



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**SEP 17 2013**

Isaias Valdez  
City of Turlock  
156 S Broadway - Suite 270  
Turlock, CA 95380

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: N-3669**  
**Project Number: N-1132843**

Dear Mr. Valdez:

Enclosed for your review and comment is the District's analysis of City of Turlock's application for an Authority to Construct for the installation of a diesel-fired emergency engine powering an electrical generator, at 901 South Walnut Road, Turlock.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Fred Cruz of Permit Services at (209) 557- 6456.

Sincerely,

David Warner  
Director of Permit Services

DW:fjc

Enclosures

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

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

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**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to City of Turlock for the installation of a diesel-fired emergency engine powering an electrical generator, at 901 South Walnut Road, Turlock.

The analysis of the regulatory basis for this proposed action, Project #N-1132843, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and at any District office. For additional information, please contact the District at (209) 557-6400. Written comments on this project must be submitted by October 21, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356.**

**San Joaquin Valley Air Pollution Control District**  
**Authority to Construct Application Review**  
**Diesel-Fired Emergency Standby IC Engine**

Facility Name: City of Turlock  
Mailing Address: 156 S Broadway – Suite 270  
Turlock, CA 95380  
Contact Person: Isaias Valdez  
Telephone: (209) 719-1261  
Email: isaiasv@overaa.com  
Application No: N-3669-14-0  
Project No: N-1132843  
Complete: August 30, 2013

Date: September 10, 2013  
Engineer: Fred Cruz  
Lead Engineer: Nick Peirce

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**I. PROPOSAL:**

The City of Turlock submitted an Authority to Construct application to install a 909 bhp diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator at their waste water treatment facility. The City of Turlock previously submitted an ATC application to install a 954 bhp emergency engine (N-3669-13-0) and the horsepower rating indicated on the ATC application was incorrect. So, the City of Turlock had to resubmit another ATC application to reflect the correct horsepower rating.

**II. APPLICABLE RULES:**

Rule 2201 New and Modified Stationary Source Review Rule (4/21/2011)  
Rule 2410 Prevention of Significant Deterioration (6/16/2011)  
Rule 2520 Federally Mandated Operating Permits (6/21/2001)  
Rule 4001 New Source Performance Standards (4/14/1999)  
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/2004)  
Rule 4101 Visible Emissions (2/17/2005)  
Rule 4102 Nuisance (12/17/1992)  
Rule 4201 Particulate Matter Concentration (12/17/1992)  
Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/2003)  
Rule 4702 Stationary Internal Combustion Engines – Phase 2 (8/18/2011)  
Rule 4801 Sulfur Compounds (12/17/1992)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice  
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary  
Compression-Ignition (CI) Engines  
California Environmental Quality Act (CEQA)  
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 901 South Walnut Road, Turlock, CA (waste water treatment plant).

The District has verified that 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. See area site map.

**IV. PROCESS DESCRIPTION:**

The emergency standby engine powers an electrical generator. Other than emergency standby operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

**V. EQUIPMENT LISTING:**

N-3669-14-0: 909 PERKINS MODEL 2806C-E18TAG3 DIESEL-FIRED EMERGENCY ENGINE (TIER 2 CERTIFIED) POWERING AN ELECTRICAL GENERATOR.

**VI. EMISSION CONTROL TECHNOLOGY EVALUATION:**

The applicant has proposed to install a 2013 Model Year Tier 2 certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

**NO<sub>x</sub>, CO, VOC and PM<sub>10</sub>:**

The proposed engine does not meet the latest published Tier Certification requirements. However, compliance with both BACT and CARB's stationary ATCM requirements will be met as described below (see Appendix B for a copy of the emissions data sheet and/or the ARB/EPA executive order).

Although Tier 4i requirements for this category of engine went into effect in 2011, CARB regulations and District policy allows for the availability of Tier 4i units to be accounted for. CARB's Stationary ATCM exemption §93115.3(u) states, "If the Executive Officer or District finds, based on verifiable information from the engine manufacturer, distributor or dealer, that current model year engines meeting the current emission standards are not available or not available in sufficient numbers or in a sufficient range of makes, models and horsepower ratings, then the Executive Officer or the District may allow the sale, purchase or installation of a new stock engine meeting the emission standards from the previous model year to meet the new stationary diesel-fueled engine emission standards pursuant to title 13 of the California Code of Regulations or 40 CFR part 89." The District has thoroughly investigated, with each of the common engine manufacturers, the availability of Tier 4i units in this size range and has found them to be currently unavailable. Since Tier 4i units are not available, as described above, the installation of a Tier 2 unit is acceptable, as Tier 2 is the prior published Tier in this engine's size range.

