San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAY 2 1 2014

Arie DeJong
Rocking Horse Dairy
12962 Avenue 328
Visalia, CA 93292

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: C-7300
Project Number: C-1133185

Dear Mr. DeJong:

Enclosed for your review and comment is the District's analysis of Rocking Horse Dairy's application for an Authority to Construct for the installation of a 617 bhp John Deere Model 6125HF070 Tier 3 certified diesel-fired emergency standby IC engine powering an electrical generator, at 21014 13th Ave in Hanford, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Sajjad Ahmad of Permit Services at (559) 230- 5903.

Sincerely,

P. Arnaud Marjollet

Arnaud Marjollet
Director of Permit Services

AM:sa

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email
Kevin Abernathy, Milk Producers Council,
13545 S. Euclid Ave, Unit B, Ontario, CA 91762

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

Facility Name:	Rocking Horse Dairy	Date:	May 15, 2014
Mailing Address:	12962 Avenue 328 Visalia, CA 93292	Engineer:	Sajjad Ahmad
		Lead Engineer:	Brian Clements
Contact Person:	Arie DeJong		
Telephone:	(559) 827-5674		
Application #:	C-7300-11-0		
Project #:	C-1133185		
Complete:	May 6, 2014		

I. Proposal

Rocking Horse Dairy is proposing to install a 617 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

II. Applicable Rules

Rule 1070 Inspections (12/17/92)
Rule 2020 Exemptions (08/18/2011)
Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National 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 (8/18/11)
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 project is located at 21014 13th Ave in Hanford, 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

C-7300-11-0 617 BHP (INTERMITTENT) JOHN DEERE MODEL 6125HF070 TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

The applicant has proposed to install a Tier 3 certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel (0.0015% by weight sulfur maximum).

The proposed engine meets the latest Tier Certification requirements; therefore, the engine meets the latest 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 the ARB 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 4.6[2] g/bhp-hr (equivalent to 6.2 g/kW-hr per ARB Certification). It will be assumed the NOx + VOC emission factor is split 95% NOx and 5% VOC (per the District's Carl Moyer program).

B. Emission Factors

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO_X	4.4[1]	ARB Certification
SO_X	0.0051	Mass Balance Equation Below
PM_{10}	0.11	ARB Certification
CO	0.5	ARB Certification
VOC	0.2	ARB Certification

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

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:

[1] Based on ARB's Executive Order U-R-004-0265, engine is considered a Tier 3 certified although engines Family Emission Limit (FEL) is 6.4 g/kW-hr which is higher than the Tier 3 emission standard (STD) of 4.0 g/kW-hr. As explained in District Policy FYI-320 (last updated 2/28/12), an FEL allows the engine manufacturer to choose an arbitrary emissions limit that exceeds the STD for an engine family by mitigating or offsetting the higher emissions rate by choosing a FEL for another engine family or combination of engine families that is lower than the CERT for that engine family. This allows an engine manufacturer that is having difficulty meeting a STD for a pollutant for an engine family to still produce and sell those engines for that engine family by offsetting the higher emissions rate by producing engines in other engine families with an engine family emissions rate lower than the STD for that pollutant.

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	4.4	617	24	50	**143.6**	**299**
SO_X	0.0051	617	24	50	**0.2**	**0**
PM_{10}	0.11	617	24	50	**3.6**	**7**
CO	0.5	617	24	50	**16.3**	**34**
VOC	0.2	617	24	50	**6.5**	**14**

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.

SSPE1 is taken from project C-1110983 and is summarized in the following table:

Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
C-7300-3-2, -4-2, -5-2, -8-1 and -9-1	0	0	16,866	0	67,823
C-7300-6-0	0	0	0	0	59
Stationary Source Potential to Emit	**0**	**0**	**16,866**	**0**	**67,882**

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 -11-0. Thus:

SSPE2					
Permit Unit	NO_X (lb/yr)	SO_X (lb/yr)	PM_{10} (lb/yr)	CO (lb/yr)	VOC (lb/yr)
SSPE1	0	0	16,866	0	67,882
C-7300-11-0	299	0	7	34	14
SSPE2 Total	**299**	**0**	**16,873**	**34**	**67,896**

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.

