CE (95%)

ATC	Annual PE <sub>2</sub> (lb-NOx/year)	NOx Emission Reduction (lb-NOx/year)
N-9736-5-0	127	0.06

(B). Total Capital Cost Investment (TCI)

Based on ARB’s 2010 article titled “Analysis of the Technical Feasibility and Costs of After-Treatment Controls on New Emergency Standby Engines”<sup>7</sup>, the average capital cost of installing a SCR system on an engine is \$80/hp.

Based on the Consumer Price Index Inflation Calculator ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)), the average capital cost of \$80.00 in Jan 2010 is adjusted to \$101.00 in August 2021.

In addition, according to the ARB’s article identified above, this average capital cost does not include the cost of installation, which according to the SCR manufacturers could increase capital cost by 25% to over 100%. To be conservative, the District will assume a minimum 25% SCR installation cost. Thus:

$$\text{SCR Capital Cost} = \text{Cost/hp} \times \text{bhp rating} = \$101/\text{hp} \times \text{Engine Rating (bhp)}$$

ATC	Engine Rating (bhp)	SCR Capital Cost
N-9736-5-0	280	\$28,280.00

$$\text{Cost of Installation} = \text{SCR Capital Cost} \times 25\% = \$28,280 \times 0.25 = \$7,070$$

ATC	SCR Capital Cost	Cost of Installation
N-9736-5-0	\$28,280.00	\$7,070.00

$$\text{Total Capital Investment} = \text{SCR Capital Cost} + \text{Cost of Installation}$$

ATC	SCR Capital Cost	Cost of Installation	Total Capital Investment
N-9736-5-0	\$28,280.00	\$7,070.00	\$35,350.00

Annualized Capital Costs

$$\text{Annualized Capital Investment} = \text{Total Capital Investment} \times \text{Amortization Factor}$$

$$\text{Amortization Factor} = \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1} \text{ District policy, amortizing over 10 years at 10\%}$$

$$\text{Therefore, Annualized Capital Investment} = \text{Total Capital Investment} \times \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1}$$

ATC	Total Capital Investment	Annualized Capital Investment
N-9736-5-0	\$35,350.00	\$5,753.05

<sup>7</sup> <https://ww2.arb.ca.gov/sites/default/files/classic/regact/2010/atcm2010/atcmappb.pdf>

(C). Cost Effectiveness of a SCR with 95% Capture

Cost Effectiveness = Annualized Capital Costs (\$/year) ÷ Emission Reduction (ton-NOx/year)

ATC	Annualized Capital Investment	Emission Reduction (lb-NOx/year)	Cost Effectiveness
N-9736-5-0	\$5,753.05	0.06	\$95,367.59/ton

As shown above, the capital cost of SCR system with 95% capture efficiency is greater than the District's NOx cost-effectiveness threshold of \$24,500/ton for the IC engine. Therefore, the NOx control option is not cost effective and is being removed from further consideration for this project.

**e. Step 5 - Select BACT**

BACT for NOx emissions from this emergency diesel IC engine is having certified emissions of 6.9 g-NOx/bhp-hr or less. As show in CARB certification executive order in Appendix C, this IC engine has certified NOx emissions of less than 6.9 g/bhp-hr; therefore BACT for NOx emissions is satisfied.

**2. BACT Analysis for VOC Emissions:**

**a. Step 1 - Identify all control technologies**

The following VOC control options are identified for this IC engine:

- Positive crankcase ventilation (BACT 3.1.2 at time of installation – last updated 6/30/2001)
- Latest EPA Tier certification level for applicable horsepower range (current BACT 3.1.1 – last updated 6/13/2019)

No technologically feasible controls or alternate basic equipment are identified in either of the two BACT guidelines listed above.