SO<sub>x</sub>:

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**

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	50 hours/year
Density of diesel fuel:	7.1 lb/gal
EPA F-factor (adjusted to 60 °F):	9,051 dscf/MMBtu
Fuel heating value:	137,000 Btu/gal
BHP to Btu/hr conversion:	2,542.5 Btu/bhp-hr
Thermal efficiency of engine:	commonly ≈ 35%
Fuel rate:	41.4 gal/hr (engine data sheet)

**B. Emission Factors**

The applicant supplied the emissions factor for NO<sub>x</sub> and VOC emissions as a combined emission factor. Therefore, the District will use data from the EPA document “*Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compressions Ignition*”, dated November 2002, as presented in the following table to estimate NO<sub>x</sub> and VOC emissions (District assumption).

Tier 2 and Tier 3 Diesel-Fired IC Engines NO <sub>x</sub> and VOC Estimated Emissions						
Horsepower Range (bhp)	Combined Standard, NO <sub>x</sub> + VOC (g/bhp-hr)		Estimated NO <sub>x</sub> Emissions (g/bhp-hr)		Estimated VOC Emissions (g/bhp-hr)	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
≥ 50 to < 100	5.6	3.5	5.2	3.3	0.4	0.2
≥ 100 to < 175	4.9	3.0	4.5	2.8	0.4	0.2
≥ 175 to < 300	4.9	3.0	4.5	2.8	0.4	0.2
≥ 300 to < 600	4.8	3.0	4.5	2.8	0.3	0.2
≥ 600 to < 750	4.8	3.0	4.5	2.8	0.3	0.2
≥ 750	4.8	N/A	4.5	N/A	0.3	N/A

This 909 bhp engine is a Tier 2 certified IC engine and the applicant supplied the combined NO<sub>x</sub> + VOC emissions factor as 4.3 g/bhp-hr. Therefore, the NO<sub>x</sub> and VOC emissions factors are calculated as follows:

$$\begin{aligned} \text{NO}_x \text{ (g/bhp-hr)} &= \text{NO}_x + \text{VOC (g/bhp-hr)} \times (4.5 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \\ \text{NO}_x \text{ g/bhp-hr} &= 4.3 \text{ g/bhp-hr} \times (4.5 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \\ \text{NO}_x &= 4.03 \text{ g/bhp-hr} \end{aligned}$$

$$\begin{aligned} \text{VOC (g/bhp-hr)} &= \text{NO}_x + \text{VOC (g/bhp-hr)} \times (0.3 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \\ \text{VOC g/bhp-hr} &= 4.3 \text{ g/bhp-hr} \times (0.3 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \\ \text{VOC} &= 0.27 \text{ g/bhp-hr} \end{aligned}$$

Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	4.03	Engine manufacturer
CO	0.29	Engine manufacturer
VOC	0.27	Engine manufacturer
PM <sub>10</sub>	0.028	Engine manufacturer
SO <sub>x</sub>	0.005	Calculated below

The emission factor for SO<sub>x</sub> may be calculated based on the current CARB standard for diesel sulfur content, which is 15 ppm by weight.

$$\frac{0.000015 \text{ lb - S}}{\text{lb - fuel}} \times \frac{7.1 \text{ lb - fuel}}{\text{gallon}} \times \frac{2 \text{ lb - SO}_2}{1 \text{ lb - S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp - hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.005 \frac{\text{g - SO}_x}{\text{bhp - hr}}$$

**C. Calculations**

**1. Pre-Project Emissions (PE1)**

This is a new emissions unit and PE1 will equal zero for all pollutants.

**2. Post-Project PE (PE2)**

The potential to emit emissions from this emergency IC engine is based on the maximum operating capacity of the engine for 24 hours per day. The following calculation for NO<sub>x</sub> emissions is representative of emission calculations for all pollutants. Annual emissions are based on 50 hours per year for non-emergency operation.

- NO<sub>x</sub>: 4.03 g/hp-hr × 909 hp × lb/453.6 g
- NO<sub>x</sub>: 8.08 lb/hr, 193.8 lb/day, 404 lb/yr
- CO: 0.58 lb/hr, 13.9 lb/day, 29 lb/yr
- VOC: 0.54 lb/hr, 13.0 lb/day, 27 lb/yr
- PM<sub>10</sub>: 0.06 lb/hr, 1.3 lb/day, 3 lb/yr
- SO<sub>x</sub>: 0.01 lb/hr, 0.2 lb/day, 1 lb/yr

	NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>	SO <sub>x</sub>
<b>Daily PE</b>	193.8	13.9	13.0	1.3	0.2
<b>Annual PE</b>	404	29	27	3	1

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. SSPE1 emission calculations are from project N-1122818.