Based on project C-1110983, major source emissions are summarized in the following table:

Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
C-7300-3-2 through -5-2, -8-1, -9-1	0	0	0	0	3,448
C-7300-6-0	0	0	0	0	59
C-7300-11-0	299	0	7	34	14
Stationary Source Potential to Emit	299	0	7	34	3,521
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

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

6. Baseline Emissions (BE)

BE = Pre-project Potential to Emit for:

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

otherwise,

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

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

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

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

8. Federal Major Modification

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

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM_{10} (140,000 lb/year), it is not a major source for PM2.5 (200,000 lb/year).

9. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance

Rule 1070 Inspections

This rule applies to any source operation, which emits or may emit air contaminants.

This rule allows the District to perform inspections for the purpose of obtaining information necessary to determine whether air pollution sources are in compliance with applicable rules and regulations. The rule also allows the District to require record keeping, to make inspections and to conduct tests of air pollution sources. Therefore, the following conditions will be listed on each PTO to ensure compliance:

- {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070] N

- {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070] N

Rule 2020 Exemptions

Per Section 6.20, agricultural sources are exempt from District permit requirements to the extent provided by CH&SC, section 42301.16. However this facility does not qualify for permit exemption since the VOC emissions are greater than 10,000 lb/year (equivalent to ½ the Major Source Threshold).

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 an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

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

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -11-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO_X	143.6	> 2.0	n/a	Yes
SO_X	0.2	> 2.0	n/a	No
PM_{10}	3.6	> 2.0	n/a	Yes
CO	16.3	> 2.0 and SSPE2 ≥ 200,000 lb/yr	34	No
VOC	6.5	> 2.0	n/a	Yes

As shown above, BACT will be triggered for NO_X, PM_{10}, and VOC emissions from the engine for this project.

2. BACT Guideline

The engine associated with this project was installed in August of 2006 (per applicant) without getting a District permit. Per District Policy FYI-7, permits are required for diesel fired emergency IC engines rated greater than 500 hp installed in Kings County since July 2, 1985. Therefore, the engine should have obtained a permit at the time of installation.

Per District Policy FYI 98, when equipment requiring a permit was installed without first getting an ATC, a current BACT analysis must be performed to ensure compliance with the BACT requirements of District Rule 2201. If the equipment was installed without BACT (i.e., BACT at the time of installation), a complete current BACT analysis shall be performed, exactly as if it were a new proposal. However, if the equipment was installed with BACT (i.e., BACT at the time of installation), or if BACT did not exist at the time of installation, the current BACT analysis is limited to the types of controls that can be applied to the specific equipment that was already installed.

At the time of installation, BACT Guideline 3.1.3, applied to diesel fired emergency IC engines rated equal or greater than 400 hp. Current BACT Guideline 3.1.1 applies to diesel fired emergency IC engines. Therefore, in accordance with FYI 98, both of these BACT Guidelines are applicable for this project (see Appendix A).

3. Top Down BACT Analysis

As demonstrated by the top down BACT analysis in Appendix A, the engine would have met the BACT requirements at its time of installation. Therefore, in accordance with FYI 98, a current BACT analysis will only be performed to address equipment that can be applied to the existing equipment (i.e. add on control technologies). Current BACT Guideline 3.1.1 does not list any add-on control technologies that could be applied to this emergency IC engine. Therefore, BACT is satisfied by meeting the requirements of Guideline 3.1.3 (last updated 6/30/2001), 3rd quarter 2006.

NO_X: Certified NO_X emissions of 6.9 g/bhp-hr or less
PM_{10}: 0.1 g/hp-hr (if T-BACT is triggered) 0.4 g/hp-hr (if T-BACT is not triggered)
VOC: Positive crankcase ventilation

The following condition will be listed on the ATC to ensure compliance with the PM_{10} BACT emissions limit:

- Emissions from this IC engine shall not exceed any of the following limits: 4.4 g-NOx/bhp-hr, 0.5 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

- Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102; 17 CCR 93115]

- {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, SB288 Major Modifications, Federal Major Modifications

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

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

As calculated in Section VII.C.2, daily emissions for NO_X are greater than 100 lb/day.

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

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

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

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

2. Public Notice Action

As demonstrated above, this project will require public noticing. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC(s) for this equipment.