As indicated above, current BACT Guideline 3.1.1 requires latest EPA Tier certification level for applicable horsepower range. The following table summarizes the VOC emission factor for the IC engine, rating, and the applicable Tier 4 F emission standard based on the power rating:<sup>8</sup>

ATC	VOC EF (g-VOC/bhp-hr)	Engine Rating (bhp)	Tier 4 F VOC standard based on Power Rating
N-9736-5-0	0.2	280	0.14

<sup>8</sup> <https://ww2.arb.ca.gov/resources/documents/non-road-diesel-engine-certification-tier-chart>

As summarized in the table above, the IC engine has VOC emission factor greater than Tier 4F emission standard; therefore, the IC engine does not meet the latest Tier certification level for VOC emissions.

Since the proposed engine has an emission rate of 0.2 g-VOC/bhp-hr, it would need to be retrofitted with an add-control device in order to meet the latest Tier certification standard. The following add-on control device has been identified:

- Diesel Oxidation Catalyst (DOC)

A DOC's primary function is to decrease the level of VOC emissions produced by an engine. DOCs generally consist of a precious metal coated flow-through honeycomb structure contained in a steel housing. Diesel fuel passes through this precious metal coating and a catalytic reaction occurs that breaks down the VOCs in the fuel into less harmful pollutants.

#### **b. Step 2 - Eliminate technologically infeasible options**

The add-on control option listed in Step 1 is not technologically infeasible.

#### **c. Step 3 - Rank remaining options by control effectiveness**

1. Diesel Oxidation Catalyst (DOC) to meet latest Tier 4F emission standard of 0.14 g-VOC/bhp-hr (current BACT 3.1.1 – last updated 6/13/2019)
2. Positive crankcase ventilation (BACT 3.1.2 at time of installation – last updated 6/30/2001)

#### **d. Step 4 - Cost effectiveness analysis**

Diesel Oxidation Catalyst (DOC)

##### (A). Emission Reduction:

Based on the VOC potential emissions calculated in Section VII.C.2 of this evaluation and assuming a VOC conversion efficiency of 50%<sup>9</sup> from the installation of a DOC system, the amount of VOC emissions reduction is calculated below:

$$\begin{aligned} \text{VOC Emission Reductions} &= \text{Annual PE}_{\text{VOC}} \times 1 \text{ tons}/2,000 \text{ lb} \times \text{Overall Control Eff.} \\ &= 6 \text{ lb-VOC/year} \times 1 \text{ tons}/2,000 \text{ lb} \times 0.50 \\ &= \mathbf{0.0015 \text{ ton-VOC/year}} \end{aligned}$$

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<sup>9</sup> Based on the article, *Update On Emissions - Form 960, Second Edition, Waukesha Engine Division, Dresser Industries, October, 1991*, VOC reductions due to the installation of a catalyst are 50%.

(B). Total Capital Cost Investment (TCI)

Based on ARB's 2010 document titled "Diesel Oxidation Catalyst General Information", the average capital cost of installing a DOC system on an engine is between \$600 and \$2,000 dollars depending on the size. For a conservative estimate, a DOC of \$600 will be used.

Based on the Consumer Price Index Inflation Calculator ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)), the average capital cost of \$600 from Jan 2010 is adjusted to \$757.50 in August 2021.

DOC Capital Cost = \$757.50 = Total Capital Investment

Annualized Capital Costs

Annualized Capital Investment = Total Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1} \text{ District policy, amortizing over 10 years at 10\%}$$

$$\text{Therefore, Annualized Capital Investment} = \$757.50 \times \frac{0.1(1+0.1)^{10}}{(1+0.1)^{10} - 1} = \mathbf{\$123.28}$$

(C). Cost Effectiveness of a DOC with 50% Capture

$$\begin{aligned} \text{Cost Effectiveness} &= \text{Annualized Capital Costs (\$/year)} \div \text{Emission Reduction (ton-VOC/year)} \\ &= \$123.28/\text{year} \div 0.0015 \text{ ton-VOC/year} \\ &= \$82,187/\text{ton-VOC} \end{aligned}$$

As shown above, the capital cost of DOC system with 50% capture efficiency is greater than the District's VOC cost-effectiveness threshold of \$17,500/ton. Therefore, the VOC control option is not cost effective and is being removed from further consideration for this project.

