



JUN 16 2011

Mel Johnson  
Greenfield County Water District  
551 Taft Highway  
Bakersfield, CA 93307

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1111010**

Dear Mr. Johnson:

Enclosed for your review and comment is the District's analysis of Greenfield County Water District's application for an Authority to Construct for a 373 bhp natural gas-fired emergency internal combustion (IC) engine, at the McKee well site at the corner of Flinders Street and Mornington Avenue in Bakersfield, 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. Jessica Seifert of Permit Services at (661) 392-5613.

Sincerely,

David Warner  
Director of Permit Services

DW:JAS/dg

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  
Fresno, CA 93726-0244  
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**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



JUN 16 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: S-1111010**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Greenfield County Water District's application for an Authority to Construct for a 373 bhp natural gas-fired emergency internal combustion (IC) engine, at the McKee well site at the corner of Flinders Street and Mornington Avenue in Bakersfield, CA.

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Bakersfield Californian

**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 Greenfield County Water District for a 373 bhp natural gas-fired emergency internal combustion (IC) engine, at the McKee well site at the corner of Flinders Street and Mornington Avenue in Bakersfield, CA.

The analysis of the regulatory basis for this proposed action, Project #S-1111010, 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, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

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

Facility Name:	Greenfield County Water District	Date:	June 13, 2011
Mailing Address:	551 Taft Highway Bakersfield, CA 93307	Engineer/ Specialist:	Jessica Seifert
Contact Person:	Mel Johnson	Lead Engineer:	<del>Don Klevann</del> AP Sure AQE
Telephone:	(661) 831-0989		JUN 13 2011
Application #:	S-8028-1-0		
Project #:	S-1111010		
Complete:	April 25, 2011		

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**I. Proposal**

Greenfield County Water District (GCWD) is proposing to install a 373 bhp natural gas-fired emergency standby internal combustion (IC) engine powering an electric generator for a municipal water supply pump.

**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 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 (1/18/07)  
Rule 4801 Sulfur Compounds (12/17/92)  
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  
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 project is located adjacent to the well it serves at Flinders Street and Mornington Avenue in Bakersfield, CA (Section 31, Township 30S, Range 28E). 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 electric generator for a municipal water supply pump. Other than emergency operation, the engine may be operated up to 100 hours per year for maintenance and testing purposes.

### V. Equipment Listing

**S-8028-1-0:** 373 BHP CATERPILLAR MODEL 3406 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.

### VII. General Calculations

#### A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	100 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

See Appendix A for the technical and performance data sheets.

Emission Factors			
Pollutant	Emission Factor (lb/MMBtu)	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	--	17.8	Engine Manufacturer
SO <sub>x</sub>	0.00285	0.0094	Mass Balance Equation Below*
PM <sub>10</sub> **	0.019	0.063	AP-42 (7/00) Table 3.2-3
CO	--	1.09	Performance Data
VOC	--	0.57	Performance Data

\*SO<sub>x</sub> is calculated as follows:

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

\*\*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 a total emission factor of 0.019 lb/MMBtu. The g/bhp-hr equivalent is calculated as follows:

$$0.019 \frac{\text{lb} - \text{PM}_{10}}{\text{MMBtu}} \times \frac{1 \text{ MMBtu}}{1,000,000 \text{ Btu}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.063 \frac{\text{g} - \text{PM}_{10}}{\text{bhp} - \text{hr}}$$

## C. Calculations

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

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

### 2. Post-Project Emissions (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>	17.8	373	24	453.6	351.3
SO <sub>x</sub>	0.0094	373	24	453.6	0.2
PM <sub>10</sub>	0.063	373	24	453.6	1.2
CO	1.09	373	24	453.6	21.5
VOC	0.57	373	24	453.6	11.2

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>	17.8	373	100	453.6	1464
SO <sub>x</sub>	0.0094	373	100	453.6	1
PM <sub>10</sub>	0.063	373	100	453.6	5
CO	1.09	373	100	453.6	90
VOC	0.57	373	100	453.6	47

### 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:

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.

