



MAY 10 2011

Michael Callahan
City of Stockton
2500 Navy Drive
Stockton, CA 95260

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1110516

Dear Mr. Callahan:

Enclosed for your review and comment is the District's analysis of City of Stockton's application for an Authority to Construct for the installation of a 954 bhp diesel-fired emergency engine powering an electrical generator, located at 1001 Correia Road, Stockton.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the 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/st

Enclosures

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

Central Region (Main Office)
1990 E. Gettysburg Avenue
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Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
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MAY 10 2011

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1110516

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of City of Stockton's application for an Authority to Construct for the installation of a 954 bhp diesel-fired emergency engine powering an electrical generator, located at 1001 Correia Road, Stockton.

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Stockton Record
Stockton Record

**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 an Authority to Construct permit to the City of Stockton for the installation of a 954 bhp diesel-fired emergency engine powering an electrical generator, located at 1001 Correia Road, Stockton.

The analysis of the regulatory basis for this proposed action, Project #N-1110516, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice 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 Stockton	Date:	April 18, 2011
Mailing Address:	2500 Navy Drive Stockton, CA 95206	Engineer:	Fred Cruz
Contact Person:	Michael Callahan (City of Stockton)	Lead Engineer:	Mark Schonhoff
Telephone:	(209) 937-8994		(209) 649-5982 (cell phone)
Application No:	N-8543-1-0		
Project No:	N-1110516		
Complete:	April 11, 2011		

I. PROPOSAL:

The City of Stockton submitted an Authority to Construct application to install a 954 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

II. APPLICABLE RULES:

Rule 2201 New and Modified Stationary Source Review Rule (6/10/2010)
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 (1/18/2007)
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 1001 Correia Road, Stockton, CA.

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.

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-8543-1-0: 954 BHP DOOSAN MODEL 22L (TIER 2 CERTIFIED) DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR.

VI. EMISSION CONTROL TECHNOLOGY EVALUATION:

The applicant has proposed to install a Model Year 2010 Tier 2 certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

The proposed engine meets the applicable Tier Certification requirements. Therefore, the engine meets the applicable ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix B for a copy of the emissions data sheet).

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO_x 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%

PM₁₀ fraction of diesel exhaust: 0.96 (CARB, 1988)
The applicant supplied the emissions factor for NO_x 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_x and VOC emissions (District assumption).

Tier 2 and Tier 3 Diesel-Fired IC Engines NO _x and VOC Estimated Emissions						
Horsepower Range (bhp)	Combined Standard, NO _x + VOC (g/bhp-hr)		Estimated NO _x Emissions (g/bhp-hr)		Estimated VOC Emissions (g/bhp-hr)	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
≥ 750	4.8	N/A	4.5	N/A	0.3	N/A

This 954 bhp engine is a Tier 2 certified IC engine and the applicant supplied the combined NO_x + VOC emissions factor as 4.0 g/bhp-hr. Therefore, the NO_x and VOC emissions factors for this engine are calculated as follows:

$$\begin{aligned} \text{NO}_x \text{ (g/bhp-hr)} &= \text{NO}_x + \text{VOC (g/bhp-hr)} \times \frac{4.5 \text{ g/bhp-hr} + 4.8 \text{ g/bhp-hr}}{4.0 \text{ g/bhp-hr}} \\ \text{NO}_x \text{ g/bhp-hr} &= 4.0 \text{ g/bhp-hr} \times \frac{4.5 \text{ g/bhp-hr} + 4.8 \text{ g/bhp-hr}}{4.0 \text{ g/bhp-hr}} \\ \text{NO}_x &= \mathbf{3.75 \text{ g/bhp-hr}} \end{aligned}$$

$$\begin{aligned} \text{VOC (g/bhp-hr)} &= \text{NO}_x + \text{VOC (g/bhp-hr)} \times \frac{0.3 \text{ g/bhp-hr} + 4.8 \text{ g/bhp-hr}}{4.0 \text{ g/bhp-hr}} \\ \text{VOC g/bhp-hr} &= 4.0 \text{ g/bhp-hr} \times \frac{0.3 \text{ g/bhp-hr} + 4.8 \text{ g/bhp-hr}}{4.0 \text{ g/bhp-hr}} \\ \text{VOC} &= \mathbf{0.25 \text{ g/bhp-hr}} \end{aligned}$$

B. Emission Factors

Emission factors for this engine are as follows:

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	3.75	Engine manufacturer's data
SO _x	0.005	Mass Balance Equation Below
PM ₁₀	0.10	Engine manufacturer's data
CO	0.70	Engine manufacturer's data
VOC	0.25	Engine manufacturer's data

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

C. Calculations

1. Pre-Project Emissions (PE1)

Since this is a new emissions unit, PE1 will equal zero for all pollutants.

