



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



AUG 01 2014

Steven Thomas  
Union Pacific Railroad Company  
1400 Douglas Street, Stop 0910  
Omaha, NE 68179

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: N-N-9020**  
**Project Number: N-1142727**

Dear Mr. Thomas:

Enclosed for your review and comment is the District's analysis of Union Pacific Railroad Company's application for an Authority to Construct for two diesel fired emergency IC engines, at 1201 Railroad Way, Stockton, CA.

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. Mark Schonhoff of Permit Services at (209) 557- 6448.

Sincerely,

  
Arnaud Marjollet  
Director of Permit Services

AM:MJS

Enclosures

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

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

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**Northern Region**  
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California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:  
CEQA Guidelines

### **III. Project Location**

1201 Railroad Way (Rough and Ready Island)  
Stockton, CA

The engines will not be within 1,000 feet of a K-12 school, therefore, the school notification requirements of section 42401.6 of the California Health & Safety Code do not apply.

### **IV. Process Description**

The emergency standby engines will power electrical generators. Other than emergency standby operation, each engine may be operated up to 50 hours per year for maintenance and testing purposes.

### **V. Equipment Listing**

The engines are identical, therefore, the description below is for both units.

909 BHP PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED  
EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

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

The applicant has proposed to install two Tier 2 certified diesel-fired IC engine that will be 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 C 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) says, "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 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%
PM <sub>10</sub> fraction of diesel exhaust:	0.96 (CARB, 1988)

The engine has certified NO<sub>x</sub> + VOC emissions of 4.30 g/bhp-hr. It will be assumed the NO<sub>x</sub> + VOC emission factor is split 95% NO<sub>x</sub> and 5% VOC (per the District’s Carl Moyer program).

### **B. Emission Factors**

The emission factors are the same for each unit. The NO<sub>x</sub> + VOC, CO and PM<sub>10</sub> factors are from the emission data sheet that is in Appendix C.

The NO<sub>x</sub> + VOC emission factor is 4.30 g/bhp-hr. Per District guidance document GEAR-11d, 95% of this would be expected to be NO<sub>x</sub> and 5% would be expected to be VOC.

$$EF_{NO_x} = (4.30 \text{ g/bhp-hr})(0.95) = 4.1 \text{ g/bhp-hr}$$
$$EF_{VOC} = (4.30 \text{ g/bhp-hr})(0.05) = 0.2 \text{ g/bhp-hr}$$

$$EF_{CO} = 0.29 \text{ g/bhp-hr}$$

$$EF_{SO_x} = 0.0044 \text{ g/bhp-hr} - \text{see below}$$

Sulfur Content of Diesel: 15 ppmw  
 Density of Diesel: 7.1 lb/gal  
 Fuel Use: 41.4 gal/hr (applicant)  
 Engine Rating: 909 bhp

$$EF_{SO_x} = [(15 \text{ lb S}/10^6 \text{ lb fuel})(7.1 \text{ lb fuel/gal})(41.4 \text{ gal/hr})(2 \text{ lb SO}_2/\text{lb S}) \times (453.6 \text{ g/lb})] / (909 \text{ bhp}) = 0.0044 \text{ g/bhp-hr}$$

$EF_{PM_{10}}$ : 0.028 g/bhp-hr (applicant)

### C. Calculations

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

The units are new, therefore, PE1 = 0.

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

The daily and annual PEs are calculated as follows:

Project Emissions (PE2)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO <sub>x</sub>	4.10	909	24	50	197.2	411
SO <sub>x</sub>	0.0044	909	24	50	0.2	0
PM <sub>10</sub>	0.03	909	24	50	1.3	3
CO	0.290	909	24	50	13.9	29
VOC	0.20	909	24	50	9.6	20

#### 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.

The Authorities-to-Construct listed below have not been issued yet, however, it is expected that they will be issued prior to the issuance of the Authorities-to-Construct proposed under this application. The following are from the preliminary review calculations for project N-1144936.

SSPE1 (lb/yr)					
Permit #	NOx	CO	VOC	SOx	PM10
ATC N-9020-1-0	0	0	0	0	15
ATC N-9020-2-0	0	0	0	0	548
Total w/o ERC	0	0	0	0	563
ERC	0	0	0	0	0
Total	0	0	0	0	563

#### 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.

SSPE2 (lb/yr)					
Permit #	NOx	CO	VOC	SOx	PM10
N-9020-1-0	0	0	0	0	15
N-9020-2-0	0	0	0	0	548
N-9020-3-0	411	29	20	0	3
N-9020-4-0	411	29	20	0	3
Total w/o ERC	822	58	40	0	569
ERC	0	0	0	0	0
Total	822	58	40	0	569

## 5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) 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."

This facility does not contain ERCs which have been banked at the source; therefore, no adjustment to SSPE2 is necessary.

