



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

FEB 28 2013

Rocky DeJager
Red Rock Dairy
3025 E. Sandy Mush Road
Merced, CA 95340

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1120375

Dear Mr. DeJager:

Enclosed for your review and comment is the District's analysis of Red Rock Dairy's application for an Authority to Construct for a 1,193 bhp diesel-fired emergency standby internal combustion engine powering an electrical generator, at N. Canton Road, East of Hwy 59, Merced.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Dennis Roberts of Permit Services at (559) 230-5919.

Sincerely,

David Warner
Director of Permit Services

DW:dr

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
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Central Region (Main Office)
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FEB 28 2013

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

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: N-1120375

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Red Rock Dairy's application for an Authority to Construct for a 1,193 bhp diesel-fired emergency standby internal combustion engine powering an electrical generator, at N. Canton Road, East of Hwy 59, Merced.

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Red Rock Dairy for a 1,193 bhp diesel-fired emergency standby internal combustion engine powering an electrical generator, at N. Canton Road, East of Hwy 59, Merced.

The analysis of the regulatory basis for this proposed action, Project #N-1120375, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted by Thursday, April 4th, 2013 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
Diesel-Fired Emergency Standby IC Engine used in an Agricultural
Operation

Facility Name:	Red Rock Dairy	Date:	February 5, 2013
Mailing Address:	3025 E. Sandy Mush Road Merced, CA 95340	Engineer/ Specialist:	Dennis Roberts
Contact Person:	Rocky DeJager	Lead Engineer:	Martin Keast
Telephone:			
Application #:	N-7787-6-0		
Project #:	N-1120375		
Complete:	January 17, 2013		

I. Proposal

Red Rock Dairy is requesting an Authority to Construct for a 1,193 bhp diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator which was installed in 2009 without an ATC.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (9/21/06)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emission 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 (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
California Environmental Quality Act (CEQA)
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:
CEQA Guidelines

III. Project Location

The site is located on N. Canton Road, East of Hwy 59, Merced, CA.

The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

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

V. Equipment Listing

N-7787-6-0: 1193 BHP DETROIT MODEL 12VG85TB TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE (SERIAL #5352006332) POWERING AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

The installed engine is a Tier 2 certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

The installed engine meets the Tier Certification requirements in effect at the time of installation; therefore, the engine meets the applicable ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix C for a copy of the emissions data sheet and/or the ARB/EPA executive order).

The use of very low-sulfur diesel fuel (0.0015% by weight sulfur maximum) reduces SO_x emissions by over 99% from standard diesel fuel.

VII. General Calculations

A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	50 hours/year
Density of diesel fuel:	7.1 lb/gal
EPA F-factor (adjusted to 60 °F):	9,051 dscf/MMBtu
Fuel heating value:	137,000 Btu/gal
BHP to Btu/hr conversion:	2,542.5 Btu/bhp-hr
Thermal efficiency of engine:	commonly ≈ 35%
PM ₁₀ fraction of diesel exhaust:	0.96 (CARB, 1988)

The engine has certified NO_x + VOC emissions of 4.68 g/bhp-hr. It will be assumed the NO_x + VOC emission factor is split 95% NO_x and 5% VOC (per the District's Carl Moyer program).

B. Emission Factors

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	4.45	Engine Manufacturer
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.02	Engine Manufacturer
CO	0.44	Engine Manufacturer
VOC	0.23	Engine Manufacturer

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

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:

Project Emissions (PE2)						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO _x	4.45	1193	24	50	280.6	585
SO _x	0.0051	1193	24	50	0.3	1
PM ₁₀	0.02	1193	24	50	1.3	3
CO	0.44	1193	24	50	27.7	58
VOC	0.23	1193	24	50	14.5	30

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

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

The SSPE is taken from District project N-1110984, shown in the table below:

Post-Rule 4570 Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
N-7787-1-1, -2-2, -3-1, -4-1, and -5-1	0	0	51,282	0	115,295
Stationary Source Potential to Emit	0	0	51,282	0	115,295

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.

For this project the change in emissions for the facility is due to the installation of the new emergency standby IC engine(s), permit unit -6-0. Thus:

SSPE2					
Permit Unit	NO _x (lb/yr)	SO _x (lb/yr)	PM ₁₀ (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE1			51,282		115,295
N-7787-6-0	585	1	3	58	30
SSPE2 Total	585	1	51,285	58	115,325

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to Section 3.24 of District Rule 2201, a major source is a stationary source with an SSPE2 equal to or exceeding one or more of the threshold values listed in the table below. 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.

In determining whether a facility is a major source, fugitive emissions are not counted unless the facility belongs to certain specified source categories. 40 CFR 71.2 (Definitions, Major Source (2)) states the following:

(2) A major stationary source of air pollutants or any group of stationary sources as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source: (i) Coal cleaning plants (with thermal dryers); (ii) Kraft pulp mills; (iii) Portland cement plants; (iv) Primary zinc smelters; (v) Iron and steel mills; (vi) Primary aluminum ore reduction plants; (vii) Primary copper smelters; (viii) Municipal incinerators capable of charging more than 250 tons of refuse per day; (ix) Hydrofluoric, sulfuric, or nitric acid plants; (x) Petroleum refineries; (xi) Lime plants; (xii) Phosphate rock processing plants; (xiii) Coke oven batteries; (xiv) Sulfur recovery plants; (xv) Carbon black plants (furnace process); (xvi) Primary lead smelters; (xvii) Fuel conversion plants; (xviii) Sintering plants; (xix) Secondary metal production plants; (xx) Chemical process plants; (xxi) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input; (xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels; (xxiii) Taconite ore processing plants; (xxiv) Glass fiber processing plants; (xxv) Charcoal production plants; (xxvi) Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; or (xxvii) Any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

Because agricultural operations do not fall under any of the specific source categories listed above, fugitive emissions are not counted when determining if an agricultural operation is a major source. 40 CFR 71.2 defines fugitive emissions as "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening."