2. Post-Project PE (PE2)

The potential to emit for this emergency IC engine is based on the maximum operating capacity of the engine for 24 hours per day. The following calculation for NO_x emissions is representative of emission calculations for all pollutants. Annual emissions are based on 50 hours per year for non-emergency operation.

NO_x: 3.75 g/hp-hr × 954 hp × lb/453.6 g

NO_x: 7.89 lb/hr, 189.3 lb/day, 394 lb/yr

CO: 1.47 lb/hr, 35.3 lb/day, 74 lb/yr

VOC: 0.53 lb/hr, 12.6 lb/day, 26 lb/yr

PM₁₀: 0.21 lb/hr, 5.0 lb/day, 11 lb/yr

SO_x: 0.01 lb/hr, 0.3 lb/day, 1 lb/yr

	NO _x	CO	VOC	PM ₁₀	SO _x
Daily PE	189.3	35.3	12.6	5.0	0.3
Annual PE	394	74	26	11	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.

Since this is a new facility, SSPE1 = 0 lb/yr for all criteria pollutants.

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.

Permit Number	Pollutants (lb/yr)				
	NO _x	SO _x	PM ₁₀	CO	VOC
N-8543-1-0	394	1	11	74	26
SSPE2	394	1	11	74	26
Major Source Threshold Levels	20,000	140,000	140,000	200,000	20,000

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 and SSPE2 does not have to be adjusted.

Major Source Determination					
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Major Source Threshold (lb/yr)	Existing Major Source?	Becoming a Major Source?
NO _x	0	394	20,000	No	No
SO _x	0	1	140,000	No	No
PM ₁₀	0	11	140,000	No	No
CO	0	74	200,000	No	No
VOC	0	26	20,000	No	No

As demonstrated above, the facility is not an existing Major Source and does not become a Major Source as a result of this project.

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

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

Otherwise,
BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22

Since this is a new emissions unit, BE will equal zero for all criteria pollutants.

7. SB 288 Major Modification:

The purpose of Major Modification calculations is to determine the following:

- A. If Best Available Control Technology (BACT) is triggered for a new or modified emission unit that results in a Major Modification (District Rule 2201, Section 4.1.3); and
- B. If a public notification is triggered (District Rule 2201, Section 5.4.1).

Based on the pre and post-project stationary source potential to emit calculations (less onsite Emission Reduction Credit's) in this document, the facility is not a Major Source for any pollutant. Therefore, the proposed project cannot trigger a Major modification, and no further calculations are required.

8. Federal Major Modification:

This facility is not a Major Source for any pollutant. Therefore, this project can not constitute a Federal Major Modification and no further discussion is required.

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.

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:

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -1-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO _x	189.3	> 2.0	N/A	Yes
SO _x	0.3	> 2.0	N/A	No
PM ₁₀	5.0	> 2.0	N/A	Yes
CO	35.3	> 2.0 and SSPE2 ≥ 200,000 lb/yr	74	No
VOC	12.6	> 2.0	N/A	Yes

Thus, BACT will be triggered for NO_x, VOC and PM10 emissions for this engine.

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_x: Latest EPA Tier Certification level for applicable horsepower range
VOC: Latest EPA Tier Certification level for applicable horsepower range
PM₁₀: Use of tier certified engine with 0.15 g-PM10/hp-hr, or less, emission factor. (ATCM)

The following condition will be listed on the ATC to ensure compliance with the PM₁₀ BACT requirements:

- Emissions from this IC engine shall not exceed 0.10 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, 40 CFR Part 60 Subpart III]

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 facility does not become a Major Source as a result of this project.