**e. Step 5 - Select BACT**

BACT for VOC emissions from this emergency standby diesel IC engine is having positive crankcase ventilation. Since this IC engine has positive crankcase ventilation, BACT for VOC emissions is satisfied.

## **APPENDIX F**

### **HRA and AAQA Summary**

# San Joaquin Valley Air Pollution Control District

## Updated Risk Management Review and Ambient Air Quality Analysis

To: Sajjad Ahmad – Permit Services  
 From: Will Worthley – Technical Services  
 Date: August 4, 2021  
 Facility Name: RECLAMATION DISTRICT 2030  
 Location: 111 N ZUCKERMAN ROAD, STOCKTON  
 Application #(s): N-9736-1-0, -3-0, -4-0, -5-0  
 Project #: N-1193614

### 1. Summary

#### 1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1-0	30	NA <sup>1</sup>	0.00	1.43E-08	No	Yes
3-0	11.5	NA <sup>1</sup>	0.00	2.07E-06	Yes	Yes
4-0	27.7	NA <sup>1</sup>	0.00	8.88E-08	No	Yes
5-0	6.93	NA <sup>1</sup>	0.00	1.38E-08	No	Yes
<b>Project Totals</b>	>1	NA <sup>1</sup>	0.00	2.19E-06		
<b>Facility Totals</b>	>1	0.00	0.00	2.20E-06		

Notes:

- Acute Hazard Index was not calculated for Units 1, 3, 4, & 5 since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.
- Units 3-0 and 4-0 have the ability to operation at two separate specified locations. Risks for these units reflect the worst case locations.

#### 1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA <sup>2</sup>		NA <sup>2</sup>		
NO <sub>x</sub>	NA <sup>2</sup>				Pass
SO <sub>x</sub>	NA <sup>2</sup>	NA <sup>2</sup>		NA <sup>2</sup>	Pass
PM10				NA <sup>2</sup>	Pass <sup>4</sup>
PM2.5				NA <sup>2</sup>	Pass <sup>5</sup>
Ozone	NA <sup>2</sup>		NA <sup>2</sup>		

Notes:

- Results were taken from the attached AAQA Report.
- The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.
- <sup>2</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted.
- Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 1 µg/m<sup>3</sup> for the annual concentration.

5. Modeled PM<sub>2.5</sub> concentrations were below the District SIL for non-fugitive sources of 0.2 µg/m<sup>3</sup> for the annual concentration.

### 1.3 Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

#### Unit # 1-0 & 4-0

1. The PM<sub>10</sub> emissions rate shall not exceed 0.3 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
2. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 30 hours per calendar year

#### Unit # 3-0

1. The PM<sub>10</sub> emissions rate shall not exceed 0.07 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
2. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year

#### Unit # 5-0

1. The PM<sub>10</sub> emissions rate shall not exceed 0.1 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
2. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year

#### Unit # 1-0, 3-0, 4-0 & 5-0

1. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

**T-BACT is required for unit 3 because of emissions of Diesel Particulate Matter which is a PM<sub>10</sub>.**

## 2. Project Description

Technical Services received a revised request on August 4, 2021 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -1-0: TRANSPORTABLE 660 BHP CATERPILLAR MODEL 3406 TIER 1 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE (SN: 4JK0068) POWERING AN ELECTRIC GENERATOR SERVING A CANAL DEWATERING PUMP STATION (LOCATION ID#: CP 8)
- Unit -3-0: TRANSPORTABLE 692 BHP (INTERMITTENT) CATERPILLAR MODEL 3456 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE (SN:



BGA01019) POWERING AN ELECTRIC GENERATOR SERVING A CANAL DEWATERING PUMP STATION (LOCATION ID#: CP 20)