Major source determination emissions for permit units N-7787-1-1, -2-2, -3-1, -4-1, and -5-1 are taken from District project N-1110984 with appropriate exclusion of fugitive emissions:

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
N-7787-1-1, -2-2, -3-1, -4-1, and -5-1	0	0	0	0	5,128
N-7787-6-0	585	1	3	58	30
Stationary Source Potential to Emit	585	1	3	58	5,158
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀	CO _{2e} *
Estimated Facility PE before Project Increase (non-fugitive)	0	2.6	0	0	0	0	29,895
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

*See Appendix D

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

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

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

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

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

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

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

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

I. Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds

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

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination: Potential to Emit (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e*
Total PE from New and Modified Units	0.3	0	0	0	0	0	35
PSD Major Source threshold	250	250	250	250	250	250	100,000
New PSD Major Source?	N	N	N	N	N	N	N

*See Appendix D

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

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix E.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

- a) Any new emissions unit with a potential to emit exceeding 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 Section VII.C.7, this project does not result in a Major Modification. 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 -X-X (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO _x	280.6	> 2.0	n/a	Yes
SO _x	0.3	> 2.0	n/a	No
PM ₁₀	1.3	> 2.0	n/a	No
CO	27.7	> 2.0 and SSPE2 ≥ 200,000 lb/yr	116	No
VOC	14.5	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NO_x and VOC emissions from the engine for this project.

2. BACT Guideline

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

3. Top Down BACT Analysis

Per District Policy APR 1305, Section IX, "A top-down BACT analysis shall be performed as a part of the Application Review for each application subject to the BACT requirements pursuant to the District's NSR Rule for source categories or classes covered in the BACT Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis."

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

NO_x: Latest EPA Tier Certification level for applicable horsepower range
VOC: Latest EPA Tier Certification level for applicable horsepower range

B. Offsets

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

C. Public Notification

1. Applicability

Public Notice Applicability	
Is this a New Major Source, which is a new facility that is also a Major Source?	No
Does this project trigger a Major Modification?	No
For the engine(s) in this project, Is the Potential to Emit greater than 100 pounds during any one day for any one pollutant?	Yes
Does this project result in the offset thresholds being surpassed?	No
Is the Stationary Increase in Potential to emit greater than 20,000 lb/year for any one pollutant?	No

As discussed above, public noticing is required for this project for NO_x emissions in excess of 100 lb/day. 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. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- Emissions from this IC engine shall not exceed any of the following limits: 4.45 g-NO_x/bhp-hr, 0.44 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
- Emissions from this IC engine shall not exceed 0.02 g-PM₁₀/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
- Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required for emergency standby IC engines to demonstrate compliance with Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

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

4. Reporting

No reporting is required to ensure compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix E of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for PM₁₀. The increase in the ambient PM₁₀ concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

Significance Levels					
Pollutant	Significance Levels (µg/m ³) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	1.0	5	N/A	N/A	N/A

Calculated Contribution					
Pollutant	Calculated Contributions (µg/m ³)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	7.89x10 ⁻⁵	0.00	N/A	N/A	N/A

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

Rule 2410 Prevention of Significant Deterioration (PSD)

Per the calculations and discussion in Section VII.C.9, PSD is not triggered for this project.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential to emit does not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Rule 4001 New Source Performance Standards (NSPS)

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

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

40 CFR 60 Subpart IIII Requirements for New Emergency IC Engines Powering Generators (2007 and Later Model Year)	Proposed Method of Compliance with 40 CFR 60 Subpart IIII Requirements
Engine(s) must meet the appropriate Subpart IIII emission standards for new engines, based on the model year, size, and number of liters per cylinder.	The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of Subpart IIII.
Engine(s) must be fired on 500 ppm sulfur content fuel or less, and fuel with a minimum centane index of 40 or a maximum aromatic content of 35 percent by volume. Starting in October 1, 2010, the maximum allowable sulfur fuel content will be lowered to 15 ppm.	The applicant has proposed the use of CARB certified diesel fuel, which meets all of the fuel requirements listed in Subpart IIII. A permit condition enforcing this requirement was included earlier in this evaluation.
The operator/owner must install a non-resettable hour meter prior to startup of the engine(s).	The applicant has proposed to install a non-resettable hour meter. The following condition will be included on the permit: <ul style="list-style-type: none"> This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
Emergency engine(s) may be operated for the purpose of maintenance and testing up to 100 hours per year. There is no limit on emergency use.	District Rule 4702 limits this engine maintenance and testing to 100 hours/year. <ul style="list-style-type: none"> {modified 3809} 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 Rules 2201 and 4702 and 40 CFR 60 Subpart IIII]
The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions.	The following condition will be included on the permit: <ul style="list-style-type: none"> This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702 and 40 CFR 60 Subpart IIII]

Rule 4002 National Emission Standards for Hazardous Air Pollutants

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

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

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

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

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

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

The proposed engines are expected to be in compliance with 40 CFR 63 Subpart ZZZZ.

Rule 4101 Visible Emissions

Rule 4101 states that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. Therefore, the following condition will be listed on the ATC to ensure compliance:

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, the following condition will be listed on the ATC to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 - Risk Management Policy for Permitting New and Modified Sources (dated 3/2/01) specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. Therefore, a risk management review (RMR) was performed for this project. The RMR results are summarized in the following table, and can be seen in detail in Appendix E.

RMR Results				
Unit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required?
N-7787-6-0	N/A	N/A	0.008 in a million	No

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

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- Emissions from this IC engine shall not exceed 0.02 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
- {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]

Rule 4201 Particulate Matter Concentration

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM₁₀ emission factor of 0.4 g-PM₁₀/bhp-hr.

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

The new engine has a PM₁₀ emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on the ATC:

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

Rule 4701 Internal Combustion Engines – Phase 1

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

Rule 4702 Internal Combustion Engines – Phase 2

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

District Rule 4702 Requirements Emergency Standby IC Engines	Proposed Method of Compliance with District Rule 4702 Requirements
Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter.	The following condition will be included on the permit: <ul style="list-style-type: none"> • {modified 3809} 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 Rules 2201 and 4702 and 40 CFR 60 Subpart IIII]
Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract	The following conditions will be included on the permit: <ul style="list-style-type: none"> • {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702] • {3808} This engine shall not be used to

	produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]
The owner/operator must operate and maintain the engine(s) and any installed control devices according to the manufacturers written instructions.	A permit condition enforcing this requirement was shown earlier in the evaluation.
The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.	The following condition will be included on the permit: <ul style="list-style-type: none"> • {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or 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]
Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained.	The following condition will be included on the permit: {modified 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]

Rule 4801 Sulfur Compounds

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

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

n = moles SO₂

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

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

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

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

- {modified 3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 17 CCR 93115, 40 CFR Part 60 Subpart IIII]

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 (for New Engines)

§93115.1 – Purpose

The purpose of this ATCM is to reduce diesel particulate matter (PM) and criteria pollutant emissions from stationary diesel-fueled compression ignition (CI) engines.

