



NOV 19 2012

Kheng Vang  
Madera County Special District Division  
2037 W. Cleveland Avenue  
Madera, CA 93637

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: C-1122935**

Dear Mr. Vang:

Enclosed for your review and comment is the District's analysis of Madera County Special District Division's application for an Authority to Construct for installing a 77.3 bhp (intermittent) natural gas-fired emergency standby internal combustion engine powering an electrical generator, at 13324 Road 28 1/2 in Madera, CA.

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 Ms. Sandra Lowe-Leseth of Permit Services at (559) 230-5834.

Sincerely,

David Warner  
Director of Permit Services

DW:sll

Enclosures

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

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**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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34946 Flyover Court  
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**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

NOV 19 2012

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: C-1122935**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Madera County Special District Division's application for an Authority to Construct for installing a 77.3 bhp (intermittent) natural gas-fired emergency standby internal combustion engine powering an electrical generator, at 13324 Road 28 1/2 in Madera, CA.

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.

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Madera Tribune  
Madera Tribune

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Madera County Special District Division for installing a 77.3 bhp (intermittent) natural gas-fired emergency standby internal combustion engine powering an electrical generator, at 13324 Road 28 1/2 in Madera, CA.

The analysis of the regulatory basis for this proposed action, Project #C-1122935, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and 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, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

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

Facility Name: Madera County Special Districts Division      Date: November 13, 2012  
Mailing Address: 2037 W. Cleveland Avenue      Engineer Sandra Lowe-Leseth  
Madera, CA 93637      Lead Engineer: Stanley Tom  
Contact Person: Kheng Vang  
Telephone: 559-675-7817 ext 3351  
Application #: C-8459-1-0  
Project #: C-1122935  
Complete: October 12, 2012

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**I. Proposal**

Madera County Special Districts Division is proposing to install a 77.3 bhp (intermittent) natural gas-fired emergency standby internal combustion (IC) engine powering an electrical generator.

**II. Applicable Rules**

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)  
Rule 2520 Federally Mandated Operating Permits (6/21/01)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101 Visible Emissions (2/17/05)  
Rule 4102 Nuisance (12/17/92)  
Rule 4201 Particulate Matter Concentration (12/17/92)  
Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/03)  
Rule 4702 Stationary Internal Combustion Engines – Phase 2 (8/18/11)  
Rule 4801 Sulfur Compounds (12/17/92)  
California Health and Safety Code (CH&SC) Section (§)41700 Health Risk Assessment  
CH&SC § 42301.6 School Notice  
Title 17 California Code of Regulations (CCR) § 93115 - Airborne Toxic Control  
Measure (ATCM) for Stationary Compression-Ignition (CI) Engines  
Public Resources Code §21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, § 15000-15387: CEQA  
Guidelines

### III. Project Location

The project is located at 13324 Road 28 ½ in Madera, 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. The generator will provide power to a lift station during power outages. Other than emergency operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

### V. Equipment Listing

**C-8459-1-0:** 77.3 BHP (INTERMITTENT) GENERAL MOTORS MODEL GM 5.0L RICH-BURN NATURAL GAS-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

### VI. Emission Control Technology Evaluation

The engine is equipped with:

- Positive Crankcase Ventilation (PCV) or 90% efficient control device
- Non-Selective Catalytic Reduction
- Air/Fuel Ratio or an O<sub>2</sub> Controller
- Lean Burn Technology

The PCV system reduces crankcase VOC and PM<sub>10</sub> emissions by at least 90% over an uncontrolled crankcase vent.

The fuel/air ratio controller, (oxygen controller) is used in conjunction with the NSCR to maintain the amount of oxygen in the exhaust stream to optimize catalyst function.