- Unit -4-0: TRANSPORTABLE 599 BHP CATERPILLAR MODEL 3406 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE (SN: 4JK00687) POWERING AN ELECTRIC GENERATOR SERVING A CANAL DEWATERING PUMP STATION (LOCATION ID#: CP 23)
- Unit -5-0: 280 BHP CUMMINS MODEL QSL 9 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A CANAL DEWATERING PUMP (LOCATION ID#: CP 23)

### 3. RMR Report

#### 3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. 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

If a refined assessment is greater than one in a million but less than 20 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.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for the proposed unit were calculated and provided by the processing engineer.

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 2013-2017 from Stockton (rural dispersion coefficient selected) to determine the dispersion

factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

<b>Source Process Rates</b>					
<b>Unit ID</b>	<b>Process ID</b>	<b>Process Material</b>	<b>Process Units</b>	<b>Hourly Process Rate</b>	<b>Annual Process Rate</b>
1	1	PM10	LBS	0.437	13
3	1	PM10	LBS	0.107	5
4	1	PM10	LBS	0.396	12
5	1	PM10	LBS	0.062	3

<b>Point Source Parameters</b>						
<b>Unit ID</b>	<b>Unit Description</b>	<b>Release Height (m)</b>	<b>Temp. (°K)</b>	<b>Exit Velocity (m/sec)</b>	<b>Stack Diameter (m)</b>	<b>Vertical/Horizontal/Capped</b>
1	660 BHP DICE	3.17	795	40.28	0.20	Vertical
3	692 BHP DICE	3.14	800	40.31	0.20	Vertical
4	599 BHP DICE	3.17	795	40.28	0.20	Vertical
5	280 BHP DICE	4.57	755	20.53	0.20	Vertical

#### 4. AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (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 Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO<sub>2</sub> 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 predicts the maximum air quality impacts using the appropriate emissions for each standard's 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.

Ambient air concentrations of criteria pollutants 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. Units 3-0 and 4-0 have the ability to operate at two separate specified locations. Emissions for these units were analyzed at all location and worst case emission rates. The following stations were used for this evaluation:

Monitoring Stations				
Pollutant	Station Name	County	City	Measurement Year
NOx	HAZELTON-HD, STOCKTON	San Joaquin	Stockton	2018
PM10	HAZELTON-HD, STOCKTON	San Joaquin	Stockton	2018
PM2.5	HAZELTON-HD, STOCKTON	San Joaquin	Stockton	2018
SOx	Fresno - Garland	Fresno	Fresno	2018

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/year)						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
1	1	288	0.21	118	13	13
3	1	320	0.4	38	5	5
4	1	261	0.21	107	12	12
5	1	127	0.15	40	3	3

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state or federal air quality standard. The parameters outlined below and meteorological data for 2013-2017 from Stockton (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
1	660 BHP DICE	3.17	795	40.28	0.20	Vertical
3	692 BHP DICE	3.14	800	40.31	0.20	Vertical
4	599 BHP DICE	3.17	795	40.28	0.20	Vertical
5	280 BHP DICE	4.57	755	20.53	0.20	Vertical

## 5. Conclusion

### 5.1 RMR

#### Unit 3

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. However, the cancer risk for one or more units in this project is greater than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (T-BACT).**

### Units 1, 4, & 5

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this 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 permit requirements listed on page 1 of this report must be included for this proposed unit.

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.

