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

Facility Name:	Sutter Home Winery	Date:	May 15, 2014
Mailing Address:	P O Box 248 St. Helena, CA 94574	Engineer:	Fred Cruz
		Lead Engineer:	Nick Peirce
Contact Person:	Dave Henry (Sutter Home Winery)		Carla Prasetyo Jo (York Engineering)
Telephone:	(800) 867-4663		(559) 908-6979
Application Nos:	N-7855-899-0 & -900-0		
Project No:	N-1141458		
Deemed Complete:	May 9, 2014		

I. Proposal:

York Engineering LLC on behalf of Sutter Home Winery submitted Authority to Construct applications to install a 305 bhp diesel-fired emergency internal combustion (IC) engine and a 110 bhp diesel-fired emergency internal combustion (IC) engine each powering a firewater pump. The applicant has also proposed to utilize very low-sulfur diesel (0.0015% by weight) for these IC engines.

Sutter Home Winery received their Title V Permit on March 31, 2013. This modification can be classified as a Title V minor modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). The facility has requested that this project be processed in that manner. Since the applicant has requested that this project be processed with COC, the 45-day EPA review will be completed prior to the issuance of the ATC permits. The modifications authorized in this project will subsequently be incorporated into the Title V permit through an application for an administrative amendment.

II. Applicable Rules:

Rule 2201 New and Modified Stationary Source Review Rule (12/15/2005)
Rule 2410 Prevention of Significant Deterioration (6/16/2011)
Rule 2520 Federally Mandated Operating Permits (6/21/2001)
Rule 4001 New Source Performance Standards (4/14/1999)
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/2004)
Rule 4101 Visible Emissions (2/17/2005)
Rule 4102 Nuisance (12/17/1992)
Rule 4201 Particulate Matter Concentration (12/17/1992)
Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/2003)

Rule 4702 Stationary Internal Combustion Engines – Phase 2 (4/20/2006)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Title 13 California Code of Regulations (CCR), Section 2423 – Exhaust Emission Standards and Test Procedures, Off-Road Compression-Ignition Engines and Equipment
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

III. Project Location:

The facility is located at 18667 North Jacob Brack Road, Lodi, 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

These emergency engines each powers a firewater pump. Other than emergency operation, the engine may be operated up to 100 hours per year for maintenance and testing purposes.

V. Equipment Listing:

N-7855-899-0: 305 BHP JOHN DEERE MODEL JU6H-UFADX8 DIESEL-FIRED EMERGENCY ENGINE POWERING A FIRE PUMP.

N-7855-900-0: 110 BHP JOHN DEERE MODEL JU4H-UFAD5G DIESEL-FIRED EMERGENCY ENGINE POWERING A FIRE PUMP.

VI. Emission Control Technology Evaluation:

N-7855-899-0:
The engine is equipped with:
[x] Turbocharger
[ ] Intercooler/aftercooler
[ ] Injection timing retard (or equivalent per District Policy SSP-1805, dated 8/14/1996)
[ ] Positive Crankcase Ventilation (PCV) or 90% efficient control device
[ ] This engine is required to be and is UL certified
[ ] Catalytic particulate filter
[ ] Low (0.05%) sulfur diesel
[x] Very Low (0.0015%) sulfur diesel

N-7855-900-0:
The engine is equipped with:
[x] Turbocharger
[ ] Intercooler/aftercooler
[ ] Injection timing retard (or equivalent per District Policy SSP-1805, dated 8/14/1996)
[ ] Positive Crankcase Ventilation (PCV) or 90% efficient control device
[ ] This engine is required to be, and is UL certified
[ ] Catalytic particulate filter
[ ] Low (0.05%) sulfur diesel
[x] Very Low (0.0015%) sulfur diesel

The emission control devices/technologies and their effect on diesel engine emissions detailed below are from *Non-catalytic NO_X Control of Stationary Diesel Engines*, by Don Koeberlein, CARB.

The turbocharger reduces the NO_X emission rate from the engine by approximately 10% by increasing the efficiency and promoting more complete burning of the fuel.