### VII. General Calculations

#### A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	50 hours/year
EPA F-factor (adjusted to 60 °F):	8,578 dscf/MMBtu (40 CFR 60 Appendix B)
Fuel heating value:	1,000 Btu/dscf (District Policy APR-1720, dated 12/20/01)
BHP to Btu/hr conversion:	2,542.5 Btu/bhp-hr
Sulfur concentration:	2.85 lb-S/MMscf (District Policy APR-1720, dated 12/20/01)
Thermal efficiency of engine:	commonly ≈ 35%

**B. Emission Factors**

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	6.9	Manufacturer's Data Sheet 50GGPC
SO <sub>x</sub>	0.0094	Mass Balance Equation Below <sup>1</sup>
PM <sub>10</sub> <sup>2</sup>	0.25	EPA AP-42
CO	34.5	Manufacturer's Data Sheet 50GGPC
VOC	2.0	Manufacturer's Data Sheet 50GGPC

<sup>1</sup> SO<sub>x</sub> is calculated as follows:

$$0.00285 \frac{\text{lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{1 \text{ MMBtu}}{1,000,000 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0094 \frac{\text{g} - \text{SO}_x}{\text{bhp} - \text{hr}}$$

<sup>2</sup> PM<sub>10</sub> value includes both filterable (9.50x10<sup>-3</sup> lb/MMBtu) and condensable (9.91x10<sup>-3</sup> lb/MMBtu) emissions for uncontrolled four-stroke rich-burn engines.

**C. Calculations**

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

Since this is a new emissions unit, PE1 = 0.

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

The daily and annual PE are calculated as follows:

Daily Post Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Conversion (g/lb)	PE2 Total (lb/day)
NO <sub>x</sub>	6.9	77.3	24	453.6	28.2
SO <sub>x</sub>	0.0094	77.3	24	453.6	0.0
PM <sub>10</sub>	0.25	77.3	24	453.6	1.0
CO	34.5	77.3	24	453.6	141.1
VOC	2.0	77.3	24	453.6	8.2

Annual Post Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hrs/yr)	Conversion (g/lb)	PE2 Total (lb/yr)
NO <sub>x</sub>	6.9	77.3	50	453.6	59
SO <sub>x</sub>	0.0094	77.3	50	453.6	0
PM <sub>10</sub>	0.25	77.3	50	453.6	2
CO	34.5	77.3	50	453.6	294
VOC	2.0	77.3	50	453.6	17

### 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, there are no existing permit units or any ERCs banked at this facility. Thus:

$$\text{SSPE1} = 0 \text{ lb/yr for all criteria pollutants}$$

### 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.

Since this is a new facility, SSPE2 is equal to the change in emissions for the facility due to the installation of the new emergency standby IC engine, permit unit -1-0, as previously determined in Section VII.C.2. Thus:

SSPE2					
Permit Unit	NO <sub>x</sub> (lb/yr)	SO <sub>x</sub> (lb/yr)	PM <sub>10</sub> (lb/yr)	CO (lb/yr)	VOC (lb/yr)
-1-0, emergency IC engine	59	0	2	294	17
<b>SSPE2 Total</b>	<b>59</b>	<b>0</b>	<b>2</b>	<b>294</b>	<b>17</b>

### 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	59	20,000	No	No
SO <sub>x</sub>	0	0	140,000	No	No
PM <sub>10</sub>	0	2	140,000	No	No
CO	0	294	200,000	No	No
VOC	0	17	20,000	No	No

### 6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

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



otherwise,

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

Since this is a new emissions unit, BE = PE1 = 0 for all criteria pollutants.

### **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 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.

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

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

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -1-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	28.2	> 2.0	n/a	Yes
SO <sub>x</sub>	0.0	> 2.0	n/a	No
PM <sub>10</sub>	1.0	> 2.0	n/a	No
CO	141.1	> 2.0 and SSPE2 ≥ 200,000 lb/yr	294	No
VOC	8.2	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NO<sub>x</sub> and VOC emissions from the engine for this project. Although the CO emissions are greater than 2.0 lb/day, the facility's total CO emissions from all emissions units is less than 200,000 lb/yr; therefore, BACT for CO is not triggered for this project.

## 2. BACT Guideline

BACT Guideline 3.1.5, which appears in Appendix A of this report, covers natural gas-fired emergency IC engines rated less than 132 bhp.

## 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 A of this report, BACT is satisfied with:

- NO<sub>x</sub>: No control technology is cost-effective (small emitter)
- VOC: positive crankcase ventilation (small emitter)

## **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, Federal Major Modifications, and SB288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

#### **a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications**

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

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

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

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. The Daily PE for this new emissions unit is compared to the daily PE Public Notice Thresholds in the following table:

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
Pollutant	Daily PE for unit -1-0 (lb/day)	Public Notice Threshold (lb/day)	Public Notice Triggered?
NO <sub>x</sub>	28.2	100	No
SO <sub>x</sub>	0.0	100	No
PM <sub>10</sub>	1.0	100	No
CO	141.1	100	Yes
VOC	8.2	100	No

As detailed in the preceding table, the carbon monoxide (CO) 100 lb/day threshold was surpassed with this project; therefore, public noticing is required for daily emissions greater than 100 lb/day for a new emissions unit.