D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.16 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- Emissions from this IC engine shall not exceed any of the following limits: 4.4 g-NOx/bhp-hr, 0.5 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

- Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102; 17 CCR 93115]

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

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

4. Reporting

No reporting is required to ensure compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

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 D** 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 the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the

proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

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 District has not been delegated the authority to implement this NSPS regulation for Area Source requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

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)

The District has not been delegated the authority to implement NESHAP regulations for Area Source requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

Rule 4101 Visible Emissions

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

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

Rule 4102 Nuisance

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

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

RMR Results				
Unit	Acute Hazard Index	Chronic Hazard Index	Cancer Risk	T-BACT Required?
C-7300-11-0	N/A	N/A	0.00106 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 0.11 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102; 17 CCR 93115]

- {modified 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 Rules 2201, 4102, and 4702]

Rule 4201 Particulate Matter Concentration

Rule 4201 limits particulate matter emissions from any single source operation to 0.1 g/dscf, which, as calculated below, is equivalent to a PM_{10} emission factor of 0.4 g-PM_{10}/bhp-hr.

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

The new engine has a PM_{10} 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 2.0, this rule applies to any internal combustion engine with a rated horsepower (hp) greater than 50 hp; therefore, the IC engines located at this facility are subject to this rule. However, Section 4.1 of the rule specifically exempts IC engines in agricultural operations used for the growing of crops or raising of fowl or animals. Since the engines are used for the growing of crops or raising of fowl or animals, they are exempt from the requirements of this rule. Therefore, the following condition will be listed on each PTO to ensure compliance.

- {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. [District Rule 4701 and 17 CCR 93115]

Rule 4702 Internal Combustion Engines

The following summarizes District Rule 4702 Requirements for emergency standby IC engines:

1. Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes; therefore, compliance is expected. The following condition will be included on the permit:

   - {modified 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 Rules 2201, 4102, and 4702]

2. Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier. The following condition will be included on the permit:

   - {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]

3. 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:

   - {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]

4. Install and operate a nonresettable elapsed time meter. In lieu of installing a nonresettable elapsed time meter, the operator may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and EPA and is allowed by Permit-to-Operate condition. The operator shall properly maintain and operate the nonresettable elapsed time meter or alternative device in accordance with the manufacturer's instructions.

   The following condition shall be used:

   - {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines 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. [District Rule 4702 and 17 CCR 93115]

5. 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:

   - {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]

6. Records of the total hours of operation, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and other support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The following conditions will be included on the permit:

   - {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]

   - {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

   - {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO_2) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

Volume SO_2 = (n x R x T) ÷ P
n = moles SO_2
T (standard temperature) = 60 °F or 520 °R
R (universal gas constant) = $\frac{10.73\,\text{psi}\cdot\text{ft}^3}{\text{lb}\cdot\text{mol}\cdot{}^\circ\text{R}}$

$$\frac{0.000015\,lb-S}{lb-fuel}\times\frac{7.1\,\text{lb}}{\text{gal}}\times\frac{64\,\text{lb}-SO_2}{32\,\text{lb}-S}\times\frac{1\,\text{MMBtu}}{9{,}051\,\text{scf}}\times\frac{1\,\text{gal}}{0.137\,\text{MMBtu}}\times\frac{\text{lb}-\text{mol}}{64\,\text{lb}-SO_2}\times\frac{10.73\,\text{psi}-\text{ft}^3}{\text{lb}-\text{mol}-{}^\circ\text{R}}\times\frac{520{}^\circ\text{R}}{14.7\,\text{psi}}\times 1{,}000{,}000 = 1.0\ \text{ppmv}$$

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

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

California Health & Safety Code 42301.6 (School Notice)

The District has verified that 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

Section 93115.8 applies to Agricultural Emergency Standby Diesel-fueled CI Engines (>50 bhp).

- Engines installed prior to 1/1/05 are considered to be "in-use" units subject to the requirements of Section 93115.6(b).
- Engines installed after 1/1/05 and are considered to be "new" units which are subject to the requirements of Section 93115.6(a).

The proposed unit is a "new" unit.

The following table shows how the engines comply with the applicable requirements:

Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators	**Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements**
Sec. 93115.5 requires emergency engines to be fired on CARB diesel fuel, or an approved alternative diesel fuel.	The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, was included earlier in this evaluation.
Sec. 93115.6 places limits on emergency standby diesel engines, but does not apply to new engines used in Agricultural Operations (AO) pursuant to Sec. 93115.3(b).	The following condition will be included to ensure these exemptions apply: {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. [District Rule 4701 and 17 CCR 93115]
Sec. 93115.7 places limits on stationary prime diesel engines, but does not apply to new engines used in AO pursuant to Sec. 93115.3(b).	
Sec. 93115.8(a)(1) places limits on stationary diesel engines used in AO. Generator set engines must meet the following limits: - PM10 emissions must be $\leq$ 0.15 g/bhp-hr or meet the certified emission standards for the specific horsepower range, whichever is more stringent, and - NOx, VOC, NOx + VOC, and CO emission	The applicant has proposed the use of a new emergency engine that is certified to the applicable EPA Tier Certification standards for its horsepower range, at the time of their installation, guaranteeing compliance with the emission standards of the ATCM.