- 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 calculated, daily emissions for NO_x emissions 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 engines are 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 NOx emissions are greater than 100 lb/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: 3.75 g-NOx/bhp-hr, 0.70 g-CO/bhp-hr, or 0.25 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart III]
- Emissions from this IC engine shall not exceed 0.10 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart III]
- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 17 CCR 93115, and 40 CFR Part 60 Subpart III]

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 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 E, the proposed equipment will not cause or make worse a violation of an air quality standard for NO_x, CO, PM₁₀, or SO_x.

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 following table demonstrates how the proposed engine will comply with the requirements of 40 CFR Part 60 Subpart IIII.

40 CFR 60 Subpart IIII Requirements for New Emergency IC Engines Powering Generators (2007 and Later Model Year)	Proposed Method of Compliance with 40 CFR 60 Subpart IIII Requirements
Engines must meet the appropriate Subpart IIII emission standards for new engines, based on the model year, size, and number of liters per cylinder.	The applicant has proposed the use of an engine that is certified to the latest EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of Subpart IIII.
Engines must be fired on 500 ppm sulfur content fuel or less, and fuel with a minimum centane index of 40 or a maximum aromatic	The applicant has proposed the use of CARB certified diesel fuel, which meets all of the fuel requirements listed in Subpart IIII. A permit

<p>content of 35 percent by volume. Starting in October 1, 2010, the maximum allowable sulfur fuel content will be lowered to 15 ppm.</p>	<p>condition enforcing this requirement was included earlier in this evaluation.</p>
<p>The operator/owner must install a non-resettable hour meter prior to startup of the engines.</p>	<p>The applicant has proposed to install a non-resettable hour meter. The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart III]
<p>Emergency engines may be operated for the purpose of maintenance and testing up to 100 hours per year. There is no limit on emergency use.</p>	<p>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.</p>
<p>The owner/operator must operate and maintain the engines and any installed control devices according to the manufacturers written instructions.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • 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 and 40 CFR 60 Subpart III]

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 Emissions (RICE)

Emergency engines are subject to this subpart if they are operated at a major or area source of Hazardous Air Pollutant (HAP) emissions. A major source of HAP emissions is a facility that has the potential to emit any single HAP at a rate of 10 tons/year or greater or any combinations of HAPs at a rate of 25 tons/year or greater. An area source of HAPs is a facility that is not a major source of HAPs. The proposed engine is new stationary RICE located at an area source of HAP emissions. Therefore, this engine is subject to this Subpart.

40 CFR 63 Subpart ZZZZ requires the following engine to comply with 40 CFR 60 Subpart IIII:

1. New emergency engines located at area sources of HAPs
2. Emergency engines rated less than or equal to 500 bhp and located at major sources of HAPs

The proposed engine will be in compliance with 40 CFR 60 Subpart IIII.

Additionally, 40 CFR 63 Subpart ZZZZ requires engines rated greater 500 bhp and located at major sources of HAPs to meet the notification requirements of §63.6645(h); however, that section only applies if an initial performance test is required. Since an initial performance test is not required for emergency engines, the notification requirement is not applicable.

The proposed engine is expected to be in compliance with 40 CFR 63 Subpart ZZZZ.

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 E.

RMR Summary			
Categories	Emergency Diesel ICE (Unit 1-0)	Project Totals	Facility Totals
Prioritization Score	N/A ¹	>1	>1
Acute Hazard Index	N/A ²	N/A	N/A
Chronic Hazard Index	N/A ²	N/A	N/A
Maximum Individual Cancer Risk	3.10E-08	3.10E-08	3.10E-08
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 prioritization scores 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 it has been determined to be insignificant for these types of units.

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

Unit 1-0

1. Modified {1901} The PM₁₀ emissions rate shall not exceed 0.1 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 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]
3. Modified {1344} 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 NSR Rule and District Rule 4701]
4. The exhaust stack release height shall be 12 feet. [District Rule 4102]

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 PM₁₀ emission factor of 0.4 g-PM₁₀/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 PM₁₀ 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

Pursuant to Section 7.5.2.3 of District Rule 4702, as of June 1, 2006 District Rule 4701 is no longer applicable to diesel-fired emergency standby or emergency IC engines. Therefore, the proposed emergency internal combustion engine will comply with the requirements of District Rule 4702 and no further discussion is required.