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	1464	1	5	90	47
<b>SSPE2 Total</b>	<b>1464</b>	<b>1</b>	<b>5</b>	<b>90</b>	<b>47</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	1464	50,000	No	No
SO <sub>x</sub>	0	1	140,000	No	No
PM <sub>10</sub>	0	5	140,000	No	No
CO	0	90	200,000	No	No
VOC	0	47	50,000	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 3.22



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

## **7. Major Modification**

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 previously, the facility is not a Major Source for any criteria pollutant; therefore, the project does not constitute a Major Modification.

## **8. Federal Major Modification**

As shown in the previous section, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does 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 D.

# **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 lb/day**

Since this engine is a new emissions unit, the daily emissions are compared to the BACT thresholds 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>	351.3	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	1.2	> 2.0	n/a	No
CO	21.5	> 2.0 and SSPE2 ≥ 200,000 lb/yr	90	No
VOC	11.2	> 2.0	n/a	Yes

Thus BACT will be triggered for NO<sub>x</sub> and VOC emissions from the engine for this project.

**b. Relocation of emissions units – PE > 2 lb/day**

As discussed previously in Section I, this engine is not being relocated from one stationary source to another as a result of this project. Therefore, BACT is not triggered for the relocation of emissions units with a PE > 2 lb/day.

**c. Modification of emissions units – Adjusted Increase in Permitted Emissions (AIPE) > 2 lb/day**

As discussed previously in Section I, this engine is not being modified as a result of this project. Therefore, BACT is not triggered for the modification of emissions units with an AIPE > 2 lb/day.

**d. Major Modification**

As discussed previously in Section VII.C.7, this project does not constitute a Major Modification. Therefore BACT is not triggered for a Major Modification.

**2. BACT Guideline**

BACT Guideline 3.1.6 which appears in Appendix B of this report, covers rich burn gas-fired emergency IC engines of greater than or equal to 132 brake horsepower.

**3. Top Down BACT Analysis**

Per District Policy APR 1305, Section IX, "A top-down BACT analysis shall be performed as a part of the Application Review for each application subject to the

BACT requirements pursuant to the District's NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis."

Pursuant to the attached Top-Down BACT Analysis, which appears in Appendix B of this report, BACT is satisfied with:

NO<sub>x</sub>: Natural gas as fuel  
VOC: Positive crankcase ventilation and natural gas as fuel

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

- {edited 3501} Emissions from this IC engine shall not exceed any of the following limits: 17.8 g-NO<sub>x</sub>/bhp-hr, 0.063 g-PM<sub>10</sub>/bhp-hr, 1.09 g-CO/bhp-hr, or 0.57 g-VOC/bhp-hr. [District Rule 2201]
- {3491} This IC engine shall be fired on Public Utility Commission (PUC) regulated natural gas only. [District Rules 2201 and 4801]
- {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system which recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]

## **B. Offsets**

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

**a. New Major Source**

New Major Sources are new facilities, which are also Major Sources. As shown previously in Section VII.C.5, the SSPE2 is not greater than the Major Source threshold for any criteria pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

**b. Major Modification**

As demonstrated previously in Section VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not required.

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

The Daily PE for this new emissions unit is compared to the daily PE Public Notice Thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	Daily PE for unit 1-0 (lb/day)	Public Notice Threshold (lb/day)	Public Notice Triggered?
NO <sub>x</sub>	351.3	100	Yes
SO <sub>x</sub>	0.2	100	No
PM <sub>10</sub>	1.2	100	No
CO	21.5	100	No
VOC	11.2	100	No

As detailed in the preceding table, the NO<sub>x</sub> 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.

**d. 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.

Offset Threshold				
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Offset Threshold (lb/yr)	Public Notice Required?
NO <sub>x</sub>	0	1464	20,000	No
SO <sub>x</sub>	0	1	54,750	No
PM <sub>10</sub>	0	5	29,200	No
CO	0	90	200,000	No
VOC	0	47	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.