must meet the certified standards for the specific power rating.	
Sec. 93115.10(a) requires reporting, but does not apply to new or in-use stationary diesel-fueled CI engines used in agricultural operations pursuant to Sec. 93115.3(b).	The proposed permit condition, limiting use of the engine to an AO, was included earlier in this evaluation.
Sec. 93115.10(b) requires the operator to provide emission data to the APCO to demonstrate compliance.	The applicant provided the EPA certification information as part of the applicant.
Sec. 93115.10(d) requires the engine to be equipped with a) a non-resettable hour meter with a minimum display capability of 9,999 hours and b) for engines with a diesel particulate filter (DPF), a backpressure monitor that notifies the operator when the high pressure limit of the engine is approached.	The following condition will be included on the permit: {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines 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. [District Rule 4702 and 17 CCR 93115] The engine does not have a DPF so a backpressure monitor is not required.
Sec. 93115.10(f) requires the owner/ operator to maintain monthly records of the operation; maintenance; and the type of fuel used. All records shall be retained for a minimum of 36 months.	Permit conditions enforcing these requirements were shown earlier in the evaluation.

California Environmental Quality Act (CEQA)

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

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

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

However, to ensure that issuance of this permit does not conflict with any conditions imposed by any local agency permit process, the following permit condition will be listed on each permit as follows:

- {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. *[District Rules 2070 and 2080, and Public Resources Code 21000-21177: California Environmental Quality Act].*

IX. Recommendation

Pending a successful NSR Public Noticing period, issue Authority to Construct C-7300-11-0 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**
C-7300-11-0	3020-10-D	617 bhp IC engine	$479.00

Appendixes

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

Appendix A
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-7300-11-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: ROCKING HORSE DAIRY
MAILING ADDRESS: 12962 AVENUE 328
VISALIA, CA 93292

LOCATION: 21056 13TH AVE
HANFORD, CA 93230

EQUIPMENT DESCRIPTION:
617 BHP (INTERMITTENT) JOHN DEERE MODEL 6125HF070 TIER 3 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726 • (559) 230-5900 • Fax (559) 230-6061

7. {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]

8. {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]

9. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines 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. [District Rule 4702 and 17 CCR 93115]

10. Emissions from this IC engine shall not exceed any of the following limits: 4.4 g-NOx/bhp-hr, 0.5 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

11. Emissions from this IC engine shall not exceed 0.11 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102; 17 CCR 93115]

12. {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

13. 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. [District Rule 4701 and 17 CCR 93115]

14. {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]

15. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702]

16. {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]

17. {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]

18. {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]

19. {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]

20. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]

21. {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]

Appendix B
BACT Guideline and BACT Analysis

Per » B A C T » Bact Guideline.asp?category Level1=3&category Level2=1&category Level3=3&last Update=6 » 30 :

Back

Best Available Control Technology (BACT) Guideline 3.1.3
Last Update: 6/30/2001

Emergency Diesel I.C. Engine = or > 400 hp

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	2.0 grams/brake horsepower-hour	= or < 1.4 grams/bhp-hr	
NOx	Certified emissions of 6.9 g/bhp-hr or less		
PM10	0.1 grams/bhp-hr (if TBACT is triggered) 0.4 grams/bhp-hr (if TBACT is not triggered)		
SOx	Low-sulfur diesel fuel (500 ppmw sulfur or less) or Very Low-sulfur diesel fuel (15 ppmw sulfur or less), where available.		
VOC	Positive crankcase ventilation		

1. Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement. 2. A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

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 s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is requried 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. For background information, see Permit Specific BACT Determinations on Details Page.

San Joaquin Valley
Unified Air Pollution Control District

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

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

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

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

The engine associated with this project is a 2006 model year engine (manufacturer) and was installed in August of 2006 (applicant). Therefore, BACT Clearinghouse guideline 3.1.3 of 3rd quarter 2006 is applicable to this project.