**c. Offset Threshold**

The following table compares the SSPE1 with the SSPE2 to the offset thresholds in order to determine if any offset thresholds have been surpassed with this project.

<b>Offset Threshold</b>				
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Offset Threshold (lb/yr)	Public Notice Required?
NO <sub>x</sub>	0	59	20,000	No
SO <sub>x</sub>	0	0	54,750	No
PM <sub>10</sub>	0	2	29,200	No
CO	0	294	200,000	No
VOC	0	17	20,000	No

As detailed in the preceding table, there were no offset thresholds surpassed with this project. Therefore, public noticing is not required for this project for surpassing the SSPE2 offset thresholds.

**d. SSIPE > 20,000 lb/year**

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e.  $SSIPE = SSPE2 - SSPE1$ . The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

<b>SSIPE Public Notice Threshold</b>					
<b>Pollutant</b>	<b>SSPE2 (lb/yr)</b>	<b>SSPE1 (lb/yr)</b>	<b>SSIPE (lb/yr)</b>	<b>SSIPE Threshold (lb/yr)</b>	<b>Public Notice Required?</b>
NO <sub>x</sub>	59	0	59	20,000	No
SO <sub>x</sub>	0	0	0	20,000	No
PM <sub>10</sub>	2	0	2	20,000	No
CO	294	0	294	20,000	No
VOC	17	0	17	20,000	No

As detailed in the preceding table, there were no SSIPE thresholds surpassed with this project. Therefore, public noticing is not required for exceeding the SSIPE thresholds.

## 2. Public Notice Action

As discussed above, public noticing is required for this project for surpassing the PE > 100 lb/day for a new emissions unit threshold for CO emissions. 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 for this equipment.

## 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. DELs are also required to enforce the applicability of BACT. For this emergency standby IC engine, the DELs are stated in the form of emission factors, the maximum engine horsepower rating, and the maximum operational time of 24 hours per day. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {edited 3501} Emissions from this IC engine shall not exceed any of the following limits: 6.9 g-NO<sub>x</sub>/bhp-hr, 0.25 g-PM<sub>10</sub>/bhp-hr, 34.5 g-CO/bhp-hr, or 2.0 g-VOC/bhp-hr. [District Rule 2201]

In addition, the DELs for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC emissions are established by the type or types of fuel being combusted in the engine. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- {3491} This IC engine shall be fired on Public Utility Commission (PUC) regulated natural gas only. [District Rules 2201 and 4801]

## **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 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*, this IC 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**

No reporting is required to ensure compliance with Rule 2201.

## **F. Ambient Air Quality Analysis**

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 a State or National ambient air quality standard. An AAQA is required to be performed for all New Source Review (NSR) public notice projects. As previously discussed in Section VIII.C this project requires that a public notice be performed before issuance of the ATC for this project. Therefore, the District is required to perform an AAQA for this project.

The Technical Services Division of the SJVAPCD conducted the required AAQA for this project. The results of the AAQA are presented in the following table. Refer to Appendix B of this document for the AAQA summary sheet and PM<sub>10</sub> 24 hour and annual emissions contribution levels for this project.

Criteria Pollutant Modeling Results

NG ICE	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>
PM <sub>2.5</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>

<sup>1</sup>NA: Not applicable. 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).

The proposed installation of the natural gas-fired IC engine is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. The area is in non-attainment of the state PM<sub>10</sub> standard and the federal and state standards for PM<sub>2.5</sub>. As shown by the preceding table of AAQA results the proposed installation of the natural gas-fired IC engine will not cause a violation of a state or national ambient air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</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.

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

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

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

40 CFR 60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines)

Compliance with District Rule 4702 will ensure compliance with the requirements of 40 CFR 60 Subpart JJJJ.

There are no other potentially applicable NSPSs.