Rule 4702 Internal Combustion Engines – Phase 2

The following table demonstrates how the proposed engine 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 utility demand reduction program or interruptible power contract.	The following conditions will be included on the permit: <ul style="list-style-type: none"> • {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] • {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]
The owner/operator must operate and maintain the engines and any installed control devices according to the manufacturers written instructions.	A permit condition enforcing this requirement was shown earlier in the evaluation.
The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.	The following condition will be included on the permit: <ul style="list-style-type: none"> • {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

	<p>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]</p>
<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"> • {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] • The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115] • {3475} All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Rule 4801 Sulfur Compounds

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

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

n = moles SO₂
T (standard temperature) = 60 °F or 520 °R

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

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

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, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]

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.

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
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.
The 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 (Title 13 CCR, Section 2423).	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"> • This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations.

	<p>Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]</p>
<p>New stationary emergency standby diesel-fueled CI engines (> 50 bhp) must meet the standards for off-road engines of the same model year and maximum rated power as specified in the Off-Road Compression Ignition Engine Standards (Title 13, CCR, section 2423).</p>	<p>The applicant has proposed the use of an engine that is certified to the applicable EPA Tier Certification level for the applicable horsepower range.</p>
<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.

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.

IX. RECOMMENDATION:

Pending a successful NSR Public Noticing period, issue Authority to Construct N-8543-1-0 subject to the permit conditions on the attached Authority to Construct in Appendix A.

X. BILLING INFORMATION:

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
N-8543-1-0	3020-10-E	954 bhp IC engine	\$602

Appendices:

- A. Authority to Construct permit N-8543-1-0
- B. Emissions Data
- C. QNEC Calculations
- D. BACT Guideline and BACT Analysis
- E. HRA Summary and AAQA

Appendix A

Authority to Construct permit N-8543-1-0

Appendix B

Emissions Data Sheet

Appendix E

HRA Summary and AAQA

Appendix C

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_{quarterly} and BE_{quarterly} 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-8543-1-0:

ΔPE_{NOx}	= 394 lb-NOx/year – 0 lb-NOx/year	= 394 lb/year
ΔPE_{CO}	= 74 lb-CO/year – 0 lb-CO/year	= 74 lb/year
ΔPE_{VOC}	= 26 lb-VOC/year – 0 lb-VOC/year	= 26 lb/year
ΔPE_{PM10}	= 11 lb-PM10/year – 0 lb-PM10/year	= 11 lb/year
ΔPE_{SOx}	= 1 lb-SOx/year – 0 lb-SOx/year	= 1 lb/year

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NOx	98	98	99	99
CO	18	18	19	19
VOC	6	6	7	7
PM₁₀	2	3	3	3
SOx	0	0	0	1

Appendix D

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)

The District BACT Clearinghouse includes a guideline that applies to the proposed model year 2010, 954 bhp diesel fired emergency engine (Guideline 3.1.1). Therefore, in accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

Top-Down BACT analysis for NOx:

Step 1 – Identify all Practically Applicable Control Technologies

The applicable BACT guideline includes only the following option:

Latest EPA Tier Certification Level for the Applicable Horsepower Range

To determine the latest applicable tier level, the following EPA 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 Non-road Compression – Ignition Engines

40 CFR Part 1039 – Control of Emissions from New and In-Use Non-road Compression-Ignition Engines

Only 40 CFR Part 60 Subpart IIII applies directly to the stationary emergency engine currently under consideration. 40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the unit does not meet the definition of nonroad engine.

Since it is the only directly applicable EPA regulation that would set emission standards for such a unit, Subpart IIII was consulted for the purpose of determining the latest applicable tier standard. Per section 60.4205(b), the engine must meet the standard established in section 60.4202 for the same model year and horsepower rating. Section 60.4202(a)(2), requires such units to meet the standards specified in 40 CFR 89.112 and 40 CFR 89.113 for the same model year and power rating. Section 89.112 states that the applicable certification level for 2006 and later model year engines rated at over 751 bhp is Tier 2. Part 89.113 does not set a tier standard so it need not be considered at this time.

Since Subpart IIII is the only directly applicable EPA regulation and it does not reference Part 1039 (which directly applies only to manufacturers of nonroad engines), Part 1039 will not be considered.