Stationary Source Potential Emissions (SSPE1)						
Permit No.	NO <sub>x</sub> (lb/year)	SO <sub>x</sub> (lb/year)	PM <sub>10</sub> (lb/year)	CO (lb/year)	VOC (lb/year)	NH <sub>3</sub> (lb/year)
N-3669-1-1	1,259	3,154	371	1,277	1,459	0
N-3669-2-0	1,472	1,051	247	865	486	0
N-3669-3-0	1,680	2,365	615	8,751	1,490	0
N-3669-5-0	2,421	160	172	522	195	0
N-3669-7-1	104	4	3	11	27	0
N-3669-8-0	1,297	7,096	324	1,031	152	0
N-3669-10-0	0	0	2	0	8,576	96
N-3669-11-0	0	0	1	0	2,848	4,688
N-3669-12-0	0	0	1	0	0	0
N-3669-13-0	399	1	11	74	21	0
Total	8,632	13,831	1747	12,531	15,254	4,784

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Stationary Source Potential Emissions (SSPE2)						
Permit No.	NO <sub>x</sub> (lb/year)	SO <sub>x</sub> (lb/year)	PM <sub>10</sub> (lb/year)	CO (lb/year)	VOC (lb/year)	NH <sub>3</sub> (lb/year)
N-3669-1-1	1,259	3,154	371	1,277	1,459	0
N-3669-2-0	1,472	1,051	247	865	486	0
N-3669-3-0	1,680	2,365	615	8,751	1,490	0
N-3669-5-0	2,421	160	172	522	195	0
N-3669-7-1	104	4	3	11	27	0
N-3669-8-0	1,297	7,096	324	1,031	152	0
N-3669-10-0	0	0	2	0	8,576	96
N-3669-11-0	0	0	1	0	2,848	4,688
N-3669-12-0	0	0	1	0	0	0
<b>N-3669-13-0*</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>N-3669-14-0</b>	<b>404</b>	<b>1</b>	<b>3</b>	<b>29</b>	<b>27</b>	<b>0</b>
Total	8,637	13,831	1739	12,486	15,260	4,784
Major Source Threshold	20,000	140,000	140,000	200,000	20,000	N/A
Existing Major Source?	No	No	No	No	No	

\*This emergency engine will not be installed. When ATC N-3669-14-0 is implemented into a Permit to Operate, ATC N-3669-13-0 will be cancelled.

### 5. 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 are not included:

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

Rule 2201 Major Source Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Facility emissions pre-project	8,632	13,831	1,747	12,531	15,254
Facility emissions – post project	8,637	13,831	1,739	12,486	15,260
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No



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)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO <sub>2</sub>	VOC	SO <sub>2</sub>	CO	PM	PM <sub>10</sub>	CO <sub>2e</sub> <sup>1</sup>
Estimated Facility PE before Project Increase	4.32	7.63	6.921	6.27	0.87	0.87	11,217.9
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

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

**6. Baseline Emissions (BE)**

BE = Pre-project Potential to Emit for:

- Clean Emissions 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 Unit, located at a Major Source.

Otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201.

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore, Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1).

**7. SB 288 Major Modification:**

SB 288 Major Modification is defined in Rule 2201. As discussed in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore, the project does not constitute a SB 288 Major Modification.

<sup>1</sup> See Appendix B for GHG emission calculations.

**8. Federal Major Modification:**

Federal Major Modification is defined in Rule 2201. As discussed in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore, the project does not constitute a Federal Major Modification.

**9. 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 C.

**10. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination:**

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO<sub>2</sub> (as a primary pollutant)
- SO<sub>2</sub> (as a primary pollutant)
- CO
- PM
- PM<sub>10</sub>
- Greenhouse gases (GHG): CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs, PFCs, and SF<sub>6</sub>

The first step of this PSD applicability evaluation consists of determining whether the facility is an existing PSD Major Source. This facility is not an existing PSD Major source (See Section VII.C.5 of this document).

Since the facility is NOT an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

**Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds:**

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold and if the total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

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). Therefore the following PSD Major Source thresholds are applicable.