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:	100 hours/year
Density of diesel fuel:	7.1 lb/gal
EPA F-factor:	9051 dscf/MMBtu (corrected to 60° F)
PM_{10} fraction of diesel exhaust is 96%	(Reference - CARB, 1988)
Fuel heating value:	137,000 Btu/gal
BHP to Btu/hr conversion:	2542.5 Btu/hp-hr
Thermal efficiency of engine	commonly ≈ 35%
Fuel rate:	
N-7855-899-0	14.6 gal/hr (engine data sheet)
N-7855-900-0	8.7 gal/hr (engine data sheet)

B. Emission Factors

The engine manufacturer supplied the emission factors for NO_X, CO, VOC and PM_{10} for each engine. SOx emission factor is based the emission calculation listed below.

N-7855-899-0:

Pollutant	Emission Factor (g/bhp-hr)	Source
NO_x	2.70	Engine manufacturer
CO	0.40	Engine manufacturer
VOC	0.10	Engine manufacturer
PM_{10}	0.06	Engine manufacturer
SO_x	0.005	Calculated below

N-7855-900-0:

Pollutant	Emission Factor (g/bhp-hr)	Source
NO_x	2.80	Engine manufacturer
CO	1.0	Engine manufacturer
VOC	0.10	Engine manufacturer
PM_{10}	0.09	Engine manufacturer
SO_x	0.005	Calculated below

The emission factor for SO_x may be calculated based on the current CARB standard for diesel sulfur content, which is 15 ppm by weight.

$$\frac{0.000015\ lb-S}{lb-fuel}\times\frac{7.1\ lb-fuel}{gallon}\times\frac{2\ lb-SO_2}{1\ lb-S}\times\frac{1\ gal}{137{,}000\ Btu}\times\frac{1\ bhp\ input}{0.35\ bhp\ out}\times\frac{2{,}542.5\ Btu}{bhp-hr}\times\frac{453.6\ g}{lb}=0.005\ \frac{g-SO_x}{bhp-hr}$$

C. Calculations:

1. Pre-Project Emissions (PE1)

Since these are new emission units, PE1 will equal zero for all pollutants for these emergency engines.

2. Post-Project PE (PE2)

The potential to emit emissions from this emergency IC engine is based on the maximum operating capacity of the engine for 24 hours per day. The following calculation for NO_x emissions is representative of emission calculations for all pollutants. Annual emissions are based on 100 hours per year for non-emergency operation.

N-7855-899-0:

NO_x: 2.70 g/hp-hr × 305 bhp × lb/453.6 g

NO_x: 1.82 lb/hr, 43.6 lb/day, 182 lb/yr
CO: 0.27 lb/hr, 6.5 lb/day, 27 lb/yr
VOC: 0.07 lb/hr, 1.6 lb/day, 7 lb/yr

PM_{10}: 0.04 lb/hr, 1.0 lb/day, 4 lb/yr
SO_x: 0.003 lb/hr, 0.1 lb/day, 0.3 lb/yr [1]

	NO_x	CO	VOC	PM_{10}	SO_x
Daily PE	43.6	6.5	1.6	1.0	0.1
Annual PE	182	27	7	4	0

N-7855-900-0:

NO_x: 2.80 g/hp-hr × 110 bhp × lb/453.6 g

NO_x: 0.68 lb/hr, 16.3 lb/day, 68 lb/yr
CO: 0.24 lb/hr, 5.8 lb/day, 24 lb/yr
VOC: 0.02 lb/hr, 0.6 lb/day, 2 lb/yr
PM_{10}: 0.02 lb/hr, 0.5 lb/day, 2 lb/yr
SO_x: 0.001 lb/hr, 0.03 lb/day, 0.1 lb/yr [1]

	NO_x	CO	VOC	PM_{10}	SO_x
Daily PE	16.3	5.8	0.6	0.5	0
Annual PE	68	24	2	2	0

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 emission calculations are from project N-1131345, unless otherwise noted. The facility has a SLC limit of 292,950 lb-VOC based on a 12-month rolling basis.

SSPE1 (lb/yr)					
Permit	**NO_x**	**SO_x**	**PM_{10}**	**CO**	**VOC**
N-7855-226 thru -852 and -855 thru -898 (Wine tank permits)	0	0	66	0	292,950
N-7855-853-0 (ATC)	46	0	3	23	2
N-7855-854-0 (ATC)	0	0	73	0	0
ERC	0	0	0	0	0
Total	46	0	142	23	292,952

[1] Per District Policy APR 1105, Use of Significant Figures, annual emissions less than 0.5 lb are set to zero.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Since this is a modification to an existing facility, SSPE2 is equal to the $PE2_{Total\ Post\ Project}$ from all units for all criteria pollutants. For this project the change in emissions for the facility is due to the installation of two new emergency engines.