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

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

### 40 CFR Part 63, Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)

The requirements of 40 CFR Part 63, Subpart ZZZZ (*National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*) covers stationary engines less than or equal to 500 bhp located at Major HAP sources. This subpart may be satisfied by meeting the requirements of 40 CFR Part 60, Subpart IIII for stationary compression-ignited engines or 40 CFR Part 60, Subpart JJJJ for spark-ignited engines.

As shown above, the spark-ignited engine will comply with 40 CFR 60, Subpart JJJJ; therefore, the engine will comply with 40 CFR 63, Subpart ZZZZ.

There are no other potentially applicable NESHAPs.

## **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.

District policy APR 1905 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. A Health Risk Assessment (HRA) is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (see Appendix B), the total facility prioritization score including this project was less than or equal to one. Therefore, no further analysis is required to determine the impact from this project.

<b>RMR Summary</b>			
<b>Categories</b>	<b>Emergency NG ICE (Unit 1-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	0.001*	0.001	<1
<b>Acute Hazard Index</b>	N/A	N/A	N/A
<b>Chronic Hazard Index</b>	N/A	N/A	N/A
<b>Maximum Individual Cancer Risk</b>	N/A	N/A	N/A
<b>T-BACT Required?</b>	No		
<b>Special Permit Conditions?</b>	Yes		

\* The project passed on prioritization with a score less than 1; therefore, no further analysis was required.

As demonstrated previously, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Appendix B of this report, the emissions increases for this project was determined to be less than significant.

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

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]
- {3806} 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]

### Rule 4201 Particulate Matter Concentration

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

$$0.25 \frac{g - PM_{10}}{bhp - hr} \times \frac{1g - PM}{0.96g - PM_{10}} \times \frac{1bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{8,578 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.064 \frac{grain - PM}{dscf}$$

Since 0.064 grain-PM/dscf is less than 0.1 grain per dscf, compliance with Rule 4201 is expected. The following condition will be added to the permit:

- {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 7.6.3.3 of District Rule 4702, as of June 1, 2006 District Rule 4701 is no longer applicable to natural gas-fired emergency standby or emergency IC engines; therefore, this natural gas-fired emergency IC engine will comply with the requirements of District Rule 4702 and no further discussion is required.

### Rule 4702 Internal Combustion Engines – Phase 2

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

This rule applies to any internal combustion engine with a rated brake horsepower greater than 50 horsepower.

Pursuant to Section 4.2, except for the requirements of Sections 5.7 and 6.2.3, the requirements of this rule shall not apply to an internal combustion engine that meets the following condition:

- 1) An emergency standby engine as defined in Section 3.0 of this rule, and provided that it is operated with a nonresettable elapsed operating time meter. In lieu of a nonresettable time meter, the owner of an emergency engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

Section 3.15 defines an "Emergency Standby Engine" as an internal combustion engine which operates as a temporary replacement for primary mechanical or electrical power during an unscheduled outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the

operator. An engine shall be considered to be an emergency standby engine if it is used only for the following purposes: (1) periodic maintenance, periodic readiness testing, or readiness testing during and after repair work; (2) unscheduled outages, or to supply power while maintenance is performed or repairs are made to the primary power supply; and (3) if it is limited to operate 100 hours or less per calendar year for non-emergency purposes. An engine shall not be considered to be an emergency standby engine if it is used: (1) to reduce the demand for electrical power when normal electrical power line service has not failed, or (2) to produce power for the utility electrical distribution system, or (3) in conjunction with a voluntary utility demand reduction program or interruptible power contract.

Therefore, the emergency standby IC engine involved with this project will only have to meet the requirements of Sections 5.7 and 6.2.3 of this Rule.

Section 5.7 of this Rule requires that the owner of an emergency standby engine shall comply with the requirements specified in Section 5.7.2 through Section 5.7.5 below:

- 1) Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.
- 2) Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.
- 3) Install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Stationary Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.