§93115.2 – Applicability

(b) Except as provided in sections 93115.3 and 93115.9, this ATCM applies to any person who owns or operates a stationary CI engine in California with a rated brake horsepower greater than 50 (>50 bhp).

The IC engine in this project is a CI engine with a rated bhp > 50; therefore, this ATCM applies.

§93115.3 – Exemptions

(b) The requirements specified in sections 93115.6, 93115.7, and 93115.10(a) do not apply to new or in-use stationary diesel-fueled CI engines used in agricultural operations.

The engine in this project is used in an agricultural operation; therefore, the requirements specified in sections 93115.6, 93115.7, and 93115.10(a) do not apply. To

ensure compliance with the basis for this exemption, the following condition will be included on the ATC:

- {4002} This IC engine shall only be used for the growing and harvesting of crops or the raising of fowl or animals for the primary purpose of making a profit, providing a livelihood, or conducting agricultural research or instruction by an educational institution. [17 CCR 93115]

§93115.4 – Definitions

(a) For purposes of this ATCM, the following definition applies:

(50) "New" or "New CI Engine" means the following:

(A) a stationary CI engine installed at a facility after January 1, 2005, including an engine relocated from an off-site location after January 1, 2005, except the following shall be deemed in-use engines:

1. a replacement stationary CI engine that is installed to temporarily replace an in-use engine while the in-use engine is undergoing maintenance and testing, provided the replacement engine emits no more than the in-use engine, and the replacement engine is not used more than 180 days cumulatively in any 12-month rolling period;
2. an engine for which a district-approved application for a district permit or engine registration for stationary sources was submitted to the District prior to January 1, 2005, even though the engine was installed after January 1, 2005;
3. an engine that is one of four or more engines owned by an owner or operator and is relocated prior to January 1, 2008, to an offsite location that is owned by the same owner or operator;
4. an engine, or replacement for an engine, used in agricultural operations that is relocated within the same facility or to another facility under the same owner or operator for use in agricultural operations, unless the engine is sited where an engine is not currently located and has not been previously located.

The CI engine in this project meets the definition of "new" because it was installed after January 1, 2005 and does not fall into any of the "in-use" categories (50)(A)(1) – (4) above.

§93115.5 – Fuel and Fuel Additive Requirements for New and In-Use Stationary CI Engines That Have a Rated Brake Horsepower of Greater than 50

Subsection (a) applies to new stationary CI engines. Since the engine in this project is "new," the fuel requirements in subsection (a) are applicable.

- (1) CARB Diesel Fuel; or
- (2) an alternative diesel fuel that is:
 - (A) biodiesel;
 - (B) a biodiesel blend that does not meet the definition of CARB Diesel Fuel;
 - (C) a Fischer-Tropsch fuel; or
 - (D) an emulsion of water in diesel fuel; or
- (3) any alternative diesel fuel that is not identified in section (2) above and meets the requirements of the Verification Procedure; or
- (4) an alternative fuel; or
- (5) CARB Diesel Fuel used with fuel additives that meets the requirements of the Verification Procedure; or
- (6) any combination of (1) through (5) above.

The following condition will ensure compliance with the fuel requirements of §93115.5(a):

- {modified 3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]

§93115.8 – Emission Standards for Stationary Diesel-Fueled CI Engines (>50 bhp) Used in Agricultural Operations

(a) Emission Standards for New Stationary Diesel-Fueled CI Engines (>50 bhp) Used in Agricultural Operations.

(3)(A)1.a. & b.: PM Standard

New agricultural stationary diesel-fueled CI engines, used in generator set applications with a maximum rated horsepower greater than 50, shall emit no more than 0.15 g/bhp-hr diesel PM, or shall meet the standards, as specified in the Off-Road Compression Ignition Engine Standards for off-road engines of the same maximum rated power (title 13, CCR, section 2423), in effect on the date of acquisition or submittal,¹ as defined in section 93115.4, whichever is more stringent;

The Off-Road Compression Ignition Engine Standards (title 13, CCR, section 2423) are given in the following table.

¹ "Date of acquisition or submittal" means the date the application for the district permit or the application for engine registration was submitted to the District. Alternatively, upon District approval, the date of purchase as defined by the date shown on the front of the cashed check, the date of the financial transaction, or the date on the engine purchasing agreement, whichever is earliest.

Title 13, CCR, section 2423 Off Road Compression Ignition PM (g/bhp-hr) Emission Standards by Year								
Horsepower	2008	2009	2010	2011	2012	2013	2014	2015+
50 ≤ hp < 75	0.22					0.022		
75 ≤ hp < 100	0.3				0.015		0.015	
100 ≤ hp ≤ 175	0.22				0.015		0.015	
175 ≤ hp ≤ 750	0.15			0.015			0.015	
750 < hp (gen sets only)	0.15			0.07				0.02

	Tier 2
	Tier 3
	Interim Tier 4
	Final Tier 4

The 1,193 bhp engine in this project was installed December 15, 2009; therefore, the more stringent emission standard between 0.15 g-PM/bhp-hr or the PM emission standard from Title 13, CCR, section 2423 (given in the table above) is 0.15 g-PM/bhp-hr. The CI engine in this project will meet the PM standard by having certified emissions of 0.15 g-PM/bhp-hr. The following permit condition will ensure compliance with the PM emission standards of this ATCM:

- {edited 3486} Emissions from this IC engine shall not exceed X.XX g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart III]

(3)(A)1.c.: Limit hours of operation

New stationary emergency standby diesel-fueled engines (>50 bhp) shall not operate more than 50 hours per year for maintenance and testing purposes, except as provided in 93115.6(a)(3)(A)2.

The CI engine in this project will be limited to 50 hours per year in this regard. The following permit condition will ensure compliance with the ATCM:

- {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory

purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart III] N

(3)(B) NMHC, NOx, and CO Standards:

New agricultural stationary diesel-fueled CI engines shall meet the HC, NOx, (or NMHC+NOx, if applicable) and CO standards for off-road engines of the same model year² and maximum rated power, as specified in the Off-Road Compression Ignition Engine Standards (title 13, CCR, section 2423). If no limits have been established for an off-road engine of the same model year and maximum rated power as the new agricultural stationary diesel-fueled CI engine, then the new agricultural stationary diesel-fueled CI engine shall meet the Tier 1 standards in title 13, CCR, section 2423, for an off-road engine of the same maximum rated power, irrespective of the new agricultural diesel-fueled CI engine's model year.