1. BACT Analysis for NO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.3, 3rd quarter 2006, identifies achieved in practice BACT for NO_X emissions from emergency diesel IC engines (= or > 400 bhp) as follows:

1) Certified emissions of 6.9 g-NO_X/bhp-hr or less

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 the applicant has proposed the achieved in practice option.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for NO_X emissions from this emergency standby diesel IC engine (= or > 400 bhp) is having certified emissions of 6.9 g-NO_X/bhp-hr or less. The applicant has proposed to install a 617 bhp emergency standby diesel IC engine with certified emissions of 4.4 g-NO_X/bhp-hr or less; therefore BACT for NO_X emissions is satisfied.

2. BACT Analysis for PM10 Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 3.1.3, 3rd quarter 2006, identifies achieved in practice BACT for PM10 emissions from emergency diesel IC engines (= or > 400 bhp) as follows:

1) 0.1 g/hp-hr (if T-BACT is triggered) 0.4 g/hp-hr (if T-BACT is not triggered)

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 the applicant has proposed the achieved in practice option.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for PM10 emissions from this emergency standby diesel IC engine (= or > 400 bhp) is having certified emissions of 0.1 g-PM10/bhp-hr or less. The applicant has proposed to install a 617 bhp emergency standby diesel IC engine with certified emissions of 0.11 g-PM10/bhp-hr; therefore BACT for PM10 emissions is satisfied.

3. **BACT Analysis for VOC Emissions:**

Volatile organic compounds (VOC) 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 3.1.3, 3rd quarter 2006, identifies achieved in practice BACT for VOC emissions from emergency diesel IC engines (= or > 400 bhp) as follows:

1) Positive crankcase ventilation

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 the applicant has proposed the achieved in practice option.

d. Step 4 - Cost effectiveness analysis

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

e. Step 5 - Select BACT

BACT for VOC emissions from this emergency standby diesel IC engine (= or > 400 bhp) is having positive crankcase ventilation. The applicant has proposed to install a 617 bhp emergency standby diesel IC engine with positive crankcase ventilation; therefore BACT for VOC emissions is satisfied.

Appendix C
Emissions Data Sheet

California Environmental Protection Agency AIR RESOURCES BOARD	DEERE POWER SYSTEMS GROUP OF DEERE & COMPANY	EXECUTIVE ORDER U-R-004-0265 New Off-Road Compression-Ignition Engines

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)
2006	6JDXL12.5035	12.5	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Smoke Puff Limiter, Electronic Control Module	Tractor, Pump, Compressor, Generator Set, Other Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD), and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon 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
225 ≤ kW < 450	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
450 ≤ kW ≤ 560	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		FEL	-	-	6.4	-	-	-	-	-
		CERT	-	-	6.2	0.7	0.15	12	2	24

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

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 21st day of December 2005.

Raphael Susnowitz

for Allen Lyons, Chief
Mobile Source Operations Division

Engine Model Summary Form

Attachment
U-R-004-0265

Manufacturer: **John Deere Power Systems of Deere and**
Engine category: **Nonroad CI**
EPA Engine Family: **6JDXL12.5035**
Family Name: **650HD**
Process Code: **New Submission**

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/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/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
6125HRW16	6125H	525.69@2100	258.00@2100	182.54@2100	1846.61@1575	360@1575	191.58@1575	EM EC SPL TC AFTI, 4
6125HZ015	6125H	402.31@2100	190.00@2100	133.16@2100	1348.83@1500	265@1500	134.04@1500	EM EC SPL TC
6125HF070A	6125H	504.23@2100	247.00@2100	174.17@2100	1843.66@1575	369@1575	195.99@1575	EM EC SPL TC

Rat

Data for: 6125HF070N

Power: 460kW @ 1800

Vehicle: OEM

History: Added 4 December 2000

Year: 2006

EPA Family: 6JDXL12.5035 JD Family: 650HD

EPA Certificate

JDX-NRCI-06-29

Carb Certificate

U-R-004-0265

View Certificate #'s from these Years**:

2000 | 2001 | 2002 | 2003 | 2004 | 2005

	CO (2.0)	PM (0.15)	NOx	HC	NOx+HC (3.0)	Units
6125HF070N (Selected Rating)	0.91	0.115	5.76	0.26	6.03	g/kW-hr
	0.68	0.086	4.3	0.19	4.5	g/hp-hr
6125HF070A (Parent)	0.68	0.127	5.96	0.21	6.19	g/kW-hr
	0.51	0.095	4.46	0.16	4.62	g/hp-hr

* This is the latest available emissions test data for this rating, as measured on the applicable test cycle.