**e. 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:

SSIPE Public Notice Threshold					
Pollutant	SSPE2 (lb/yr)	SSPE1 (lb/yr)	SSIPE (lb/yr)	SSIPE Threshold (lb/yr)	Public Notice Required?
NO <sub>x</sub>	1464	0	1464	20,000	No
SO <sub>x</sub>	1	0	1	20,000	No
PM <sub>10</sub>	5	0	5	20,000	No
CO	90	0	90	20,000	No
VOC	47	0	47	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 NO<sub>x</sub> 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: 17.8 g-NOx/bhp-hr, 0.063 g-PM10/bhp-hr, 1.09 g-CO/bhp-hr, or 0.57 g-VOC/bhp-hr. [District Rule 2201]

#### **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.

According to the Technical Services Memo for this project (see Appendix C), although this project triggers a public notice, an AAQA was not performed. Based on EPA's clarification memoranda for NO<sub>2</sub> & SO<sub>2</sub>, dated March 1, 2011, intermittent use equipment can be exempted by the reviewing agency from inclusion in analyses. The District has interpreted EPA's guidance to extend to all modeling periods for which there is a CAAQS/NAAQS. Since the number of hours allowed by the District for emergency and intermittent use equipment is less than the levels imposed by EPA, this unit will be exempted from CAAQS/NAAQS analyses. Therefore, an AAQA will not be performed and no further discussion is required.

### **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)**

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. However, no subparts of 40 CFR Part 60 apply to reciprocating natural gas-fired IC engines.

### **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.

However, this engine exclusively powers a drinking water system. Pursuant to California Health and Safety Code 41701.6, this engine may be allowed to emit visible emissions of up to Ringelmann 2, provided that the non-emergency use is limited to no more than 30 minutes per week or two hours per month. For this project the facility has chosen not to exercise this option. 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 C), 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.

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 100 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:



$$0.063 \frac{g - PM_{10}}{bhp - hr} \times \frac{1g - PM}{0.96g - PM_{10}} \times \frac{1bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{8,578 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.0163 \frac{grain - PM}{dscf}$$

Since 0.0163 grain-PM/dscf is  $\leq$  to 0.1 grain per dscf, compliance with Rule 4201 is expected.

- {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 100 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]
- {3498} 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. For units at unstaffed sites or operated remotely, records may be maintained and retained at a District-approved off-site location. [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:

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

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

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

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

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

Since 1.97 ppmv is  $\leq$  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.

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 S-8028-1-0 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>
S-8028-1-0	3020-10-C	373 bhp IC engine	\$240.00

## **List of Appendices**

- A. Technical and Performance Data Sheets**
- B. BACT Guideline and BACT Analysis**
- C. Technical Services Memo**
- D. QNEC Calculations**
- E. Draft ATC**