		Title 13, CCR, section 2423 Off Road Compression Ignition NMHC / NOx / CO (g/bhp-hr) Emission Standards by Year*						
Horsepower	2008	2009	2010	2011	2012	2013	2014	2015+
50 ≤ hp < 75	3.5 / 3.7				3.5 / 3.7			
75 ≤ hp < 100	3.5 / 3.7				0.14 / 2.5 / 3.7		0.14 / 0.30 / 3.7	
100 ≤ hp < 175	3.0 / 3.7				0.14 / 2.5 / 3.7		0.14 / 0.30 / 3.7	
175 ≤ hp ≤ 750	3.0 / 2.6			0.14 / 1.5 / 2.6			0.14 / 0.30 / 2.2	
750 ≤ hp ≤ 1,200	4.8 / 2.6			0.30 / 2.6 / 2.6			0.14 / 0.50 / 2.6	
1,200 < hp	4.8 / 2.6			0.30 / 0.50 / 2.6			0.14 / 0.50 / 2.6	

*Where only two numbers are given, the first number represents the combined NMHC + NOx emissions.

	Tier 2
	Tier 3
	Interim Tier 4
	Final Tier 4

² "Model Year" means the stationary CI engine manufacturer's annual production period, which includes January 1st of a calendar year, or if the manufacturer has no annual production period, the calendar year.

The model year 2009 CI engine in this project has a maximum rated brake horsepower of 1,193 bhp and is Tier 2 certified. It will meet the *Off-Road Compression Ignition Engine Emission Standards (Title 13, CCR, Section 2423)* by having certified emissions of 4.45 g-NOx/bhp-hr, 0.44 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr (See Appendix B). The following permit condition will ensure compliance with the PM emission standards of this ATCM:

- {edited 3485} Emissions from this IC engine shall not exceed any of the following limits: 4.45 g-NOx/bhp-hr, 0.44 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart III]

(2) Prior to January 1, 2008, the requirements of section 93115.8(a)(1) shall not apply to any stationary diesel-fueled CI engine that:

(A) is used in agricultural operations; and

(B) was funded under a State or federal incentive funding program; and

(C) was sold for use in another agricultural operation, provided the stationary diesel-fueled CI engine complies with Tier II Off-Road Compression Ignition Standards for off-road engines of the same maximum rated power (title 13, CCR, section 2423).

The engine in this project does not meet all the criteria in §93115.8(a)(2) above; therefore, section (a)(2) does not apply.

(c) Registration Requirements for Greater than 50 bhp Stationary Diesel-Fueled CI Agricultural Engines

This ATC application fulfills the registration requirements listed under §93115.8 (c).

(d) Fee Requirements for Greater than 50 bhp Stationary Diesel-Fueled CI Agricultural Engine Owners or Operators

The applicant is required to pay fees assessed by the District associated with implementing and enforcing the requirements of §93115.8. The District's existing fee rules in Regulation III will ensure compliance with this requirement.

§93115.10 – Recordkeeping, Reporting, and Monitoring Requirements

(a) Reporting Requirements for Owners or Operators of New and In-Use Stationary CI Engines, Including Non-Diesel-Fueled CI Engines, Having a Rated Horsepower Greater than 50 (> 50 bhp)

The engine in this project is used in an agricultural operation; therefore, per §93115.3(b) it is exempt from §93115.10(a).

(e) Monitoring Equipment.

(1) A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005,

on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.

The following standard ATC condition will ensure compliance with § 93115.10(e):

- {modified 3403} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
- (g) *Reporting Requirements for Emergency Standby Engines.*
 - (1) *Starting January 1, 2005, each owner or operator of an emergency standby diesel-fueled CI engine shall keep records and prepare a monthly summary that shall list and document the nature of use for each of the following:*
 - (A) *emergency use hours of operation;*
 - (B) *maintenance and testing hours of operation;*
 - (C) *hours of operation for emission testing to show compliance with sections 93115.6(a)(3) and 93115.6(b)(3);*
 - (D) *initial start-up testing hours;*
 - (E) *if applicable, hours of operation to comply with the requirements of NFPA 25;*
 - (F) *hours of operation for all uses other than those specified in sections 93115.10(g)(1)(A) through (D) above; and*
 - (G) *the fuel used.*
 1. *For engines operated exclusively on CARB Diesel Fuel, the owner or operator shall document the use of CARB Diesel Fuel through the retention of fuel purchase records indicating that the only fuel purchased for supply to an emergency standby engine was CARB Diesel Fuel; or*
 2. *For engines operated on any fuel other than CARB Diesel Fuel, fuel records demonstrating that the only fuel purchased and added to an emergency standby engine or engines, or to any fuel tank directly attached to an emergency standby engine or engines, meets the requirements of section 93115.5(b).*
 - (2) *Records shall be retained for a minimum of 36 months. Records for the prior 24 months shall be retained on-site, either at a central location or at the engine's location, or at an offsite central location within California, and shall be made immediately available to the District staff upon request. Records for the prior 25 to 36 months shall be made available to District staff within 5 working days from request.*

The following standard ATC conditions will ensure compliance with the recordkeeping requirements of §93115.10(g)(1) and (2):

- {modified 3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and

maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]

- The operator shall document the use of CARB certified diesel fuel through the retention of fuel purchase records. [District Rule 4801 and 17 CCR 93115]
- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

§93115.13 – Compliance Demonstration.

(a) Upon approval by the District APCO, the following sources of data may be used in whole or part to demonstrate compliance with the emissions standards or requirements of sections 93115.6 through 93115.9:

- i. off-road engine certification test data for the stationary diesel-fueled CI engine.*
- ii. engine manufacturer test data,*
- iii. emissions test data from a similar engine,*
- iv. emissions test data used in meeting the requirements of the Verification Procedure for the emission control strategy implemented, or*
- v. An alternative compliance demonstration as described in section 93115.13(f).*

The applicant has submitted CARB certified emissions data for the CI engine in this project (see Appendix B); therefore, compliance has been demonstrated.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its Environmental Review Guidelines (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible changes compared to the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct N-7787-6-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix A.