<b>PSD Major Source Determination: Potential to Emit (tons/year)</b>							
	NO <sub>2</sub>	VOC	SO <sub>2</sub>	CO	PM	PM <sub>10</sub>	CO <sub>2e</sub> <sup>2</sup>
Total PE from New and Modified Units	0.20	0.01	0.001	0.01	0.002	0.002	9.37
PSD Major Source threshold	250	250	250	250	250	250	100,000
New PSD Major Source?	N	N	N	N	N	N	N

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

## VIII. COMPLIANCE

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

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

##### 1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following\*:

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

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

##### **a. New emissions units – PE > 2.0 lb/day**

Since this engine is a new emissions unit, the daily emissions are compared to the BACT thresholds in the following table. The daily emissions for this emergency engine are as follows:

<sup>2</sup> GHG emissions equal: 50 hr/yr x 909 bhp-hr x 0.000187 metric tons-CO<sub>2e</sub>/bhp-hr = 8.50 metric tons CO<sub>2e</sub>  
8.50 metric tons- CO<sub>2e</sub> x 2,205 lbs/metric ton = 18,742.5 lb- CO<sub>2e</sub>  
18,742.5 lb- CO<sub>2e</sub> ÷ 2,000 lb/ton = 9.37 tons- CO<sub>2e</sub>

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -14-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	193.8	> 2.0	N/A	Yes
SO <sub>x</sub>	0.2	> 2.0	N/A	No
PM <sub>10</sub>	1.3	> 2.0	N/A	No
CO	13.9	> 2.0 and SSPE2 ≥ 200,000 lb/yr	12,486	No
VOC	13.0	> 2.0	N/A	Yes

BACT is triggered for NO<sub>x</sub> and VOC emissions.

**2. BACT Guideline**

BACT Guideline 3.1.1, which appears in Appendix D of this report, covers diesel-fired emergency IC engines.

**3. Top Down BACT Analysis**

Per District Policy APR 1305, Section IX, “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 for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis.” Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix D of this report, BACT is satisfied with:

NO<sub>x</sub>, VOC: Tier 2 engine

**B. Offsets**

Per Section 4.6.2 of Rule 2201, emergency IC engines are exempt from offset requirements. Therefore, offset calculations are not required.

**C. Public Notification**

**1. Applicability**

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source.

This is an existing facility. Public Notice for new Major Source purposes is not required.

- b. Major Modifications

As previously demonstrated, this project is not a Major Modification.

- c. Any new emissions unit with a Potential to Emit greater than 100 lb/day for any one pollutant

As previously demonstrated, daily emissions for NOx exceed 100 lb/day and Public Notice is required.

- d. Any project which results in the offset thresholds being surpassed

As previously calculated, there are no offset thresholds that are surpassed.

- e. Any project with a Stationary Source project Increase in Potential (SSIPE) Emissions greater than 20,000 lb/year for any pollutant.

For this project, the proposed engine is the only emissions source that will generate an increase in Potential to Emit. Since the proposed emissions from this emergency engine are below 20,000 lb/year for all pollutants (See Section VII.C.2), the SSIPE for this project is below the public notice threshold.

## **2. Public Notice Action**

As discussed above, public noticing is required for this project since the daily emissions of NOx emissions are greater than 100 lbs/day.

## **D. Daily Emissions Limits**

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, 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. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- Emissions from this IC engine shall not exceed any of the following limits: 4.03 g-NOx/bhp-hr, 0.29 g-CO/bhp-hr, or 0.27 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.028 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]
- 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 Rule 2201.

**2. Monitoring**

Additional monitoring is not 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. As required by District Rule 4702, *Stationary Internal Combustion Engines - Phase 2*, each C engine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

**4. Reporting**

Additional reporting is not required to ensure compliance with Rule 2201.

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

Section 4.14.1 of Rule 2201 requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis.

As shown by the AAQA summary sheet in Appendix F, the proposed equipment will not cause or make worse a violation of an air quality standard for NO<sub>x</sub>, CO, PM<sub>10</sub>, or SO<sub>x</sub>.

**Rule 2410 Prevention of Significant Deterioration**

As shown above, this facility is not an existing PSD major source. Also, this project's potential emissions do not exceed any PSD major source thresholds (see VII.C.10). Therefore, Rule 2410 is not applicable to this project.

**Rule 2520 Federally Mandated Operating Permits**

Since this facility's potential to emit does 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)**

**40 CFR 60 Subpart III – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

Pursuant to § 60.4200 of Subpart III, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of this regulation. The applicant will be so notified in a permit condition.

**Rule 4002 National Emission Standards for Hazardous Air Pollutants**

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

Pursuant to § 63.6585 of Subpart ZZZZ, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of 40 CFR 63 Subpart ZZZZ for non-Part 70 sources (Major Sources). The applicant will be so notified in a permit condition.