# Appendix A

## Technical and Performance Data Sheets

STANDBY 240 ekW  
CONTINUOUS 190 ekW  
60 Hz

**CATERPILLAR**

**TECHNICAL DATA**

Open Generator Set — 1800 rpm/60 Hz/480 Volts		Standby DM5439		Continuous DM5440	
<b>Package Performance</b>					
Power rating	ekW	240		190	
Power rating @ 0.8 PF	kVA	300		238	
Aftercooler temperature	Deg C      Deg F	54	130	54	130
<b>Fuel Consumption</b>					
100% load with fan	N·m <sup>3</sup> /hr      scf/hr	77	2894	64	2398
75% load with fan	N·m <sup>3</sup> /hr      scf/hr	61	2291	51	1912
50% load with fan	N·m <sup>3</sup> /hr      scf/hr	45	1682	37	1418
<b>Cooling System</b>					
Ambient air temperature*	Deg C      Deg F	40	105	40	105
Air flow restriction (system)	kPa      in water	0.12	0.5	0.12	0.5
Air flow (maximum @ rated speed for standard radiator arrangement)	m <sup>3</sup> /min      cfm	679	23,983	836	29,524
Engine coolant capacity with radiator	L      Gal	57	15	57	15
Jacket water outlet temperature	Deg C      Deg F	99	210	99	210
<b>Exhaust System</b>					
Combustion air inlet flow rate	N·m <sup>3</sup> /min      scfm	16	572	12	466
Exhaust gas stack temperature	Deg C      Deg F	538	997	525	977
Exhaust gas flow rate	N·m <sup>3</sup> /min      cfm	16	1749	13	1424
Exhaust flange size (internal diameter)	mm      in	127	5	127	5
Exhaust system backpressure (maximum allowable)	kPa      in water	6.7	27	6.7	27
<b>Heat Rejection</b>					
Low Heat Value (LHV) fuel input	kW      Btu/min	780	44,358	647	36,767
Heat rejection to jacket water (includes oil cooler)	kW      Btu/min	234	13,305	210	11,946
Total heat rejection to exhaust (LHV to 25° C)	kW      Btu/min	217	12,319	174	9892
Heat rejection to exhaust (LHV to 120° C)	kW      Btu/min	167	8180	132	6460
Heat rejection to A/C	kW      Btu/min	25	1395	12	694
Heat rejection to atmosphere from engine	kW      Btu/min	31	1774	28	1471
Heat rejection to atmosphere from generator	kW      Btu/min	20	1162	18	897
<b>Generator</b>					
Motor starting capability @ 30% voltage dip**	kVA	649		649	
Frame	Deg C	447		447	
Temperature rise		130		105	
<b>Emissions***</b>					
NOx	g/bhp-hr	17.8		19.7	
CO	g/bhp-hr	1.1		1	
HC (total)	g/bhp-hr	3.9		4.2	
HC (non-methane)	g/bhp-hr	0.59		0.63	
Exhaust O <sub>2</sub> (dry)	%	4.0		4.0	

\*Ambient capability at 200 m (660 ft) above sea level. For ambient capability at other altitudes, consult your Caterpillar dealer.

\*\*Assumes synchronous driver

\*\*\*Emissions data measurement is consistent with those described in EPA CFR 40 PART 89 SUBPART D and ISO 8178-1 for measuring HC, CO, CO<sub>2</sub> and NOx. Data shown is based on steady state engine operating conditions of 77° F, 28.43 inches HG and fuel having a LHV of 920 BTU per cubic foot at 30.00 inches HG absolute and 32° F. Not to exceed emission data shown is subject to instrumentation, measurement, facility and engine fuel system adjustments.

**RATING DEFINITIONS AND CONDITIONS**

**Standby** — Output available with varying load for the duration of the interruption of the normal source power.

**Continuous** — Output available without varying load for an unlimited time.

Ratings are based on ISO3046/1 standard reference conditions of 25° C (77° F) and 100 kPa (29.61 in Hg).

Ratings are based on pipeline natural gas having a LHV (low heat value) of 36.2 MJ/N·m<sup>3</sup> (920 Btu/cu ft). Variations in altitude, temperature, and gas composition from standard conditions or the use of a three way catalyst may require a reduction in engine horsepower.



## Performance Data

Page 5 of 8

## RATED SPEED "Not to exceed data"

EKW	PERCENT LOAD	ENGINE POWER BHP	TOTAL CO LB/HR	TOTAL HC LB/HR	NON- METH HC LB/HR	OXYGEN IN EXHAUST PERCENT	LAMBDA
255	100	367	.9000	3.1200	0.47	4.0000	1.21
191.3	75	330	.6700	2.7400	0.41	3.7000	1.17
127.5	50	293	.4700	1.7200	0.26	2.8000	1.12