X. Billing Information

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
N-7787-6-0	3020-10-F	1,193 bhp IC engine	\$749.00

Appendixes

- A. Draft ATC
- B. BACT Guideline and BACT Analysis
- C. Emissions Data
- D. GHG Calculations
- E. HRA Summary and AAQA
- F. QNEC Calculations

Appendix A Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-7787-6-0

LEGAL OWNER OR OPERATOR: RED ROCK DAIRY
MAILING ADDRESS: 3025 E SANDY MUSH
MERCED, CA 95340

LOCATION: EAST OF HWY 59, N CANTON ROAD
37 DEG 12'42.3" N 120 DEG 27' 53.2" W
MERCED, CA

EQUIPMENT DESCRIPTION:
1193 BHP DETROIT MODEL 12VG85TB TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE
(SERIAL #5352006332) POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
5. {4257} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
6. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, 17 CCR 93115, 40 CFR Part 60 Subpart IIII]
7. Emissions from this IC engine shall not exceed any of the following limits: 4.45 g-NOx/bhp-hr, 0.44 g-CO/bhp-hr, or 0.23 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
8. Emissions from this IC engine shall not exceed 0.02 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

N-7787-6-0: Feb 25 2013 3:10PM - ROBERTSD : Joint Inspection NOT Required

9. {4261} This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702 and 40 CFR 60 Subpart III]
10. {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]
11. {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]
12. {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]
13. {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
14. {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart III]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

Appendix B
BACT Guideline and BACT Analysis

San Joaquin Valley Unified Air Pollution Control District

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

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

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

Top Down BACT Analysis for the Emergency IC Engine

1. BACT Analysis for NO_x Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.1 identifies achieved in practice BACT for NO_x emissions from emergency diesel IC engines as follows:

- 1) Latest EPA Tier Certification level for applicable horsepower range

No technologically feasible alternatives or 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

No ranking needs to be done because only one control option is listed in Step 1.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for NO_x emissions from this emergency standby diesel IC engine is the latest EPA Tier Certification level for the applicable horsepower range. The applicant has proposed to install a Tier 2 certified 1,193 bhp emergency standby diesel IC engine, which is the latest Tier Certification for an engine this size as shown in the attached Tier Certification table at the end of this Appendix; therefore BACT for NO_x emissions is satisfied.

BACT Analysis for VOC Emissions:

2. BACT Analysis for VOC Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.1 identifies achieved in practice BACT for VOC emissions from emergency diesel IC engines as follows:

- 1) EPA Tier Certification level for applicable horsepower range

No technologically feasible alternatives or 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

No ranking needs to be done because only one control option is listed in Step 1.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for VOC emissions from this emergency standby diesel IC engine is the latest EPA Tier Certification level for the applicable horsepower range. The applicant has proposed to install a Tier 2 certified 1,193 bhp emergency standby diesel IC engine which is the latest Tier Certification for an engine this size as shown in the attached Tier Certification table at the end of this Appendix; therefore BACT for VOC emissions is satisfied.

Title 13 CCR 2423
(December 2005)
Tier Certification & Exhaust Emission Standards
(grams per brake horsepower-hour)

Power Rating (hp)	Tier	Model Year	NO _x	HC	NMHC +NO _x	CO	PM
50 ≤ hp < 75	1	1998 – 2003	6.9	-	-	-	-
	2	2004 - 2007	-		5.6	3.7	0.3
	3	2008 - 2011			3.5		
	4*	2008 – 2012 (Interim)			3.5	3.7	0.22
75 ≤ hp < 100	1	1998 – 2003	6.9	-	-	-	-
	2	2004 – 2007	-		5.6	3.7	0.3
	3	2008 – 2011			3.5		
100 ≤ hp < 175	1	1997 – 2002	6.9	-	-	-	-
	2	2003 – 2006	-		4.9	3.7	0.22
	3	2007 – 2011			3.0		
175 ≤ hp < 300	1	1996 – 2002	6.9	1.0	-	8.5	0.4
	2	2003 – 2005	-	-	4.9	2.6	0.15
	3	2006 - 2010		3.0			
300 ≤ hp < 600	1	1996 – 2000	6.9	1.0	-	8.5	0.4
	2	2001 – 2005	-	-	4.8	2.6	0.15
	3	2006 – 2010		3.0			
600 ≤ hp ≤ 750	1	1996 – 2001	6.9	1.0	-	8.5	0.4
	2	2002 – 2005	-	-	4.8	2.6	0.15
	3	2006 – 2010		3.0			
> 750	1	2000 – 2005	6.9	1.0	-	8.5	0.4
	2	2006 – 2010	-	-	4.8	2.6	0.15

* Manufacturers may optionally certify engine families to the interim Tier 4 for this power category through 2012.

Appendix C
Emissions Data Sheet



Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2008	8MDDL35.8GRR	23.9, 31.8, 35.8	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Engine Control Module Turbocharger, Charge Air Cooler			Pump, Compressor, Generator Set	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbons (HC), oxides of nitrogen (NOx), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

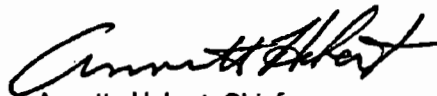
RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kW-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
kW > 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	N/A	N/A	N/A
		CERT	-	-	5.5	1.6	0.16	-	-	-

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 29 day of February 2008.


Annette Hebert, Chief
Mobile Source Operations Division

Engine Model Summary Template

EO# U-R-052-0006
ATTACHMENT

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm ³ /stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm ³ /stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
8MDDL35.8GRR	7062	18V G85 TB 3D	1757 @ 1800	349	593	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7072	18V G85 TD	1757 @ 1800	349	593	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7061	18V G85 TB 3B	1597 @ 1800	315	535	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7071	18V G85 TD 3B	1597 @ 1800	315	535	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7060	16V G85 TB 3D	1495 @ 1800	335	508	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7070	16V G85 TD	1495 @ 1800	335	509	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7059	16V G45 TB 3D	1354 @ 1800	305	461	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7069	16V G45 TD	1354 @ 1800	305	461	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7058	16V G85 TB 3B	1354 @ 1800	305	461	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7058	16V G85 TD 3B	1354 @ 1800	305	461	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7057	16V G45 TB 3B	1227 @ 1800	278	419	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7067	16V G45 TD 3B	1227 @ 1800	278	419	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7056	12V G85 TB 3D	1193 @ 1800	358	414	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7066	12V G85 TD	1193 @ 1800	358	414	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7055	12V G45 TB 3D	1046 @ 1800	320	364	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7065	12V G45 TD	1046 @ 1800	320	364	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7054	12V G85 TB 3B	1086 @ 1800	330	372	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7064	12V G85 TD 3B	1086 @ 1800	330	372	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7053	12V G45 TB 3B	952 @ 1800	295	333	NA	NA	NA	DFI, TC, CAC, ECM
8MDDL35.8GRR	7063	12V G45 TD	952 @ 1800	295	333	NA	NA	NA	DFI, TC, CAC, ECM