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

- {3405} 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]
- {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]

- {3404} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
- {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]
- {3806} 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]

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

- {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]
- {3497} 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]

## 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:

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

Where

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

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

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

$$2.85 \frac{\text{lb} - S}{\text{MMscf} - \text{gas}} \times \frac{1 \text{ scf} - \text{gas}}{1,000 \text{ Btu}} \times \frac{1 \text{ MMBtu}}{8,578 \text{ scf}} \times \frac{1 \text{ lb} - \text{mol}}{64 \text{ lb} - S} \times \frac{10.73 \text{ psi} - \text{ft}^3}{\text{lb} - \text{mol} - \text{°R}} \times \frac{520 \text{ °R}}{14.7 \text{ psi}} \times 1,000,000 = 1.97 \text{ ppmv}$$

Since 1.97 ppmv is less than 2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- {3491} This IC engine shall be fired on Public Utility Commission (PUC) regulated natural gas only. [District Rules 2201 and 4801]

## 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

This regulation applies to any new or in-use stationary diesel-fueled compression ignition (CI) emergency standby engine. The engine involved with this project is fired on natural gas and is not compression ignited. Therefore, this regulation is not applicable to the engine involved with this project.

## 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.

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- 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 Authority to Construct C-8459-1-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix E.

**X. Billing Information**

<b>Billing Schedule</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Fee Amount</b>
C-8459-1-0	3020-10-A	77.3 bhp IC engine	\$80.00

**List of Appendixes**

- A. BACT Guideline and BACT Analysis
- B. HRA Summary
- C. QNEC Calculations and Emissions Profile
- D. Greenhouse Gas (GHG) Emission Calculations
- E. Draft ATC

# Appendix A

## BACT Guideline and BACT Analysis



**Best Available Control Technology (BACT ) Guideline 3.1.5**  
**Last Update: 11/27/1996**

**Emergency Gas Fired I.C. Engine - < 132 hp, Rich Burn**

<b>Pollutant</b>	<b>Achieved in Practice or in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
CO		CO Catalyst (3 way)	
NOx		NOx Catalyst (3 way)	
PM10	Positive crankcase ventilation (PCV)	Positive crankcase ventilation (PCV)	
VOC	Positive crankcase ventilation (PCV)	VOC catalyst (3 way), positive crankcase ventilation (PCV)	

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

## **Top Down BACT Analysis for NO<sub>x</sub> Emissions**

Oxides of nitrogen (NO<sub>x</sub>) are generated from the high temperature combustion of the natural gas fuel. A majority of the NO<sub>x</sub> emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO<sub>x</sub> emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

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

The SJVUAPCD BACT Clearinghouse guideline 3.1.5, fourth quarter 2012, identifies technologically feasible BACT for NO<sub>x</sub> emissions from rich-burn emergency natural gas IC engines < 132 bhp as follows:

- 1) NO<sub>x</sub> catalyst (three-way catalyst)

No achieved in practice alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

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

There are no technologically infeasible options to eliminate from step 1.

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

- 1) NO<sub>x</sub> catalyst (three-way catalyst)

### **Step 4 - Cost Effectiveness Analysis**

This facility is classified as a small emitter, per the District's BACT Policy (dated 11/9/99) Section III.D, as facility-wide emissions are less than two tons per year of each affected pollutant. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.E.1, technologically feasible BACT and a cost effective analysis is not required.

### **Step 5 - Select BACT**

There is no control technology that is cost effective for BACT for NO<sub>x</sub> emissions from this rich-burn emergency standby natural gas IC engine < 132 bhp. The applicant has proposed to install a 77.3 bhp rich-burn emergency standby natural gas IC engine without a NO<sub>x</sub> catalyst (three-way catalyst); therefore BACT for NO<sub>x</sub> emissions is satisfied.

## **Top Down BACT Analysis for VOC Emissions**

Volatile organic compounds (VOC) emissions are generated from the incomplete combustion of the fuel. Some VOCs are emitted from the crankcase of the engine as a result of piston ring blow-by.

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

The SJVUAPCD BACT Clearinghouse guideline 3.1.5, fourth quarter 2012, identifies BACT for VOC emissions from rich-burn emergency natural gas IC engines < 132 bhp as follows:

- 1) Positive crankcase ventilation (Achieved in Practice)
- 2) VOC catalyst (three-way catalyst) and positive crankcase ventilation (Technologically Feasible)

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

There are no technologically infeasible options to eliminate from step 1.

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

- 1) VOC catalyst (three-way catalyst) and positive crankcase ventilation
- 2) Positive crankcase ventilation

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

A cost effective analysis must be performed for all control options in the list from Step 3 in the order of their ranking to determine the cost effective option with the lowest emissions

This facility is classified as a small emitter, per the District's BACT Policy (dated 11/9/99) Section III.D, as facility-wide emissions are less than two tons per year of each affected pollutant. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.E.1, technologically feasible BACT and a cost effective analysis is not required.