# Appendix B

## BACT Guideline and BACT Analysis

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 3.1.6\***

Last Update: 6/20/1995

**Emergency Gas Fired I.C. Engine > or = 132 hp, Rich Burn**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
CO	Natural gas, LPG, or propane as fuel	CO catalyst and natural gas, LPG, or propane as fuel	
NOx	Natural gas, LPG or propane as fuel	NOx Catalyst and natural gas, LPG, or propane as fuel	
PM10	Positive Crankcase Ventilation (PCV) and natural gas, LPG or propane as fuel		
SOx	Natural gas, LPG or propane as fuel		
VOC	Positive Crankcase Ventilation (PCV), and natural gas, LPG, or propane as fuel	VOC Catalyst, Positive Crankcase Ventilation (PCV), and natural gas, LPG, or propane as fuel	

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

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

## **Top Down BACT Analysis for the Emergency IC Engine(s)**

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.

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

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

The SJVUAPCD BACT Clearinghouse guideline 3.1.6 identifies achieved in practice BACT for NO<sub>x</sub> emissions from rich-burn emergency natural gas IC engines ≥ 132 bhp as follows:

- 1) Natural gas, LPG, or propane as fuel

In addition, the SJVUAPCD BACT Clearinghouse guideline 3.1.6 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) and natural gas, LPG, or propane as fuel

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

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

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

- 1) NO<sub>x</sub> catalyst (three-way catalyst) and natural gas, LPG, or propane as fuel
- 2) Natural gas, LPG, or propane as fuel

#### **d. 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.

The only remaining control technology alternative in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

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

BACT for NO<sub>x</sub> emissions from this rich-burn emergency standby natural gas IC engine  $\geq$  132 bhp is natural gas, LPG, or propane as fuel. The applicant has proposed to install a 373 bhp rich-burn emergency standby natural gas IC engine using natural gas, LPG, or propane as fuel; therefore BACT for NO<sub>x</sub> emissions is satisfied.

## **2. 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.

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

The SJVUAPCD BACT Clearinghouse guideline 3.1.6 identifies achieved in practice BACT for VOC emissions from rich-burn emergency natural gas IC engines  $\geq$  132 bhp as follows:

- 1) Positive crankcase ventilation and natural gas, LPG, or propane as fuel

In addition, the SJVUAPCD BACT Clearinghouse guideline 3.1.6 identifies technologically feasible BACT for VOC emissions from rich-burn emergency natural gas IC engines  $\geq$  132 bhp as follows:

- 1) VOC catalyst (three-way catalyst), positive crankcase ventilation, and natural gas, LPG, or propane as fuel

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

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

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

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

- 1) VOC catalyst (three-way catalyst), positive crankcase ventilation, and natural gas, LPG, or propane as fuel
- 2) Positive crankcase ventilation and natural gas, LPG, or propane as fuel

### **d. 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 engine  $\geq$  132 bhp is positive crankcase ventilation, and natural gas, LPG, or propane as fuel. The applicant has proposed to install a 373 bhp rich-burn emergency standby natural gas IC engine with positive crankcase ventilation, and natural gas, LPG, or propane as fuel; therefore BACT for VOC emissions is satisfied.

# Appendix C

## Technical Services Memo

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

To: Jessica Seifert  
 From: Matthew Cegielski-Technical Services  
 Date: June 1, 2011  
 Facility Name: Greenfield County Water District  
 Location: Flinders St. & Mornington Ave Bakersfield, CA  
 Application #(s): S-8028-1-0  
 Project #: S-1111010

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### A. RMR SUMMARY

<b>RMR Summary</b>			
Categories	Natural Gas ICE (Unit 1-0)	Project Totals	Facility Totals
<b>Prioritization Score</b>	0.6	0.6	0.6
<b>Acute Hazard Index</b>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
<b>Chronic Hazard Index</b>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
<b>Maximum Individual Cancer Risk (10<sup>-6</sup>)</b>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
<b>T-BACT Required?</b>	No		
<b>Special Permit Conditions?</b>	Yes		

<sup>1</sup> No further analysis was required since the prioritization score was below 1.0.