SSPE2 (lb/yr)					
Permit	**NO_x**	**SO_x**	**PM_{10}**	**CO**	**VOC**
N-7855-226 thru -852 and -855 thru -898 (Wine tank permits)	0	0	66	0	292,950
N-7855-853-0 (ATC)	46	0	3	23	2
N-7855-854-0 (ATC)	0	0	73	0	0
N-7855-899-0 (ATC)	***182***	***0***	***4***	***27***	***7***
N-7855-900-0 (ATC)	***68***	***0***	***2***	***24***	***2***
ERC	0	0	0	0	0
Total	296	0	148	74	292,961

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."

Major Source Determination					
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Major Source Threshold (lb/yr)	Existing Major Source?	Becoming a Major Source?
NO_X	46	296	20,000	No	No
SO_X	0	0	140,000	No	No
PM_{10}	142	148	140,000	No	No
CO	23	74	200,000	No	No
VOC	292,952	292,961	20,000	Yes	No

As seen in the table above, the facility is an existing Major Source for VOC.

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	0.023	146.5	0	0.012	0.071	0.071	1.62
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

* GHG emissions for ATC N-7855-853-0 equal:
156.8 bhp x 0.000187 metric tonnes CO_2e/bhp-hr x 50 hr/yr = 1.47 metric tons CO_{2e}
(1.47 metric tons CO_{2e} x 2,205 lbs/metric ton) ÷ 2,000 lbs/ton = 1.62 tons CO_{2e}

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

6. Baseline Emissions (BE):

BE will equal the 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 will equal the Historic Actual Emissions (HAE), calculated pursuant to Section 3.22.

These are new emergency engines and BE will equal zero for all pollutants. BE will equal PE1 for all criteria pollutants.

7. SB 288 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.*"

The facility is a Major Source only for VOC, therefore, an SB-288 Major Modification determination is required only for VOC. Per section 3.36 of Rule 2201, the SB-288 Major Modification threshold is 50,000 lb/yr.

PAE = Post-project projected actual emissions
BAE = Pre-project baseline actual emissions

$$EI_{VOC} = PAE_{VOC} - BAE_{VOC}$$

PAE (VOC):

The PAE of VOC will be assumed to be the Potential to Emit. As shown in section VII.C.2 of this document, the PAE for VOC emissions for each emergency engine are calculated below:

N-7855-899-0:
PAE_{VOC} = 7 lb/yr

N-7855-900-0:
PAE_{VOC} = 2 lb/yr

BAE (VOC):

These are new emission units new; therefore BAE is zero for each engine.

EI (VOC) Calculation:

N-7855-899-0:
EI (VOC) = 7 lb/yr – 0 lb/yr = 7 lb/yr

N-7855-900-0:
EI (VOC) = 2 lb/yr – 0 lb/yr = 2 lb/yr

The potential to emit for VOC is less than the 50,000 lb threshold. Therefore, this permitting action is not an SB-288 Major Modification.

8. Federal Major Modification

As shown in section VII.C.5 of this document, this facility is a Major Source for only VOC. Therefore, a Federal Major Modification determination is required for only VOC. Per section 3.18.1.4 of Rule 2201, the Federal Major Modification Emission Increase (EI) threshold for VOC is 0 lb/yr.

Federal Major Modification Determination:

Per the District's draft policy titled "Implementation of Rule 2201 (as amended on 12/18/2008 and effective on 6/10/2010) for SB288 Major Modifications and Federal Major Modifications", if the average increase in emissions is 0.5 lb/day, or less, then the project does not trigger a Federal Major Modification.

Average IPE (to the tenths place of precision as specified in the policy)

N-7855-899-0:
= (7 lb/yr) / (365 days/yr) = 0.02 lb-VOC/day

N-7855-900-0:
= (2 lb/yr) / (365 days/yr) = 0.01 lb-VOC/day

As seen above, this project is not a Federal Major Modification.

9. Quarterly Net Emissions Change (QNEC)

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

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

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

- NO_2 (as a primary pollutant)
- SO_2 (as a primary pollutant)
- CO
- PM
- PM_{10}
- Greenhouse gases (GHG): CO_2, N_2O, CH_4, HFCs, PFCs, and SF_6

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

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

Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total potential to emit from all new and modified units is below this threshold, no futher analysis will be needed.