750-XC6DT2



Standby

Phase	3	3	3	3	3
PF	0.8	0.8	0.8	0.8	0.8
Hz	60	60	60	60	60
kW	750	750	750	750	750
kVA	937.5	937.5	937.5	937.5	937.5
AMPS	2602	2255	1128	902	130
skVA@30%					
Voltage Dip	2600	2600	2120	3050	1850
Generator Model*	574RSL4037	574RSL4037	573RSL4035	574RSS4278	574FSM4358
Temp Rise	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C	130 °C/40 °C
Connection	12 LEAD LOW WYE	12 LEAD HI DELTA	12 LEAD HI WYE	4 LEAD WYE	6 LEAD WYE

* The Generator Model Number identified in the table is for standard C Series Configuration. Consult the factory for alternate configuration.
 ** UL 2200 Offered

Emissions - EPA Tier 2 Certified

Engine-generator set is designed and manufactured in facilities certified to standards ISO 9001:2008 and ISO 14001:2004

UL 2200 / CSA - Optional

- UL 2200 Listed
- CSA Certified

Performance Assurance Certification (PAC)

- Engine-Generator Set Tested to ISO 8528-5 for Transient Response
- Verified product design, quality and performance integrity
- All engine systems are prototype and factory tested

Power Rating

- Accepts Rated Load in One Step Per NFPA 110
- Permissible average power output during 24 hours of operation is approved up to 85%.



- MTU Onsite Energy is a single source supplier
- Global Product Support
- 2 Year Standard Warranty
- 12V 2000 Diesel Engine
 - 23.9 Liter Displacement
 - Electronic Unit Pump Injection
 - 4-Cycle
- Complete Range of Accessories

- Generator
 - Brushless, Rotating Field Generator
 - 2/3 Pitch Windings
 - PMG (Permanent Magnet Generator) supply to regulator
 - 300% Short Circuit Capability
- Digital Control Panel(s)
 - UL Recognized, CSA Certified, NFPA 110
 - Complete System Metering
 - LCD Display
- Cooling System
 - Integral Set-Mounted
 - Engine Driven Fan

Engine

Air Cleaners
 Oil Pump
 Oil Drain Extension & S/O Valve
 Full Flow Oil Filter
 Closed Crankcase Ventilation
 Jacket Water Pump
 Inter Cooler Water Pump
 Thermostats
 Blower Fan & Fan Drive
 Radiator - Unit Mounted
 Electric Starting Motor - 24V
 Governor - Electronic Isochronous
 Base - Structural Steel
 SAE Flywheel & Bell Housing
 Charging Alternator - 24V
 Battery Box & Cables
 Flexible Fuel Connectors
 Flexible Exhaust Connection
 EPA Certified Engine

Generator

NEMA MG 1, IEEE and ANSI standards compliance for temperature rise and motor starting
 Sustained short circuit current of up to 300% of the rated current for up to 10 seconds
 Self-Ventilated and Drip-Proof
 Superior Voltage Waveform
 Digital, Solid State, Volts-per-Hertz Regulator

No Load to Full Load Regulation
 Brushless Alternator with Brushless Pilot Exciter
 4 Pole, Rotating Field
 130 °C Maximum Standby Temperature Rise
 1 Bearing, Sealed
 Flexible Coupling
 Full Amortisseur Windings
 125% Rotor Balancing
 3-Phase Voltage Sensing
 ±0.25% Voltage Regulation
 100% of Rated Load - One Step
 3% Maximum Harmonic Content

Digital Control Panel(s)

Digital Metering
 Engine Parameters
 Generator Protection Functions
 Engine Protection
 CAN Bus ECU Communications
 Windows-Based Software
 Multilingual Capability
 Remote Communications to RDP-110 Remote Annunciator
 16 Programmable Contact Inputs
 Up to 11 Contact Outputs
 UL Recognized, CSA Certified, CE Approved
 Event Recording
 IP 54 Front Panel Rating with Integrated Gasket
 NFPA 110 Compatible

* Represents standard product only. Consult Factory/MTU Onsite Energy Distributor for additional configurations.

Engine

Manufacturer	MTU
Model	12V2000G85TB
Type	4-Cycle
Arrangement	12-V
Displacement: L (in ³)	23.9 (1,457)
Bore: cm (in)	13 (5.1)
Stroke: cm (in)	15 (5.9)
Compression Ratio	16:1
Rated RPM	1,800
Engine Governor	Electronic Isochronous (ADEC)
Maximum Power: kWm (bhp)	890 (1,193)
Speed Regulation	±0.25%
Air Cleaner	Dry

Liquid Capacity (Lubrication)

Total Oil System: L (gal)	77 (20.3)
Engine Jacket Water Capacity: L (gal)	110 (29.1)
After Cooler Water Capacity: L (gal)	20 (5.3)
System Coolant Capacity: L (gal)	274 (72.4)

Electrical

Electric Volts DC	24
Cold Cranking Amps Under -17.8 °C (0 °F)	1,750

Fuel System

Fuel Supply Connection Size	3/4" NPT
Fuel Return Connection Size	1/4" NPT
Maximum Fuel Lift: m (ft)	3 (10)
Recommended Fuel	Diesel #2
Total Fuel Flow: L/hr (gal/hr)	480.7 (127)

Fuel Consumption

	STANDBY
At 100% of Power Rating: L/hr (gal/hr)	218.8 (57.8)
At 75% of Power Rating: L/hr (gal/hr)	164.6 (43.5)
At 50% of Power Rating: L/hr (gal/hr)	111.3 (29.4)

Cooling - Radiator System

	STANDBY
Ambient Capacity of Radiator: °C (°F)	40 (104)
Maximum Restriction of Cooling Air, Intake, and Discharge Side of Rad.: kPa (in. H ₂ O)	0.12 (0.5)
Water Pump Capacity: L/min (gpm)	833 (220)
After Cooler Pump Capacity: L/min (gpm)	257 (68)
Heat Rejection to Coolant: kW (BTUM)	315 (17,913)
Heat Rejection to After Cooler: kW (BTUM)	270 (15,354)
Heat Radiated to Ambient: kW (BTUM)	84.5 (4,805)