The list of practically applicable control options is therefore:

EPA Tier 2 Certification

Step 2 – Eliminate Technologically Infeasible Options

The above control option is not technologically infeasible

Step 3 – Rank Remaining Control Options by Control Effectiveness

Ranking	Option	Category
1	EPA Tier 2 Certification	Achieved-in-Practice

Step 4 – Cost Effectiveness Analysis

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

Step 5 – Select BACT

BACT for NOx will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit, therefore, BACT will be satisfied.

Top-Down BACT analysis for VOC:

Step 1 – Identify all Practically Applicable Control Technologies

EPA Tier 2 Certification

Refer to the Top-Down BACT analysis for NOx for a discussion regarding the determination of the EPA tier level to be considered.

Step 2 – Eliminate Technologically Infeasible Options

The above control option is not technologically infeasible

Step 3 – Rank Remaining Control Options by Control Effectiveness

Ranking	Option	Category
1	EPA Tier 2 Certification	Achieved-in-Practice

Step 4 – Cost Effectiveness Analysis

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

Step 5 – Select BACT

BACT for VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit, therefore, BACT will be satisfied.

Top-Down BACT analysis for PM₁₀:

Step 1 – Identify all Practically Applicable Control Technologies

EPA Tier 2 Certification or PM₁₀ emissions of 0.15 g/bhp-hr, which ever is more stringent

Refer to the Top-Down BACT analysis for NO_x for a discussion regarding the determination of the EPA tier level to be considered.

As shown in 40 CFR Part 89.112, the EPA Tier 2 standard for a unit with the proposed horsepower rating is 0.20 g/kW-hr (equivalent to 0.15 g/bhp-hr). Therefore, the options are equivalent.

The list of practically applicable control options is therefore:

PM₁₀ Emissions of 0.15 g/bhp or less

Step 2 – Eliminate Technologically Infeasible Options

The above control option is not technologically infeasible

Step 3 – Rank Remaining Control Options by Control Effectiveness

Ranking	Option	Category
1	PM ₁₀ Emissions of 0.15 g/bhp-hr or less	Achieved-in-Practice

Step 4 – Cost Effectiveness Analysis

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

Step 5 – Select BACT

BACT for PM₁₀ will be the use of an engine that will emit PM₁₀ at 0.15 g/bhp or less. The applicant is proposing an EPA certified Tier 2 engine with PM₁₀ emissions of 0.10 g/bhp-hr, therefore BACT will be satisfied.

Appendix A

Authority to Construct permit N-8543-1-0

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-8543-1-0

LEGAL OWNER OR OPERATOR: CITY OF STOCKTON
MAILING ADDRESS: ATTN: MICHAEL CALLAHAN
2500 NAVY DRIVE
STOCKTON, CA 95206

LOCATION: 1001 CORREIA RD
STOCKTON, CA 95219

EQUIPMENT DESCRIPTION:
954 BHP DOOSAN MODEL 22L DIESEL-FIRED (TIER 2 CERTIFIED) EMERGENCY ENGINE POWERING AN ELECTRIC GENERATOR.

CONDITIONS

1. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. The exhaust stack release height shall be at least 12 feet. [District Rule 4102]
6. {4257} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
7. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 17 CCR 93115, 40 CFR Part 60 Subpart IIII]
8. Emissions from this IC engine shall not exceed any of the following limits: 3.75 g-NOx/bhp-hr, 0.70 g-CO/bhp-hr, or 0.25 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
9. Emissions from this IC engine shall not exceed 0.10 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]

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

DAVID WARNER, Director of Permit Services

N-8543-1-0 : Apr 18 2011 2:41PM - CRUZ : Joint Inspection NOT Required

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475

10. {4261} 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 and 40 CFR 60 Subpart III]
11. {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]
12. {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]
13. {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]
14. {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]
15. {4262} 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, 17 CCR 93115 and 40 CFR Part 60 Subpart III]
16. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
17. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

Appendix B

Emissions Data Sheet

GENERAC®

STATEMENT OF EXHAUST EMISSIONS 2010 DOOSAN DIESEL FUELED GENERATOR

The measured emission 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:	SD/MD600	Aspiration:	Turbocharged/Aftercooled
kW _e Rating:	600	Rated RPM:	1800 RPM
Engine Family:	ADICL21.9UYA	EPA Certificate #:	DIC-NRCI-10-02
Engine Model:	P222FE YOB	SCAQMD CEP #:	459722
Rated Engine Power (BHP)*	954	Emission Std. Category:	Tier 2
Fuel Consumption (gal/hr):	46.2		

*This Engine Power is declared by the Engine Manufacturer of Record and the U.S. EPA.