Major Source Determination					
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Major Source Threshold (lb/yr)	Existing Major Source?	Becoming a Major Source?
NO <sub>x</sub>	0	822	20,000	No	No
SO <sub>x</sub>	0	0	140,000	No	No
PM <sub>10</sub>	563	569	140,000	No	No
CO	0	58	200,000	No	No
VOC	0	40	20,000	No	No

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

## 6. Baseline Emissions (BE)

The units are new, therefore, their Baseline Emissions are zero.

## 7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 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."

As discussed in Section VII.C.5 above, this facility is not a Major Source for any of the pollutants addressed in this project; therefore, the project does not constitute a SB 288 Major Modification.

## **8. Federal Major Modification**

District Rule 2201, Section 3.18 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM<sub>10</sub> (140,000 lb/year), it is not a major source for PM<sub>2.5</sub> (200,000 lb/year).

## **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 E.

## **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 2.0 pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding 2.0 pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding 2.0 pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

As discussed in Section I, the facility is proposing to install two new emergency standby 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. Therefore, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.



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

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for each unit (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	197.2	> 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	58	No
VOC	9.6	> 2.0	n/a	Yes

As shown above, BACT will be required for the NO<sub>x</sub> and VOC emissions from the each engine in this project.

## 2. BACT Guideline

BACT Guideline 3.1.1, which appears in Appendix B 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 B of this report, BACT is satisfied with:

- NO<sub>x</sub>: Latest EPA Tier Certification level for applicable horsepower range
- VOC: Latest EPA Tier Certification level for applicable horsepower range

## B. Offsets

Since emergency IC engines are exempt from the offset requirements of Rule 2201, per Section 4.6.2, offsets are not required for this engine, and no offset calculations are required.

## **C. Public Notification**

### **1. Applicability**

Public noticing is required for:

- a. New Major Sources, SB288 Major Modifications, Federal Major Modifications

As shown in Sections VII.C.5, VII.C.7, and VII.C.8, this facility is not a new Major Source, not an SB 288 Major Modification, and not a Federal Major Modification.

- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant

As shown in Section VII.C.2, the daily emissions for NO<sub>x</sub> from each engine will be greater than 100 lb/day. Therefore, a public notice is required.

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

As shown in Section VII.C.4, an offset threshold will not be surpassed.

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

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

### **2. Public Notice Action**

As shown above, this project will require public noticing because the potential to emit of NO<sub>x</sub> is greater than 100 lb/day for each of the new units. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC(s) for this equipment.

## **D. Daily Emissions Limits**

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, 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 each ATC to ensure compliance:

- Emissions from this IC engine shall not exceed any of the following limits: 4.1 g-NO<sub>x</sub>/bhp-hr, 0.29 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.028 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]
- 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**

No monitoring is required to demonstrate compliance with Rule 2201.

### **3. Recordkeeping**

Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

### **4. Reporting**

No reporting is required to ensure compliance with Rule 2201.

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

Section 4.14.1 of this rule 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 D, 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 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 IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

The proposed engines are subject to the requirements of this subpart. The District has not yet obtained a delegation from EPA to enforce this subpart. Therefore, requirements of this subpart are not listed in the permit at this time.

### **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)**

The proposed engines are subject to the requirements of this subpart. The District has not yet obtained a delegation from EPA to enforce this subpart. Therefore, requirements of this subpart are not listed in the permit at this time.

### **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 detail in Appendix D.

<b>RMR Results</b>				
Unit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required?
N-9020-3-0	N/A	N/A	0.072 in a million	No
N-9020-4-0	N/A	N/A	0.072 in a million	No

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

- {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]
- 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]
- 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**

The purpose of this rule is to limit the emissions of nitrogen oxides (NOx), 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 proposed engine(s) are also subject to District Rule 4702, Internal Combustion Engines. Since emissions limits of District Rule 4702 and all other requirements are equivalent or more stringent than District Rule 4701 requirements, compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

**Rule 4702 Internal Combustion Engines**

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

District Rule 4702 Requirements Emergency Standby IC Engines	Proposed Method of Compliance with District Rule 4702 Requirements
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	The following conditions will be included on the permit: <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</li> </ul>

<p>utility demand reduction program or interruptible power contract.</p>	<p>events beyond the control of the permittee. [District Rule 4702]</p> <ul style="list-style-type: none"> <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 Rule 4702]</li> </ul>
<p>The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions.</p>	<p>A permit condition enforcing this requirement was shown earlier in the evaluation.</p>
<p>The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.</p>	<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 Rule 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 Rules 4701, 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</li> </ul>

	retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 4701, 4702 and 17 CCR 93115]
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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:

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

n = moles SO<sub>2</sub>

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

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

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

Since 1.0 ppmv is ≤ 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition 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 the engines will not be 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(s) will comply with the requirements of Title 17 CCR Section 93115.