**Rule 4101 Visible Emissions**

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following condition will be listed on the ATC 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 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained. Therefore, the following condition will be listed on the ATC 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 (dated 3/2/01) 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. Therefore, a risk management review (RMR) was performed for this project. The RMR results are summarized in the following table and can be seen in Appendix F.

RMR Summary			
Categories	Emergency Diesel ICE (Unit 14-0)	Project Totals	Facility Totals
Prioritization Score	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
Acute Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
Chronic Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
Maximum Individual Cancer Risk	1.82E-08	1.82-08	4.18E-07
T-BACT Required?	No		
Special Permit Conditions?	Yes		

- 1 Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.
- 2 Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

The individual cancer risk associated with the operation of the proposed emergency diesel IC engine is 1.82E-08, which is less than the 1 in a million threshold. In accordance with the District’s Risk Management Policy, the project is approved as proposed **without** Toxic Best Available Control Technology (T-BACT).

The following conditions will be listed on the ATC to ensure compliance with the RMR:

**Unit # 14-0:**

1. The PM10 emissions rate shall not exceed **0.028 g/hp-hr** based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102; 13 CCR 2423 and 17 CCR 93115]
2. {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]
3. The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **50 hours** per year. [District Rules 2201, and 4702 and 17 CCR 93115]

**Rule 4201 Particulate Matter Concentration**

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM<sub>10</sub> emission factor of 0.4 g-PM<sub>10</sub>/bhp-hr.

$$0.1 \frac{\text{grain-PM}}{\text{dscf}} \times \frac{\text{g}}{15.43 \text{ grain}} \times \frac{1 \text{ Btu}_{in}}{0.35 \text{ Btu}_{out}} \times \frac{9,051 \text{ dscf}}{10^6 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{1 \text{ bhp-hr}} \times \frac{0.96 \text{ g-PM}_{10}}{1 \text{ g-PM}} = 0.4 \frac{\text{g-PM}_{10}}{\text{bhp-hr}}$$

The new engine has a PM<sub>10</sub> emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on the ATC:



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

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

District Rule 4701 is applicable to diesel-fired emergency standby or emergency IC engines. Rule 4702 is at least as stringent as this rule in all aspects, therefore, compliance with that rule will ensure compliance with Rule 4701.

**Rule 4702 Internal Combustion Engines – Phase 2**

The following table demonstrates how the proposed engine will comply with the requirements of District Rule 4702.

<b>District Rule 4702 Requirements Emergency Standby IC Engines</b>	<b>Proposed Method of Compliance with District Rule 4702 Requirements</b>
Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter.	The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine maintenance and testing to 50 hours/year. Thus, compliance is expected.
Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract.	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rules 4701 and 4702]</li> <li>• {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rules 4701 and 4702]</li> </ul>
The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rules 4701 and 4702]</li> </ul>

<p>Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {3496} 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, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. 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]</li> <li>• The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]</li> <li>• {3475} All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 4701 and 4702 and 17 CCR 93115]</li> </ul>
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**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:

$$\begin{aligned} \text{Volume SO}_2 &= (n \times R \times T) \div P \\ n &= \text{moles SO}_2 \\ T \text{ (standard temperature)} &= 60 \text{ }^\circ\text{F or } 520 \text{ }^\circ\text{R} \\ R \text{ (universal gas constant)} &= \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{ }^\circ\text{R}} \end{aligned}$$

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

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on the ATC to ensure compliance:

- 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**

The following table demonstrates how the proposed engine will comply with the requirements of Title 17 CCR Section 93115.

<b>Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators</b>	<b>Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements</b>
Emergency engines must be fired on CARB diesel fuel, or an approved alternative diesel fuel.	The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, was included earlier in this evaluation.
Engines must emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr or must meet the diesel PM standard, as specified in the off-road compression ignition standards for off-road engines with the same maximum rated power (17 CCR 93115)	The applicant has proposed the use of an engine that is certified to the applicable EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of Subpart IIII. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
The engine may not be operated more than 50 hours per year for maintenance and testing purposes.	The following condition will be included on the permit: <ul style="list-style-type: none"> <li>• 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 &amp; 17 CCR 93115]</li> </ul>
Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM	The District has verified that this engine is not located within 500' of a school.
An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing;	Permit conditions enforcing these requirements were shown earlier in the evaluation.

initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.	
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### **California Environmental Quality Act (CEQA)**

The California Environmental Quality Act (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 San Joaquin Valley Unified Air Pollution Control District (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.
- 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.