### **5.2 AAQA**

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

### **6. Attachments**

- A. Modeling request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. Facility Summary
- E. AAQA results

## **APPENDIX G**

### **Quarterly Net Emissions Change (QNEC)**

## Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

Since these are new emission units, PE1 is zero for all pollutant, thus:

PE1<sub>quarterly</sub> = 0 lb-PM<sub>10</sub>/qtr for all pollutants for all engines

ATC N-9736-1-0: 660 bhp (Tier 1) Caterpillar Model 3406 IC Engine

Pollutant	Annual PE2 (lb/yr)	Quarterly PE2 (lb/qtr)
NOx	288	72
SOx	0	0
PM <sub>10</sub>	13	3.25
CO	118	29.5
VOC	4	1

$$\text{QNEC (lb/qtr)} = \text{PE2 (lb/qtr)} - \text{PE1 (lb/qtr)}$$

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NOx	72	0	72
SOx	0	0	0
PM <sub>10</sub>	3.25	0	3.25
CO	29.5	0	29.5
VOC	1	0	1

Since QNEC values are entered in PAS database as whole numbers, QNEC will be distributed in four quarters as summarized in the table below:

Pollutant	Quarterly NEC [QNEC]			
	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
NOx	72	72	72	72
SOx	0	0	0	0
PM <sub>10</sub>	3	3	3	4
CO	29	29	30	30
VOC	1	1	1	1

ATC N-9736-3-0: 692 bhp (Tier 1) Caterpillar Model 3456 IC Engine

Pollutant	Annual PE2 (lb/yr)	Quarterly PE2 (lb/qtr)
NOx	320	80
SOx	0	0
PM <sub>10</sub>	5	1.25
CO	38	9.5
VOC	5	1.25

$$\text{QNEC (lb/qtr)} = \text{PE2 (lb/qtr)} - \text{PE1 (lb/qtr)}$$

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NOx	80	0	80
SOx	0	0	0
PM <sub>10</sub>	1.25	0	1.25
CO	9.5	0	9.5
VOC	1.25	0	1.25

Since QNEC values are entered in PAS database as whole numbers, QNEC will be distributed in four quarters as summarized in the table below:

Pollutant	Quarterly NEC [QNEC]			
	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
NOx	80	80	80	80
SOx	0	0	0	0
PM <sub>10</sub>	1	1	1	2
CO	9	9	10	10
VOC	1	1	1	2

ATC N-9736-4-0: 599 bhp (Tier 1) Caterpillar Model 3406 IC Engine

Pollutant	Annual PE2 (lb/yr)	Quarterly PE2 (lb/qtr)
NOx	261	65.25
SOx	0	0
PM <sub>10</sub>	12	3
CO	107	26.75
VOC	4	1

$$\text{QNEC (lb/qtr)} = \text{PE2 (lb/qtr)} - \text{PE1 (lb/qtr)}$$

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NOx	65.25	0	65.25
SOx	0	0	0

PM <sub>10</sub>	3	0	3
CO	26.75	0	26.75
VOC	1	0	1

Since QNEC values are entered in PAS database as whole numbers, QNEC will be distributed in four quarters as summarized in the table below:

Pollutant	Quarterly NEC [QNEC]			
	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
NO <sub>x</sub>	65	65	65	66
SO <sub>x</sub>	0	0	0	0
PM <sub>10</sub>	3	3	3	3
CO	26	27	27	27
VOC	1	1	1	1

ATC N-9736-5-0: 280 bhp (Tier 2) Cummins Model QSL 9 IC Engine

Pollutant	Annual PE2 (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	127	31.75
SO <sub>x</sub>	0	0
PM <sub>10</sub>	3	0.75
CO	40	10
VOC	6	1.5

$$\text{QNEC (lb/qtr)} = \text{PE2 (lb/qtr)} - \text{PE1 (lb/qtr)}_a$$

6+

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	31.75	0	31.75
SO <sub>x</sub>	0	0	0
PM <sub>10</sub>	0.75	0	0.75
CO	10	0	10
VOC	1.5	0	1.5

Since QNEC values are entered in PAS database as whole numbers, QNEC will be distributed in four quarters as summarized in the table below:

Pollutant	Quarterly NEC [QNEC]			
	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
NO <sub>x</sub>	31	32	32	32
SO <sub>x</sub>	0	0	0	0
PM <sub>10</sub>	0	1	1	1
CO	10	10	10	10
VOC	1	1	2	2