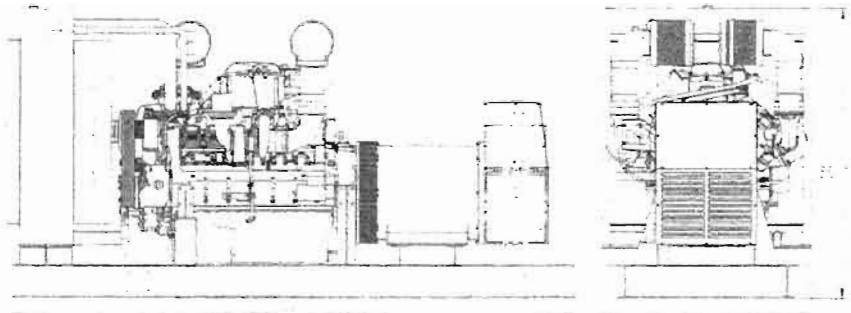
Air Requirements

	STANDBY
Aspirating: *m ³ /min (SCFM)	66 (2,331)
Air Flow Required for Rad.	
Cooled Unit: *m ³ /min (SCFM)	1,132 (39,997)
Remote Cooled Applications;	
Air Flow Required for Dissipation of Radiated Gen-set Heat for a	
Max of 25 °F Rise: *m ³ /min (SCFM)	307 (10,840)

* Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

Exhaust System

	STANDBY
Gas Temp. (Stack): °C (°F)	580 (1,076)
Gas Volume at Stack	
Temp: m ³ /min (CFM)	174 (6,145)
Maximum Allowable	
Back Pressure: kPa (in. H ₂ O)	8.5 (34.1)



Drawing above for illustration purposes only, based on standard open power 480 volt engine-generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

OPU 4,320 x 1,600 x 2,200 mm (170 x 63 x 86.5 in) 5,592 kg (12,328 lb)

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific engine-generator set.

Level 0: Open Power Unit (dBA) 92

Sound data is provided at 7 m (23 ft). Engine-generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

NO_x - NMHC

CO

PM

4.68

0.44

0.02

All units are in g/hp-hr and at 100% load.

Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found within 40 CFR Part 89. The weighted cycle value (not shown) from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.

Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO 8528-1, ISO 3046-1, BS 5514, AS 2789, and DIN 6271. Deration Factor:

Altitude: Consult your local MTU Onsite Energy Power Generation Distributor for altitude derations.

Temperature: Consult your local MTU Onsite Energy Power Generation Distributor for temperature derations.

Materials and specifications subject to change without notice.

C/F = Consult Factory/MTU Onsite Energy Distributor

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Appendix D GHG Calculations

Greenhouse Gas Emissions

Uncontrolled GHG Emission Factors (lbs-hd/yr)						
Animal Type	CH4 (Anaerobic Treatment Lagoon)	CH4 (Lagoon)	CH4 (manure spreading)	CH4 (solid manure storage)	CH4 (enteric)	CO2 equivalent multiplier for CH4
Milk Cows	513	307.8	3.5	27.7	271.5	21
Dry Cows	513	307.8	3.5	27.7	271.5	21
Large Heifers	110.4	110.4	1.6	--	151.6	21
Medium Heifers	110.4	110.4	1.6	--	100.5	21
Small Heifers	110.4	110.4	1.6	--	100.5	21
Calves	--	--	--	--	--	--

Uncontrolled GHG Emission Factors (lbs-hd/yr)					
Animal Type	N2O (Anaerobic Treatment Lagoon)	N2O (manure spreading)	N2O (solid manure storage)	N2O (enteric)	N2O equivalent multiplier for N2O
Milk Cows	1.5	0	2.6	0	310
Dry Cows	1.5	0	2.8	0	310
Large Heifers	1.4	0	--	0	310
Medium Heifers	1.4	0	--	0	310
Small Heifers	1.4	0	--	0	310
Calves	--	0	--	0	--

CO2e from CH4 = [CH4 (anaerobic treatment) lagoon + CH4 manure spreading + CH4 solid manure storage + CH4 enteric] x 21 x 0.9072 metric tons/short tons + 2000 lb/ton

CO2e from N2O= [N2O anaerobic treatment lagoon + N2O manure spreading + N2O solid manure storage + N2O enteric] x 310 x 0.9072 metric tons/short tons + 2000 lb/ton

Pre-Project: Does the facility have an anaerobic treatment lagoon? no
 Post-Project: Does the facility have an anaerobic treatment lagoon? no

Pre-Project CO2 Equivalent Emission Factors from Animal Type (metric tons-hd/yr)			
Animal Type	CO2e for CH4	CO2e for N2O	CO2e Total
Milk Cows	5.8	0.4	6.2
Dry Cows	5.8	0.4	6.2
Large Heifers	2.5	0.0	2.5
Medium Heifers	2.0	0.0	2.0
Small Heifers	2.0	0.0	2.0
Calves	0.0	0.0	0.0

Post-Project CO2 Equivalent Emission Factors from Animal Type (metric tons-hd/yr)			
Animal Type	CO2e for CH4	CO2e for N2O	CO2e Total
Milk Cows	5.8	0.4	6.2
Dry Cows	5.8	0.4	6.2
Large Heifers	2.5	0.0	2.5
Medium Heifers	2.0	0.0	2.0
Small Heifers	2.0	0.0	2.0
Calves	0.0	0.0	0.0

Pre-Project Total GHG Emissions			
Animal Type	Herd Size (hd)	CO2e (metric tons-hd/yr)	CO2e Total (metric tons/yr)
Milk Cows	2,820	6.2	17,484
Dry Cows	420	6.2	2,604
Large Heifers	1,343	2.5	3,358
Medium Heifers	1,241	2.0	2,482
Small Heifers	600	2.0	1,200
Calves	0	0.0	0
Total			27,128

Post-Project Total GHG Emissions			
Animal Type	Herd Size (hd)	CO2e (metric tons-hd/yr)	CO2e Total (metric tons/yr)
Milk Cows	2,820	6.2	17,484
Dry Cows	420	6.2	2,604
Large Heifers	1,343	2.5	3,358
Medium Heifers	1,241	2.0	2,482
Small Heifers	600	2.0	1,200
Calves	0	0.0	0
Total			27,128

Change in Project GHG Emissions			
Animal Type	Pre-Project CO2e (metric tons/yr)	Post-Project CO2e (metric tons/yr)	Change (metric tons/yr)
Milk Cows	17484	17484	0
Dry Cows	2604	2604	0
Large Heifers	3358	3358	0
Medium Heifers	2482	2482	0
Small Heifers	1200	1200	0
Calves	0	0	0
Total			0

$$27,128 \text{ MT} \times \frac{2,204 \text{ lb}}{\text{MT}} \times \frac{1 \text{ ST}}{2,000 \text{ lb}}$$

= 29,895 ST

Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO2e/year are considered to be zero for District permitting purposes and are exempt from further environmental review.