Consistent with California Environmental Quality Act (CEQA) and CEQA Guidelines requirements, the San Joaquin Valley Air Pollution Control District (District) has adopted procedures and guidelines for implementing CEQA. The District's Environmental Review Guidelines (ERG) establishes procedures for avoiding unnecessary delay during the District's permitting process while ensuring that significant environmental impacts are thoroughly and consistently addressed. The ERG includes policies and procedures to be followed when processing permits for projects that are exempt under CEQA.

The State Legislature granted a number of exemptions from CEQA, including projects that require only ministerial approval. Based upon analysis of its own laws and consideration of CEQA provisions, the District has identified a limited number of District permitting activities considered to be ministerial approvals. As set forth in §4.2.1 of the ERG, projects permitted consistent with the District's *Guidelines for Expedited Application Review* (GEAR) are standard application reviews in which little or no discretion is used in issuing Authority to Construct (ATC) documents. For the proposed project, the District performed an Engineering Evaluation (this document) and determined that the project qualifies for processing under the procedures set forth in the District's Permit Services Procedures Manual in the Guidelines for Expedited Application Review (GEAR). Thus, as discussed above, this issuance of such ATC(s) is a ministerial approval for the District and is not subject to CEQA provisions.

On December 17, 2009, the District's Governing Board adopted the first comprehensive regional policy and guidance on addressing and mitigating GHG emission impacts caused by industrial, commercial, and residential development in the San Joaquin Valley. The adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects under CEQA When Serving as the Lead Agency* applies to projects for which the District has discretionary approval authority over the project and serves as the lead agency for CEQA purposes. The policy relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA.

Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. However, consistent with the District's objective to achieve the GHG emission reduction targets established pursuant to AB 32, BPS will be incorporated into the District's GEAR application review process. In the interim, projects meeting the existing GEAR requirements will continue to be processed as ministerial approvals.

**IX. RECOMMENDATION:**

Issue Authority to Construct N-3669-14-0 upon completion of the 30 day NSR Public Notice period and subject to the permit conditions on the attached Authority to Construct in Appendix A.

**X. BILLING INFORMATION:**

<b>Billing Schedule</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Fee Amount</b>
N-3669-14-0	3020-10-E	909 bhp IC engine	\$602

**Appendices:**

- A. Authority to Construct permit N-3669-14-0
- B. Engine Emissions Data
- C. GHG Emission Calculations
- D. QNEC Calculations
- E. BACT Guideline and BACT Analysis
- F. HRA Summary

## **Appendix A**

Authority to Construct permit N-3669-14-0

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-3669-14-0

**LEGAL OWNER OR OPERATOR:** CITY OF TURLOCK WATER CONTROL  
**MAILING ADDRESS:** 156 S BROADWAY, STE 270  
TURLOCK, CA 95380

**LOCATION:** 901 S WALNUT RD  
TURLOCK, CA 95380

**EQUIPMENT DESCRIPTION:**

909 PERKINS MODEL 2806C-E18TAG3 DIESEL-FIRED EMERGENCY ENGINE (TIER 2 CERTIFIED) POWERING AN ELECTRICAL GENERATOR.

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {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. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
6. 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: 4.03 g-NOx/bhp-hr, 0.29 g-CO/bhp-hr, or 0.27 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed 0.028 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]
9. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

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.

Seyed Sadredin, Executive Director, APCO

**DRAFT**

DAVID WARNER, Director of Permit Services

N-3669-14-0 : Sep 13 2013 2:10PM - CRUZ : Joint Inspection NOT Required

10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
11. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]
12. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]
13. {3496} 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, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. 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]
14. 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]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {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]
17. U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002]

**DRAFT**



# **Appendix B**

## **Emissions Data Sheet**

# APPENDIX C

## GHG Emission Calculations

Permit unit N-3669-1-1: 3.525 MMBtu/hr digester gas fired boiler

$$3.525 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr} \times 0.1046 \text{ CO}_{2e} \text{ metric tons/MMBtu} = \mathbf{3,229.9 \text{ CO}_{2e} \text{ metric tons/yr}}$$

Permit unit N-3669-2-0: 1.175 MMBtu/hr digester gas fired boiler

$$1.175 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr} \times 0.1046 \text{ CO}_{2e} \text{ metric tons/MMBtu} = \mathbf{1,076.6 \text{ CO}_{2e} \text{ metric tons/yr}}$$

Permit unit N-3669-3-0: 2.7 MMBtu/hr digester gas fired flare

$$2.7 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr} \times 0.1046 \text{ CO}_{2e} \text{ metric tons/MMBtu} = \mathbf{2,474.0 \text{ CO}_{2e} \text{ metric tons/yr}}$$