New Search | Close | Print

** Note: In some cases, the engine query will list the prior to when the engine was built, with certificate fiel blank. This can occur when a "new model" is added to database between October and December of any yea (Refer to "History")

JOHN DEE

Jeremiah Beerden Fax 559 230 6061

Gregory Clampitt
Phone: 319 - 292 - 5334

KATOLIGHT

D415F*J4T2
Diesel Gen-Set

ENGINE TECHNICAL DATA

	60 Hz	
Model:	6125HF070	
Type:	4 - Cycle	
Aspiration:	Turbocharged – Air to Air Intercooled	
Cylinder Arrangement: (Number,inline,V,etc.):	6 - Inline	
Displacement - Cu. in. (lit)	766 (12.5)	
Bore - in. (cm) x stroke - in. (cm)	5.0 (12.7) x 6.5 (16.5)	
Compression Ratio:	16:1	
Rated RPM	1800	
Rating	Standby	Prime
BMEP: psi (kPa)	353 (2,436)	294 (2,027)
Maximum Power at Rated RPM - hp(kW)	617 (460)	512 (382)

INSTALLATION DATA *

Exhaust System		
Gas Temp. (Stack): °F (°C)	936 (502)	752 (400)
Gas Volume at Stack Temp.: CFM (m^3/min)	3,089 (87)	2,365 (67)
Maximum Allowable Back Pressure: in. H20 (kPa)	30 (7.5)	30 (7.5)
Cooling System		
Ambient Capacity of Radiator: °F (°C)	118 (48)	118 (48)
Maximum Allowable Static Pressure on Rad. Exhaust: in. H2O (kPa)	0.5 (.12)	0.5 (.12)
Water Pump Capacity: gpm (lit/min)	73 (276)	73 (276)
Heat Rejection to Coolant: BTUM (kW)	8,502 (167)	8,338 (147)
Heat Rejection to Air/Air Exchanger: BTUM (kW)	7,554 (133)	4,173 (73)
Heat Radiated to Ambient: BTUM (kW)	5,239 (92)	3,772 (66)
Air Requirements		
Aspirating: CFM (m^3/min)	1,280 (36.2)	1,059 (30)
Air Flow Required for Rad. Cooled Unit: CFM (m^3/min)	18,100 (513)	17,200 (487)
Air Flow Required for Heat Exchanger/Remote Rad. based on 20°F Rise: CFM (m^3/min)	N/A	N/A
Fuel Consumption: gal/hr (lit/hr)		
At 100% of Power Rating:	30.9 (117.4)	20.3 (77.2)
At 75% of Power Rating:	20.5 (78)	15.6 (59.2)
At 50% of Power Rating:	14.4 (54.5)	11.2 (42.5)
Sound Level Data ♦		
Sound level at full load		
23 ft (7m) open w/ critical grade muffler (dBA)	91.5	91.1
23 ft (7m) Sound Attenuated Housing (dBA)	85.1	84.6
Sound level at no load		
23 ft (7m) open w/ critical grade muffler (dBA)	89.6	89.0
23 ft (7m) Sound Attenuated Housing (dBA)	84.1	84.3

Dimensions & Weight	
Length: in. (cm)	128 (325)
Width: in. (cm)	48 (122)
Height: in. (cm)	78.9 (203)
Weight (dry) : lb. (Kg)	5,745 (2,606)
Liquid Capacity	
Total Oil System: gal/(lit)	11 (42)
Engine Jacket Water Capacity: gal/(lit)	4.3 (16.2)
System Coolant Capacity: gal/(lit)	27.6 (104.5)
Electrical System	
Electric Volts DC	24
Cold Cranking Amps under 0°F (-17.8°C)	900

Fuel System	
Fuel Supply Connection Size:	¾"NPT
Fuel Return Connection Size:	½" NPT
Maximum Fuel Lift: ft (m)	10 (3)
Recommended Fuel:	Diesel #2
Total Fuel Flow: gal/hr (lit/hr)	50 (189)
Remote Radiator System	
Remote Radiator Inlet Connection: in (cm)	C/F
Remote Radiator Outlet Connection: in (cm)	C/F
Static Head Allowable Above the Engine: ft H_2O (kPA)	21 (62.8)

* Installation data based on 480 volt, 60 Hz. application and open power unit.