<p><b>Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators</b></p>	<p><b>Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements</b></p>
<p>Emergency engine(s) must be fired on CARB diesel fuel, or an approved alternative diesel fuel.</p>	<p>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.</p>
<p>The engine(s) must emit diesel PM at a rate less than or equal to 0.15 g/bhp-</p>	<p>The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of this regulation. Additionally, the proposed diesel PM emissions rate is less than 0.15 g/bhp-hr.</p>
<p>The engine may not be operated more than 50 hours per year for maintenance and testing purposes.</p>	<p>The following condition will be included on the permit:</p> <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 and 17 CCR 93115]</li> </ul>
<p>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</p>	<p>The District has verified that this engine is not located within 500' of a school.</p>
<p>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; 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.</p>	<p>Permit conditions enforcing these requirements were shown earlier in the evaluation.</p>

## 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.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project qualifies for ministerial approval under the District's Guideline for Expedited Application Review (GEAR). Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

## IX. Recommendation

Pending a successful NSR Public Noticing period, issue Authorities to Construct N-9020-3-0 and N-9020-4-0 with the conditions on the attached draft Authorities to Construct in Appendix A.

## X. Billing Information

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
N-9020-3-0	3020-10-E	909 bhp IC engine	\$602.00
N-9020-4-0	3020-10-E	909 bhp IC engine	\$602.00

## **Appendices**

- A. Draft ATCs
- B. BACT Guideline and BACT Analysis
- C. Emissions Data Sheet
- D. HRA Summary and AAQA
- E. QNEC Calculations

# Appendix A Draft ATCs

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-9020-3-0

LEGAL OWNER OR OPERATOR: UNION PACIFIC RAILROAD COMPANY  
MAILING ADDRESS: 1400 DOUGLAS ST STOP 0910  
OMAHA, NE 68179-0910

LOCATION: 1201 RAILROAD WAY  
STOCKTON, CA

EQUIPMENT DESCRIPTION:  
909 BHP PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE  
POWERING AN ELECTRICAL GENERATOR

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {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]
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. 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]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rules 4701 and 4702 and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 4.1 g-NOx/bhp-hr, 0.29 g-CO/bhp-hr, or 0.2 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.

Sayed Sadredin, Executive Director, APCO

**DRAFT**

Arnaud Marjolle, Director of Permit Services

N-9020-3-0 • Jul 24 2014 8:21AM - SCHOONHOUT Joint Inspection NOT Required

10. 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]
11. 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 Rules 4701 and 4702 and 17 CCR 93115]
12. 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]
13. 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]
14. 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 Rules 4701 and 4702 and 17 CCR 93115]
15. The permittee shall maintain monthly records of the type of fuel purchased. [District Rules 4701 and 4702 and 17 CCR 93115]
16. 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 Rules 4701 and 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**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-9020-4-0

LEGAL OWNER OR OPERATOR: UNION PACIFIC RAILROAD COMPANY  
MAILING ADDRESS: 1400 DOUGLAS ST STOP 0910  
OMAHA, NE 68179-0910

LOCATION: 1201 RAILROAD WAY  
STOCKTON, CA

EQUIPMENT DESCRIPTION:  
909 BHP PERKINS MODEL 2806C-E18TAG3 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE  
POWERING AN ELECTRICAL GENERATOR

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {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]
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. 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]
6. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rules 4701 and 4702 and 17 CCR 93115]
7. Emissions from this IC engine shall not exceed any of the following limits: 4.1 g-NOx/bhp-hr, 0.29 g-CO/bhp-hr, or 0.2 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

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Sayed Sadredin, Executive Director, APCO

**DRAFT**  
Arnaud Marjolle, Director of Permit Services

N-9020-4-0 | Jul 24 2014 8:21AM - SCHOENHORN - Joint Inspection NOT Required

10. 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]
11. 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 Rules 4701 and 4702 and 17 CCR 93115]
12. 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]
13. 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]
14. 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 Rules 4701 and 4702 and 17 CCR 93115]
15. The permittee shall maintain monthly records of the type of fuel purchased. [District Rules 4701 and 4702 and 17 CCR 93115]
16. 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 Rules 4701 and 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

## 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 the Emergency IC Engine(s)

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(s) do 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(s).

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.

Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)					
Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NOx	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	4i	2008+			
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	3	2008+			
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)
		2008+			

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 or equal to 50 hp and less than 75 hp the the highest Tier required is Tier 4i. For IC engines rated greater than or equal to 75 hp and less than 750 hp the highest Tier required is Tier 3. For engines rated equal to or greater than 750 hp the highest Tier required is Tier 2.

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 engines are rated at 909 hp. Therefore, the applicable control technology option is EPA Tier 2 certification.

#### **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**

No ranking needs to be done because 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 NOx and VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, BACT will be satisfied.