Permit unit N-3669-5-0: 570 BHP diesel fired emergency engine powering a generator

$$570 \text{ BHP} \times 20 \text{ hr/yr} \times 0.000187 \text{ CO}_{2e} \text{ metric tons/BHP-hr} = \mathbf{2.13 \text{ CO}_{2e} \text{ metric tons/yr}}$$

Permit unit N-3669-7-1: 220 BHP diesel fired emergency engine powering an electric generator.

$$220 \text{ BHP} \times 50 \text{ hr/yr} \times 0.000187 \text{ CO}_{2e} \text{ metric tons/BHP-hr} = \mathbf{2.06 \text{ CO}_{2e} \text{ metric tons/yr}}$$

Permit unit N-3669-8-0: 3.7 MMBtu/hr digester gas fired boiler.

$$3.7 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr} \times 0.1046 \text{ CO}_{2e} \text{ metric tons/MMBtu} = \mathbf{3,390.3 \text{ CO}_{2e} \text{ metric tons/yr}}$$

**Total metric tons CO<sub>2e</sub>/yr equals: 10,174.99 metric tons CO<sub>2e</sub>/yr**

$$\mathbf{(10,174.99 \text{ metric tons CO}_{2e}/\text{yr} \times 2,205 \text{ lbs/metric ton}) \div 2,000 \text{ lbs/ton} = \mathbf{11,217.9 \text{ tons CO}_{2e}/\text{yr}}$$

Fuel Type	EF CO2 kg/MMBtu	EF CH4 kg/MMBtu	EF N2O kg/MMBtu		EF CO2e kg/MMBtu	EF CO2e metric tonnes/MMBtu	EF CO2e metric tonnes/hp-hr
Natural Gas	52.87	0.0009	0.0001		52.9199	0.0529	
LPG	63.02	0.001	0.0001		63.0720	0.0631	
Biomass	93.8	0.03	0.004		95.6700	0.0957	
Biogas	104.6	0.0009	0.0001		104.6499	0.1046	
CA Low Sulfur Diesel	73.1	0.003	0.0006		73.3490	0.0733	0.000186757

# Appendix D

## QNEC Calculations

### 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 emission calculations in this evaluation, PE<sub>quarterly</sub> and BE<sub>quarterly</sub> can be calculated as follows:

This calculation is required for application emission profile purposes. It is assumed that the unit's annual emissions are evenly distributed throughout the year as follows:  $\Delta PE \text{ (lb/qtr)} = PE \text{ (lb/yr)} \div 4 \text{ qtr/yr}$ .

N-3669-14-0:

$\Delta PE_{NOx}$	= 404 lb-NOx/year – 0 lb-NOx/year	= 404 lb/year
$\Delta PE_{CO}$	= 29 lb-CO/year – 0 lb-CO/year	= 29 lb/year
$\Delta PE_{VOC}$	= 27 lb-VOC/year – 0 lb-VOC/year	= 27 lb/year
$\Delta PE_{PM10}$	= 3 lb-PM10/year – 0 lb-PM10/year	= 3 lb/year
$\Delta PE_{SOx}$	= 0 lb-SOx/year – 0 lb-SOx/year	= 0 lb/year

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
<b>NOx</b>	101	101	101	101
<b>CO</b>	7	7	7	8
<b>VOC</b>	6	7	7	7
<b>PM<sub>10</sub></b>	0	1	1	1
<b>SOx</b>	0	0	0	0

# **Appendix E**

## **BACT Guideline and BACT Analysis**

# San Joaquin Valley Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 3.1.1**  
**Last Update: 7/10/2009**  
**Emergency Diesel IC Engine**

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	Latest EPA Tier Certification level for applicable horsepower range		
NOX	Latest EPA Tier Certification level for applicable horsepower range		
PM10	0.15 g/hp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	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.

## **Top Down BACT Analysis for NO<sub>x</sub> and VOC emissions:**

BACT Guideline 3.1.1 (July 10, 2009) applies to emergency diesel IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

### **1. BACT analysis for NO<sub>x</sub> and VOC emissions:**

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

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following EPA and state regulations were consulted:

- 40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR Part 89 – Control of Emissions from New and In-Use Nonroad Compression – Ignition Engines
- 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines
- Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the proposed emergency engine does not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 and 40 CFR Part 60 Subpart IIII apply directly to the proposed emergency engine.