### 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. {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]
2. {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 100 hours per calendar year. [District Rule 4702]
3. Standard conditions in the ATC



## B. RMR REPORT

### I. Project Description

Technical Services received a request on June 1, 2011 to perform a Risk Management Review for a proposed 373 Bhp Rich-Burn Natural Gas-Fired Emergency Standby IC Engine Powering an Electrical Generator.

### II. Analysis

Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District emission factors for Natural Gas Fired Internal Combustion 4 Stroke Rich Burn Engine. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905, March 2, 2001), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEARTs database. The prioritization score for this proposed unit was less than 1.0 (see RMR Summary Table). Therefore, no further analysis was necessary.

The following parameters were used for the review:

<b>Analysis Parameters NG fired IC Engine (1-0)</b>			
<b>Source Type</b>	Point	<b>Location Type</b>	Rural
<b>Stack Height (m)</b>	2.3	<b>Closest Receptor (m)</b>	21.3
<b>Stack Diameter. (m)</b>	0.127	<b>Type of Receptor</b>	Residence
<b>Stack Exit Velocity (m/s)</b>	65.8	<b>Throughput (MMscf/hr)</b>	0.00289
<b>Stack Exit Temp. (°K)</b>	808	<b>Max Hours per Year</b>	100

Although this project triggers a public notice, an AAQA was not performed. Based on EPA's clarification memoranda for NO<sub>2</sub> & SO<sub>2</sub>, dated March 1, 2011, intermittent use equipment can be exempted by the reviewing agency from inclusion in analyses. The District has interpreted EPA's guidance to extend to all modeling periods for which there is a CAAQS/NAAQS. Since the number of hours allowed by the District for emergency and intermittent use equipment is less than the levels imposed by EPA, this unit will be exempted from CAAQS/NAAQS analyses. Therefore, an AAQA will not be performed and no further discussion is required.

### III. Conclusion

The prioritization score is less than 1.0. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

**Attachments:**

- A. Toxic emissions summary
- B. Prioritization score
- C. NG 4SRB Spreadsheet



### 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 and VII.C.6 in the evaluation above, PE2<sub>quarterly</sub> and BE<sub>quarterly</sub> can be calculated as follows:

Quarterly Post Project Emissions		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO <sub>x</sub>	1464	366.0
SO <sub>x</sub>	1	0.3
PM <sub>10</sub>	5	1.3
CO	90	22.5
VOC	47	11.8

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

QNEC			
Pollutant	Quarterly PE2 (lb/qtr)	Quarterly BE (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	366.0	0	366.0
SO <sub>x</sub>	0.3	0	0.3
PM <sub>10</sub>	1.3	0	1.3
CO	22.5	0	22.5
VOC	11.8	0	11.8

# Appendix E

## Draft ATC

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-8028-1-0

LEGAL OWNER OR OPERATOR: GREENFIELD COUNTY WATER DISTRICT  
MAILING ADDRESS: 551 TAFT HIGHWAY  
BAKERSFIELD, CA 93307

LOCATION: FLINDERS STREET AND MORNINGTON AVE  
BAKERSFIELD, CA

SECTION: 31 TOWNSHIP: 30S RANGE: 28E

**EQUIPMENT DESCRIPTION:**

373 BHP CATERPILLAR MODEL 3406 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. {1346} This engine shall be used exclusively to operate a drinking water system. [CH&SC 41701.6]
8. {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 (661) 392-5500 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

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DAVID WARNER, Director of Permit Services

S-8028-1-0: Jun 13 2011 0:37AM - BEFERTJ : Joint Inspection NOT Required

9. {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]
10. {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]
11. {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]
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. {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 100 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. {3498} 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. For units at unstaffed sites or operated remotely, records may be maintained and retained at a District-approved off-site location. [District Rule 4702]
16. Emissions from this IC engine shall not exceed any of the following limits: 17.8 g-NOx/bhp-hr, 0.063 g-PM10/bhp-hr, 1.09 g-CO/bhp-hr, or 0.57 g-VOC/bhp-hr. [District Rule 2201]

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