Emissions based on declared Rated BHP of specific Engine Models. (These values are Actual Exhaust Emissions during a 5-Mode test based on declared Rated BHP.)			
CO	NOx + NMHC	PM	
0.9	5.3	0.13	Grams/kW-hr
0.7	4.0	0.10	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 & CARB protocols, which are typically accepted by SCAQMD and other regional authorities.
- No emission values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems 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 must be consulted by the permit applicant/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.

INDUSTRIAL SALES

P.O. BOX 8 WAUKESHA, WI 53187 262-544-4800 FAX 262-544-4854

Appendix C

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, PE2_{quarterly} and BE_{quarterly} 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-8543-1-0:

$$\begin{aligned}\Delta PE_{NOx} &= 394 \text{ lb-NOx/year} - 0 \text{ lb-NOx/year} &= 394 \text{ lb/year} \\ \Delta PE_{CO} &= 74 \text{ lb-CO/year} - 0 \text{ lb-CO/year} &= 74 \text{ lb/year} \\ \Delta PE_{VOC} &= 26 \text{ lb-VOC/year} - 0 \text{ lb-VOC/year} &= 26 \text{ lb/year} \\ \Delta PE_{PM10} &= 11 \text{ lb-PM10/year} - 0 \text{ lb-PM10/year} &= 11 \text{ lb/year} \\ \Delta PE_{SOx} &= 1 \text{ lb-SOx/year} - 0 \text{ lb-SOx/year} &= 1 \text{ lb/year}\end{aligned}$$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NOx	98	98	99	99
CO	18	18	19	19
VOC	6	6	7	7
PM₁₀	2	3	3	3
SOx	0	0	0	1

Appendix D

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)

The District BACT Clearinghouse includes a guideline that applies to the proposed model year 2010, 954 bhp diesel fired emergency engine (Guideline 3.1.1). Therefore, in accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

Top-Down BACT analysis for NOx:

Step 1 – Identify all Practically Applicable Control Technologies

The applicable BACT guideline includes only the following option:

Latest EPA Tier Certification Level for the Applicable Horsepower Range

To determine the latest applicable tier level, the following EPA 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 Non-road Compression – Ignition Engines

40 CFR Part 1039 – Control of Emissions from New and In-Use Non-road Compression-Ignition Engines

Only 40 CFR Part 60 Subpart IIII applies directly to the stationary emergency engine currently under consideration. 40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the unit does not meet the definition of nonroad engine.

Since it is the only directly applicable EPA regulation that would set emission standards for such a unit, Subpart IIII was consulted for the purpose of determining the latest applicable tier standard. Per section 60.4205(b), the engine must meet the standard established in section 60.4202 for the same model year and horsepower rating. Section 60.4202(a)(2), requires such units to meet the standards specified in 40 CFR 89.112 and 40 CFR 89.113 for the same model year and power rating. Section 89.112 states that the applicable certification level for 2006 and later model year engines rated at over 751 bhp is Tier 2. Part 89.113 does not set a tier standard so it need not be considered at this time.

Since Subpart IIII is the only directly applicable EPA regulation and it does not reference Part 1039 (which directly applies only to manufacturers of nonroad engines), Part 1039 will not be considered.

The list of practically applicable control options is therefore:

EPA Tier 2 Certification

Step 2 – Eliminate Technologically Infeasible Options

The above control option is not technologically infeasible

Step 3 – Rank Remaining Control Options by Control Effectiveness

Ranking	Option	Category
1	EPA Tier 2 Certification	Achieved-in-Practice

Step 4 – Cost Effectiveness Analysis

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

Step 5 – Select BACT

BACT for NOx will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit, therefore, BACT will be satisfied.

Top-Down BACT analysis for VOC:

Step 1 – Identify all Practically Applicable Control Technologies

EPA Tier 2 Certification

Refer to the Top-Down BACT analysis for NOx for a discussion regarding the determination of the EPA tier level to be considered.