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per SJVUAPCD BACT policy, the cost effectiveness analysis is not required.

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

BACT for VOC emissions from this rich-burn emergency standby natural gas IC engines < 132 bhp is positive crankcase ventilation. The applicant has proposed to install a 77.3 bhp rich-burn emergency standby natural gas IC engine with positive crankcase ventilation; therefore BACT for VOC emissions is satisfied.

Appendix B  
HRA Summary and AAQA

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Sandra Lowe-Leseth - Permit Services  
 From: Kyle Melching - Permit Services  
 Date: September 19, 2012  
 Facility Name: Madera County, Special Districts Division  
 Location: 13324 Road 28 ½, Madera  
 Application #(s): C-8459-1-0  
 Project #: C-1122935

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## A. RMR SUMMARY

RMR Summary			
Categories	Emergency NG ICE (Unit 1-0)	Project Totals	Facility Totals
<b>Prioritization Score</b>	0.001*	0.001	<1
<b>Acute Hazard Index</b>	N/A	N/A	N/A
<b>Chronic Hazard Index</b>	N/A	N/A	N/A
<b>Maximum Individual Cancer Risk</b>	N/A	N/A	N/A
<b>T-BACT Required?</b>	<b>No</b>		
<b>Special Permit Conditions?</b>	<b>Yes</b>		

\*The project passed on prioritization with a score less than 1; therefore, no further analysis was required.

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

## B. RMR REPORT

### I. Project Description

Technical Services received a request on September 18, 2012, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for one emergency natural gas IC engine.

### II. Analysis

Toxic emissions were calculated using Emission Factors for natural gas internal combustion. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the project was less than 1.0 (see RMR Summary Table); Therefore, no further evaluation is required.

The following parameters were used for the reviews:

Analysis Parameters Units 1-0			
Source Type	Point	Location Type	Urban
BHP	1 @ 77.3	mmSCF/hr	5.35E-04
Closest Receptor (m)	40	mmSCF/yr	2.6E-02
Max Hours per Year	50	Type of Closest Receptor	Resident

Technical Services also performed modeling for criteria pollutants NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>; as well as the RMR. For Unit 1-0, the emission rates used for criteria pollutant modeling were 59 lb/yr NO<sub>x</sub>, 0 lb/yr SO<sub>x</sub>, 1 lb/yr PM<sub>10</sub>, and 1 lb/yr PM<sub>2.5</sub>.

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results\*

NG ICE	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>
PM <sub>2.5</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour, and 24-hour) standards is not required.

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

### III. Conclusions

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

The cancer risks associated with the operation of the proposed natural gas IC engine is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT) for PM10.

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.

#### **IV. Attachments**

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

**AAQA for Madera County, Special Districts Division ( C-8459-1-0 )**

**All Values are in ug/m<sup>3</sup>**

	<b>NOx 1 Hour</b>	<b>NOx Annual</b>	<b>CO 1 Hour</b>	<b>CO 8 Hour</b>	<b>SOx 1 Hour</b>	<b>SOx 3 Hour</b>	<b>SOx 24 Hour</b>	<b>SOx Annual</b>	<b>PM 24 Hour</b>	<b>PM Annual</b>
STCK1	0.000E+00	3.152E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.124E-05
Background	8.991E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.664E+01	0.000E+00	4.000E+01
<b>Facility Totals</b>	8.991E+01	3.152E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.664E+01	0.000E+00	4.000E+01
<b>AAQS</b>	188.68	56	23000	10000	195	1300	105	80	50	30
	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Fail</b>

**EPA's Significance Level (ug/m<sup>3</sup>)**

<b>NOx 1 Hour</b>	<b>NOx Annual</b>	<b>CO 1 Hour</b>	<b>CO 8 Hour</b>	<b>SOx 1 Hour</b>	<b>SOx 3 Hour</b>	<b>SOx 24 Hour</b>	<b>SOx Annual</b>	<b>PM 24 Hour</b>	<b>PM Annual</b>
<b>0.0</b>	<b>1.0</b>	<b>2000.0</b>	<b>500.0</b>	<b>0.0</b>	<b>25.0</b>	<b>5.0</b>	<b>1.0</b>	<b>5.0</b>	<b>1.0</b>