GHG Emission Calculation:

1,193 bhp Internal Combustion Engine

Basis and Assumptions

- The engine is a compression-ignited unit fueled with diesel in emergency generator service.
- The engine operates at full rated power.
- Specific fuel consumption is 220 g/kWh (typical for engine type).
- Density of diesel fuel is 7.0 lb/gallon.
- Higher Heating Value (HHV) of diesel is 138,700 Btu/gallon.
- Engine operates 50 hours per year.
- Emission factors and global warming potentials (GWP) for diesel fuel are taken from the California Climate Change Action Registry (CCAR), Version 3.1, January, 2009 (Appendix C, Tables C.1, C.3 and C.6) :

CO₂ 10.15 kg/gallon (22.3 lb/gallon)
CH₄ 1.44 g/gallon (0.006 lb/gal)
N₂O 0.26 g/gallon (0.001 lb/gal)

GWP for CH₄ = 21 lb-CO₂e per lb-CH₄
GWP for N₂O = 310 lb-CO₂e per lb-N₂O

Calculations

Diesel fuel consumption rate at full rated horsepower:

$$1,193 \frac{\text{bhp}}{\text{bhp}} \times \frac{0.7456 \text{ kW}}{\text{hp}} \times \frac{220 \text{ g}}{\text{kWh}} \times \frac{1 \text{ lb}}{453.6 \text{ g}} \times \frac{\text{gal}}{7 \text{ lb}} = 61.6 \text{ gal/hour}$$

Hourly Emissions

CO₂ Emissions = 61.6 gal/hr x 22.3 lb/gal = 1,374 lb-CO₂e/hour

CH₄ Emissions = 61.6 gal/hr x 0.006 lb/gal x 21 lb-CO₂e per lb-CH₄ = 7.8 lb-CO₂e/hour

N₂O Emissions = 61.6 gal/hr x 0.001 lb/gal x 310 lb-CO₂e per lb-N₂O = 19.1 lb-CO₂e/hour

Total = 1,374 + 7.8 + 19.1 = 1,401 lb-CO₂e/hour

Annual Emissions

1,401 lb-CO₂e/hour x 50 hr/year ÷ 2,000 lb/ton = 35 short tons-CO₂e/year

Metric Conversion

35 short tons-CO₂e/year x 0.9072 metric tons/short ton = **32 metric tons**

Appendix E HRA Summary

Revised
San Joaquin Valley Air Pollution Control District
Risk Management Review

To: Dennis Roberts - Permit Services
 From: Kyle Melching - Technical Services
 Date: February 1, 2013
 Facility Name: Red Rock Dairy
 Location: N. Canton Rd. and East of HWY 59, Merced
 Application #(s): N-7787-6-0
 Project #: N-1120375

A. RMR SUMMARY

RMR Summary			
Categories	Emergency Diesel ICE (Unit 6-0)	Project Totals	Facility Totals
Prioritization Score	N/A ¹	N/A ¹	>1
Acute Hazard Index	N/A ²	N/A ²	0.1
Chronic Hazard Index	N/A ²	N/A ²	0.00
Maximum Individual Cancer Risk	8.8E-08	8.8E-08	1.29E-06
T-BACT Required?	NO		
Special Permit Conditions?	Yes		

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

Proposed Permit Conditions

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

Unit # 6-0

1. Modified {1901} The PM10 emissions rate shall not exceed **0.02 g/hp-hr** based on US EPA certification using ISO 8178 test procedure. [District Rule 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N
3. Modified {1344} The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **50 hours per year**. [District NSR Rule and District Rule 4701]N

B. RMR REPORT

I. Project Description

Technical Services received a request on February 11, 2013, to revise a Risk Management Review for a 1193 bhp emergency diesel IC engine powering an electrical generator. This revision requires Technical Services to perform an Ambient Air Quality Analysis (AAQA) because the engine emits more than 100 lbs of NO_x per day

II. Analysis

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

The following parameters were used for the review:

Analysis Parameters						
Unit #s	bhp-hr	PM ₁₀ g/hp-hr	Receptor (m)	Quad	Hours/Year	Load%
6-0	1193	0.02	265	2	50	100
Location Type			Rural	Receptor Type		Residence

Technical Services also performed modeling for criteria pollutants NO_x, SO_x, PM₁₀, and PM_{2.5}; as well as the RMR. For Unit 6-0, the emission rates used for criteria pollutant modeling were 585 lb/yr NO_x, 1 lb/yr SO_x, 3 lb/yr PM₁₀, and 3 lb/yr PM_{2.5}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA ¹	X	NA ¹	X	X
NO _x	NA ¹	X	X	X	Pass
SO _x	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	X	X	X	NA ¹	Pass ²
PM _{2.5}	X	X	X	NA ¹	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The 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.

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

III. Conclusion

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

The individual cancer risk associated with the operation of the proposed emergency diesel IC engine is **8.8E-08**; which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved as proposed **without** Toxic Best Available Control Technology (T-BACT).

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

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

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. DICE Screening Tool
- D. Facility Summary
- E. AAQA Summary

AAQA for Red Rock Dairy (N-7787-6-0)
All Values are in Micrograms per Cubic Meter

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
STCK1	0.0	1.5E-02	0.0	0.0	0.0	0.0	0.0	2.6E-05	0.00	7.89E-05
Background	93.7	1.5E+01	2,679.5	1,747.5	159.8	133.2	71.9	2.7E+01	75.00	3.90E+01
Facility Totals	93.7	15.3	2,679.5	1,747.5	159.8	133.2	71.9	26.6	75.0	39.0
AAQS	188.7	56.0	23,000.0	10,000.0	195.0	1,300.0	105.0	80.0	50.0	30.0
	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Fail

EPA's Significance Level (ug/m³)

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

*Since 5-years of meteorological data were used, an adjustment factor of 1.5 for Merced was applied to the annual average concentrations for the devices modeled.

AAQA Emission (g/sec)

<i>Device</i>	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
STCK1	0.00E+00	8.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05	0.00E+00	4.31E-05
STCK1	0.00E+00	8.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-05	0.00E+00	4.31E-05

*Since 5-years of meteorological data were used, an adjustment factor of 1.5 for Merced was applied to the annual average concentrations for the devices modeled.

Appendix F

QNEC Calculations

Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

$QNEC = PE2 - PE1$, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr
- PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr

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

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

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

QNEC		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO _x	585	146.3
SO _x	1	0.3
PM ₁₀	3	0.8
CO	58	14.5
VOC	30	7.5