Step 2 – Eliminate Technologically Infeasible Options

The above control option is not technologically infeasible

Step 3 – Rank Remaining Control Options by Control Effectiveness

Ranking	Option	Category
1	EPA Tier 2 Certification	Achieved-in-Practice

Step 4 – Cost Effectiveness Analysis

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

Step 5 – Select BACT

BACT for VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit, therefore, BACT will be satisfied.

Top-Down BACT analysis for PM₁₀:

Step 1 – Identify all Practically Applicable Control Technologies

EPA Tier 2 Certification or PM₁₀ emissions of 0.15 g/bhp-hr, which ever is more stringent

Refer to the Top-Down BACT analysis for NO_x for a discussion regarding the determination of the EPA tier level to be considered.

As shown in 40 CFR Part 89.112, the EPA Tier 2 standard for a unit with the proposed horsepower rating is 0.20 g/kW-hr (equivalent to 0.15 g/bhp-hr). Therefore, the options are equivalent.

The list of practically applicable control options is therefore:

PM₁₀ Emissions of 0.15 g/bhp or less

Step 2 – Eliminate Technologically Infeasible Options

The above control option is not technologically infeasible

Step 3 – Rank Remaining Control Options by Control Effectiveness

Ranking	Option	Category
1	PM ₁₀ Emissions of 0.15 g/bhp-hr or less	Achieved-in-Practice

Step 4 – Cost Effectiveness Analysis

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

Step 5 – Select BACT

BACT for PM₁₀ will be the use of an engine that will emit PM₁₀ at 0.15 g/bhp or less. The applicant is proposing an EPA certified Tier 2 engine with PM₁₀ emissions of 0.10 g/bhp-hr, therefore BACT will be satisfied.

Appendix E

HRA Summary and AAQA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Fred Cruz – Permit Services
 From: Cheryl Lawler – Technical Services
 Date: April 15, 2011
 Facility Name: City of Stockton
 Location: 1001 Correira Road, Stockton
 Application No: N-8543-1-0
 Project No: N-1110516

A. RMR SUMMARY

RMR Summary			
Categories	Emergency Diesel ICE (Unit 1-0)	Project Totals	Facility Totals
Prioritization Score	N/A ¹	>1	>1
Acute Hazard Index	N/A ²	N/A	N/A
Chronic Hazard Index	N/A ²	N/A	N/A
Maximum Individual Cancer Risk	3.10E-08	3.10E-08	3.10E-08
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 prioritization scores 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 it has been determined to be insignificant for these types of units.

Proposed Permit Conditions

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

Unit 1-0

1. Modified {1901} The PM10 emissions rate shall not exceed 0.1 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 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. Modified {1344} 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 NSR Rule and District Rule 4701] N
4. The exhaust stack release height shall be 12 feet.

B. REPORT

I. Project Description

Technical Services received a request on April 4, 2011, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a 954 bhp emergency diesel ICE powering an electrical generator.

II. Analysis

Technical Services performed a screening level health risk assessment using the District's Diesel Exhaust Risk Screening spreadsheet.

The following parameters were used for the review:

Analysis Parameters						
Unit	bhp-hr	PM ₁₀ g/hp-hr	Receptor (m)	Quad	Hours/Yr	Load%
1-0	954	0.1	1609.34	2	50	100
Location Type		Rural	Receptor Type		Residence & Business	

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, and PM₁₀; as well as the RMR. Emission rates used for criteria pollutant modeling for each engine were 1.47 lb/hr CO, 7.89 lb/hr NO_x, 0.01 lb/hr SO_x, and 0.21 lb/hr PM₁₀.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*
Values are in µg/m³

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass ²	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ¹	Pass ¹

*Results were taken from the attached PSD spreadsheets.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

²The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010, using the District's approved procedures. The Ozone Limiting Method (OLM) was used in accordance with the District's *Assessment of Non-Regulatory Options in AERMOD – Specifically OLM*. A completed AERMOD Non-Regulatory Option checklist is attached.

III. Conclusions

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

The cancer risk associated with the operation of the proposed emergency diesel IC engine is **3.10E-08**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the engine 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.