## 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 - BE, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- BE = Baseline Emissions (per Rule 2201) for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 in the evaluation above and  $BE_{quarterly}$  can be calculated as follows:

$$\begin{aligned} BE_{quarterly} &= BE_{annual} \div 4 \text{ quarters/year} \\ &= 0 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 0 \text{ lb/qtr (for all criteria pollutants)} \end{aligned}$$

Therefore, the

$$QNEC = PE2 \text{ (annual)} / 4 \text{ quarters/year}$$

QNEC		
Pollutant	PE2 Total (lb/yr)	QNEC (lb/qtr)
NO <sub>x</sub>	59	14.8
SO <sub>x</sub>	0	0.0
PM <sub>10</sub>	1	0.3
CO	294	73.5
VOC	17	4.3

# Appendix D Greenhouse Gas (GHG) Emission Evaluation

## Greenhouse Gas Emission Evaluation

The District has evaluated potential greenhouse gas emissions from the internal combustion engine rated at 77.3 brake horsepower to determine if there will be an increase in greenhouse gas emissions associated with this project.

### Basis and Assumptions

- The engine is a spark-ignited unit fueled with natural gas
- The engine operates at full rated power
- Specific fuel consumption rate is 646 scf/hr (manufacturer's data)
- Engine operates 50 hours per year (emergency standby)
- Emission factors and global warming potentials (GWP) for natural gas are taken from the Code of Federal Regulations Title 40 Part 98 (40 CFR 98)
- Higher Heating Value (HHV) of natural gas is 0.001028 MMBtu/scf (40 CFR 98)

### Calculations

$$CO_2e = \text{fuelconsumptionrate} \times \text{HHVfuel} \times \text{operatinghrs} \times \text{EF} \times \text{GWP} \times 1.0 \text{ metric ton} / 1,000 \text{ kg}$$

GHG	Operating Hours (hr/yr)	EF (kg GHG/MMBtu)	GWP (kg CO2e/kg GHG)	CO <sub>2</sub> e/yr (metric ton CO <sub>2</sub> e/yr)
CO <sub>2</sub>	50	53.02	1.0	1.71
CH <sub>4</sub>	50	0.001	21.0	0.0
N <sub>2</sub> O	50	0.0001	310	0.0
			<b>Total CO<sub>2</sub>e/yr</b>	<b>1.71</b>

### Conclusion

Per District Policy, project-specific greenhouse gas emissions less than or equal to 230 metric tons-CO<sub>2</sub>e/year are considered to be zero for District permitting purposes and are exempt from further environmental review. The total increase in GHG emissions for this project is 3.43 metric tons-CO<sub>2</sub>e/year, which is less than 230 metric tons/yr; therefore, this project is exempt from further environmental review for GHGs.

Appendix E  
Draft ATC

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

**ISSUANCE DATE: DRAFT**

**PERMIT NO:** C-8459-1-0

**LEGAL OWNER OR OPERATOR:** MADERA COUNTY-ENGINEERING DEPT.  
**MAILING ADDRESS:** SPECIAL DISTRICTS DIVISION  
2037 WEST CLEVELAND AVENUE  
MADERA, CA 93637

**LOCATION:** SPECIAL DISTRICTS DIVISION  
13324 ROAD 28 1/2  
MADERA, CA 93637

**EQUIPMENT DESCRIPTION:**

77.3 BHP (INTERMITTENT) GENERAL MOTORS MODEL GM 5.0L RICH-BURN NATURAL GAS-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. {3404} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702]
5. {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]
6. {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]
7. {3491} This IC engine shall be fired on Public Utility Commission (PUC) regulated natural gas only. [District Rules 2201 and 4801]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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  
C-8459-1-0: Nov 13 2012 4:51PM - LOWELES : Joint Inspection NOT Required

8. {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]
9. {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]
10. {3405} 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]
11. Emissions from this IC engine shall not exceed any of the following limits: 6.9 g-NO<sub>x</sub>/bhp-hr, 0.25 g-PM<sub>10</sub>/bhp-hr, 34.5 g-CO/bhp-hr, or 2.0 g-VOC/bhp-hr. [District Rule 2201]
12. {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]
13. 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]
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 and 17 CCR 93115]
15. {3497} 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]

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