# Appendix C

## Emissions Data Sheet

## EXHAUST EMISSIONS DATA

## STATEMENT OF EXHAUST EMISSIONS 2014 PERKINS DIESEL FUELED GENERATOR

The measured emissions values provided here are proprietary to Generac and its authorized dealers. This information may only be disseminated upon request, to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc. The data provided shall not be meant to include information made public by Generac.

Generator Model:	<b>SD/MD600</b>	EPA Certificate Number:	<b>ECPXL18.1NYS-010</b>
kW <sub>e</sub> Rating:	<b>600</b>	CARB Certificate Number:	<b>Not Applicable</b>
Engine Family:	<b>ECPXL18.1NYS</b>	SCAQMD CEP Number:	<b>545379</b>
Engine Model:	<b>2806C-E18TAG3</b>	Emission Standard Category:	<b>Tier 2</b>
Rated Engine Power (BHP)*:	<b>909</b>	Certification Type:	<b>Stationary Emergency CI (40 CFR Part 60 Subpart IIII)</b>
Fuel Consumption (gal/hr)*:	<b>41.4</b>		
Aspiration:	<b>Turbo/Aftercooled</b>		
Rated RPM:	<b>1800</b>		

\*Engine Power and Fuel Consumption are declared by the Engine Manufacturer of Record and the U.S. EPA.

Emissions based on engine power of specific Engine Model. (These values are actual composite weighted exhaust emissions results over the EPA 5-mode test cycle.)			
CO	NOx + NMHC	PM	
0.39	5.79	0.038	Grams/kW-hr
0.29	4.30	0.028	Grams/bhp-hr

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5-mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA protocol, which is typically accepted by SCAQMD and other regional authorities.
- No emissions values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and local agencies must be consulted by the permit application/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems cannot be construed as a guarantee of installability of the generating set.

# Appendix D

## HRA Summary and AAQA



## San Joaquin Valley Air Pollution Control District Risk Management Review

To: Mark Schonhoff - Permit Services  
 From: Cheryl Lawler - Permit Services  
 Date: July 22, 2014  
 Facility Name: Union Pacific Railroad  
 Location: 1201 Railroad Way, Stockton  
 Application #(s): N-9020-3-0 & 4-0  
 Project #: N-1142727

### A. RMR SUMMARY

RMR Summary				
Categories	Emergency Diesel ICE (Unit 3-0)	Emergency Diesel ICE (Unit 4-0)	Project Totals	Facility Totals
Prioritization Score	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
Acute Hazard Index	N/A <sup>2</sup>	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>	N/A <sup>2</sup>	0.00
Maximum Individual Cancer Risk	2.72E-08	2.72E-08	5.44E-08	5.44E-08
T-BACT Required?	No	No		
Special Permit Conditions?	Yes	Yes		

<sup>1</sup> 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.

<sup>2</sup> 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:

#### Units 3-0 & 4-0

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. {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] N
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 July 17, 2014, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for two identical 909 bhp emergency diesel IC engines.

### II. Analysis

Diesel exhaust emissions and the Cancer Risks from the engines were calculated using the District approved DICE spreadsheet.

The following parameters were used for the review:

Analysis Parameters (each engine)			
PM <sub>10</sub> g/hp-hr	0.028	Source Type	Point
BHP	909	Stack Diameter (m)	0.3
Closest Receptor (m)	244	Stack Height (m)	1.98
Max Hours per Year	50	Stack Gas Temp. (K)	827
Location Type	Rural	Stack Gas Velocity (m/s)	32.21

Technical Services also performed modeling for criteria pollutants NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub>; as well as the RMR. The emission rates used for criteria pollutant modeling were 410.8 lb/yr NO<sub>x</sub>, 0.44 lb/yr SO<sub>x</sub>, and 2.8 lb/yr PM<sub>10</sub>.

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results\*

Diesel ICEs	1 Hour	3 Hours	8 Hours	24 Hours	Annual
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>

\*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 Risks associated with the operation of the proposed diesel IC engines are 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 units.

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 & Site Maps  
DICE Spreadsheets  
AAQA Results  
Facility Summary  
AERMOD Non-Regulatory Option Checklist

# Appendix E

## 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

Since this is a new unit, PE1 = 0 for all pollutants. Thus, QNEC = PE2 (lb/qtr).

Using the PE2 (lb/yr) values calculated in Section VII.C.2, Quarterly PE2 is calculated as follows:

$$PE2_{\text{quarterly}} = PE2 \text{ (lb/yr)} \div 4 \text{ quarters/year} = QNEC$$

The annual emissions are the same for each engine, therefore, the calculation below applies to each unit.

QNEC		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	411	102.75
SO <sub>x</sub>	0	0.0
PM <sub>10</sub>	3	0.75
CO	29	7.25
VOC	20	5