♦ For sound level readings with other Katolight housings, please contact factory. Sound level data acquired per Test Method SAE J1074. Installation factors and site conditions can affect sound levels.

Deratoin Factors: Altitude: Derate: 5% per 1,000ft (305m) above 9,000ft (2,745m) Temperature: Derate: 5% per 10°F (5.5°C) above 77°F (25°C).

p.2

5592518032

Apr 02 08 02:09p RICHARD WILLIAMS

W.W. GENERATORS
1448 N. Sierra Vista
Fresno, CA 93703
(559) 251-6683

NAME Rocking Horse Dairy

DATE RECD 8-8-06 A.M. P.M.

ADDRESS

PROMISED A.M. P.M.

YEAR	MAKE & MODEL	SERIAL NO.	WRITTEN BY	PHONE#

TUNE UP ☐ MINOR OVERHAUL ☐ MAJOR OVERHAUL ☐ CHANGE OIL ☐ SPARK PLUGS ☐

QUAN.	PART NO. AND DESCRIPTION	PRICE	AMOUNT

TOTAL PARTS

OPER. NO.	INSTRUCTION	AMOUNT
1	New Katolight SD415FJ4T2	
	Engine Ser.# RG 6125H056175	
	Model # 6125HF070	
	BHP 617	

Not responsible for loss by fire or theft or any other cause beyond our control.

I hereby authorize the above repair work to be done with the necessary material and grant permission to operate equipment for purposes of testing and inspection. An express mechanic's lien is acknowledged to secure the amount of repairs.

X

TOTAL LABOR	
TOTAL PARTS	
TAX	
TOTAL	

Unless otherwise provided by law, the seller (above named dealership) hereby expressly disclaims all warranties, either express or implied, including any implied warranty of merchantability or fitness for a particular purpose, and neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of said products.

10039

Appendix D
HRA Summary and AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Sajjad Ahmad - Permit Services
From:	Kyle Melching - Permit Services
Date:	May 9, 2014
Facility Name:	Rocking Horse Dairy
Location:	21056 13th Ave., Hanford
Application #(s):	C-7300-11-0
Project #:	C-1133185

A. RMR SUMMARY

RMR Summary			
Categories	**Emergency Diesel ICE (Unit 11-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	N/A[1]	N/A[1]	>1
Acute Hazard Index	N/A[2]	N/A[2]	0.22
Chronic Hazard Index	0.00	0.00	0.03
Maximum Individual Cancer Risk	**1.06E-08**	1.06E-08	1.18E-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 Hazard Index was 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 11-0

1. The PM10 emissions rate shall not exceed **0.11** g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

B. RMR REPORT

I. Project Description

Technical Services received a request on May 8, 2014, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for one 617 bhp emergency diesel IC engine powering an electrical generator.

II. Analysis

For the diesel engine, Technical Services used diesel exhaust emissions calculated using the District Diesel Exhaust Risk Screening Spreadsheet. 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; therefore, a refined Health Risk Assessment was required and performed for the unit. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Hanford to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Carcinogenic Risk.

The following parameters were used for the review:

Source Parameters For (Unit 11-0)			
Source Type	Point	**Location Type**	Rural
Stack Height (m)	3.5	**Closest Receptor (m)**	1073
Diameter (m)	0.13	**PM10 Emissions (lb/yr)**	7
Velocity (m/s)	114.34		
Temperature (°K)	775		

Technical Services also performed modeling for criteria pollutants NOx, CO, SOx, and PM_{10},; as well as the RMR. For Unit 11-0, the emission rates used for criteria pollutant modeling were 299 lb/yr NOx, 34 lb/yr CO, 0 lb/yr SOx, and 7 lb/yr PM_{10}.

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.
[1]The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour, and 24-hour) standards is not required.
[2]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusions

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

The cancer risk associated with the operation of the proposed diesel IC engine is **1.06E-08**; which is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT) for PM10.

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for the proposed 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. Stack Parameter Worksheet
D. HARP Risk Report
E. Facility Summary
F. AAQA Summary
G. AAQA Parameter Summary

Appendix E
QNEC Calculations

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

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

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

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

QNEC		
Pollutant	PE2 Total (lb/yr)	Quarterly PE2 (lb/qtr)
NO_X	299	74.8
SO_X	0	0.0
PM_{10}	7	1.8
CO	34	8.5
VOC	14	3.5