Title 17 CCR, Section 93115.6(a)(3)(A) (CARB stationary diesel engine ATCM) applies to emergency standby diesel-fired engines and requires that such engines be certified to the emission levels in Table 1 (below). Please note that these levels are at least as stringent or more stringent than the emission levels in 40 CFR Subpart IIII.

<b>Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)</b>					
<b>Maximum Engine Power</b>	<b>Tier</b>	<b>Model Year(s)</b>	<b>PM</b>	<b>NMHC+NOx</b>	<b>CO</b>
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
100 ≤ HP < 175 (75 ≤ kW < 130)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
600 ≤ HP ≤ 750 (450 ≤ kW ≤ 560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP > 750 (kW > 560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)

Additionally, 40 CFR Subpart IIII establishes emission standards for emergency diesel IC engines. These emission standards are the same as those specified in the CARB ATCM, except for engines rated greater than or equal to 50 and less than 75 hp. For such IC engines, the CARB ATCM is more stringent.

Therefore, the most stringent applicable emission standards are those listed in the CARB ATCM (Table 1). For IC engines rated greater than 750 hp the highest Tier required is a Tier 2 engine.

Also, please note that neither the state ATCM nor the Code of Federal Regulations require the installation of IC engines meeting a higher Tier standard than those listed above for emergency applications, due to concerns regarding the effectiveness of the exhaust emissions controls during periods of short-term operation (such as testing operational readiness of an emergency engine).

The proposed engine is rated at 909 bhp. Therefore, the applicable control technology option is EPA Tier 2 certification. The applicant has proposed to install a Tier 2 engine.

**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**

Ranking is not necessary since there is only one control option listed in Step 1.



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

The applicant has proposed the only control option remaining under consideration. Therefore, a cost effectiveness analysis is not required.

**e. Step 5 - Select BACT**

BACT for the control of NOx and VOC emissions will be the use of an EPA Tier 2 certified engine. Therefore, the District's BACT requirements will be satisfied.

# **Appendix F**

## HRA Summary

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Fred Cruz - Permit Services

From: Cheryl Lawler - Permit Services

Date: September 4, 2013

Facility Name: City of Turlock Water Control

Location: 901 South Walnut Road, Turlock

Application No: N-3669-14-0

Project No: N-1132843

## A. RMR SUMMARY

<b>RMR Summary</b>			
<b>Categories</b>	<b>Emergency Diesel ICE (Unit 14-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
<b>Acute Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
<b>Chronic Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
<b>Maximum Individual Cancer Risk</b>	<b>1.82E-08</b>	1.82E-08	4.18E-07
<b>T-BACT Required?</b>	<b>No</b>		
<b>Special Permit Conditions?</b>	<b>Yes</b>		

1 Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.

2 Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

### Proposed Permit Conditions

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

#### Unit 14-0

1. The PM10 emissions rate shall not exceed **0.028 g/bhp-hr** based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. 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]
3. 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]

**B. RMR REPORT**

**I. Project Description**

Technical Services received a request on August 29, 2013, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for a 909 bhp emergency diesel IC engine.

**II. Analysis**

Technical Services performed a screening level health risk assessment using the District developed DICE database.

The following parameters were used for the review:

<b>Analysis Parameters</b>			
<b>Source Type</b>	<b>Point</b>	<b>Location Type</b>	<b>Rural</b>
<b>BHP</b>	909	<b>PM<sub>10</sub> g/hp-hr</b>	0.028
<b>Closest Receptor (m)</b>	229	<b>Quad</b>	1
<b>Max Hours per Year</b>	50	<b>Type of Closest Receptor</b>	Business

Technical Services also performed modeling for criteria pollutants NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>; as well as the RMR. The emission rates used for criteria pollutant modeling were 404 lb/yr NO<sub>x</sub>, 1 lb/yr SO<sub>x</sub>, 3 lb/yr PM<sub>10</sub>, and 3 lb/yr PM<sub>2.5</sub>.

The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***

<b>Diesel ICE</b>	<b>1 Hour</b>	<b>3 Hours</b>	<b>8 Hours</b>	<b>24 Hours</b>	<b>Annual</b>
CO	NA <sup>1</sup>	X	NA <sup>1</sup>	X	X
NO <sub>x</sub>	NA <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	NA <sup>1</sup>	NA <sup>1</sup>	X	NA <sup>1</sup>	Pass
PM <sub>10</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>
PM <sub>2.5</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>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).

**III. Conclusions**

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

The Cancer Risk associated with the operation of the proposed diesel IC engine 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 conditions listed on page 1 of this report must be included for the 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.

**Attachments:**

RMR Request Form & Related Documents  
DICE Screening Risk Tool  
AAQA Results  
Facility Summary