PSD Major Source Determination: Potential to Emit (tons/year)							
	NO_2	VOC	SO_2	CO	PM	PM_{10}	CO_{2e} *
Total PE from New and Modified Units	0.019	0.002	0	0.005	0.001	0.001	8.56
PSD Major Source threshold	250	250	250	250	250	250	100,000
New PSD Major Source?	N	N	N	N	N	N	N

* GHG emissions equal: 305 bhp x 0.000187 metric tonnes CO_2e/bhp-hr x 100 hr/yr
= 5.70 metric tons CO_{2e}
110 bhp x 0.000187 metric tonnes CO_2e/bhp-hr x 100 hr/yr
= 2.06 metric tons CO_{2e}
(5.70 + 2.06) metric tons CO_{2e} = 7.76 metric tons CO_{2e}
(7.76 metric tons CO_{2e} x 2,205 lbs/metric ton) ÷ 2,000 lbs/ton = 8.56 tons CO_{2e}

As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

a) Any new emissions unit with a potential to emit exceeding two pounds per day,
b) The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
c) Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
d) Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.
*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

Since these are new emission units, the daily emissions are compared to the BACT thresholds in the following table for each engine:

N-7855-899-0:

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -899-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO_X	43.6	> 2.0	n/a	Yes
SO_X	0.1	> 2.0	n/a	No
PM_{10}	1.0	> 2.0	n/a	No
CO	6.5	> 2.0 and SSPE2 ≥ 200,000 lb/yr	74	No
VOC	1.6	> 2.0	n/a	No

N-7855-900-0:

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -900-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO_X	16.3	> 2.0	n/a	Yes
SO_X	0	> 2.0	n/a	No
PM_{10}	0.5	> 2.0	n/a	No
CO	5.8	> 2.0 and SSPE2 ≥ 200,000 lb/yr	74	No
VOC	0.6	> 2.0	n/a	No

Thus BACT will be triggered for NO_X emissions for each engine.

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

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

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

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

d. Major Modification

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

2. BACT Guideline

BACT Guideline 3.1.4, 2nd quarter 2001, which appears in Appendix D of this report, covers diesel-fired emergency IC engines powering a firewater pump.

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

b. Major Modification

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

c. PE > 100 lb/day

The Daily PE for these new emission units is compared to the daily PE Public Notice Thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	Daily PE for unit -899-0 (lb/day)	Public Notice Threshold (lb/day)	Public Notice Triggered?
NO_X	43.6	100	No
SO_X	0.1	100	No
PM_{10}	1.0	100	No
CO	6.5	100	No
VOC	1.6	100	No

PE > 100 lb/day Public Notice Thresholds			
Pollutant	Daily PE for unit -900-0 (lb/day)	Public Notice Threshold (lb/day)	Public Notice Triggered?
NO_X	16.3	100	No
SO_X	0	100	No
PM_{10}	0.5	100	No
CO	5.8	100	No
VOC	0.6	100	No

As detailed in the preceding table, there were no 100 lb/day thresholds surpassed with this project. Therefore, public noticing is not required for daily emissions greater than 100 lb/day for a new emissions unit.

d. Offset Threshold

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

Offset Threshold				
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Offset Threshold (lb/yr)	Public Notice Required?
NO_X	46	296	20,000	No
SO_X	0	0	54,750	No
PM_{10}	142	148	29,200	No
CO	23	74	200,000	No
VOC	292,952	292,961	20,000	No

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

e. SSIPE > 20,000 lb/year

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

SSIPE Public Notice Threshold					
Pollutant	SSPE2 (lb/yr)	SSPE1 (lb/yr)	SSIPE (lb/yr)	SSIPE Threshold (lb/yr)	Public Notice Required?
NO_X	296	46	250	20,000	No
SO_X	0	0	0	20,000	No
PM_{10}	148	142	6	20,000	No
CO	74	23	51	20,000	No
VOC	292,961	292,952	0	20,000	No

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

2. Public Notice Action

As discussed above, this project will not result in emissions, for any criteria pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project.

D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT. For these emergency IC engines, the DELs are stated in the form of emission factors, the maximum engine horsepower rating, and the maximum operational time of 24 hours per day. Therefore, the following conditions (previously proposed in this engineering evaluation) will be listed on each ATC to ensure compliance:

N-7855-899-0:

- Emissions from this IC engine shall not exceed any of the following limits: 2.70 g-NOx/bhp-hr, 0.40 g-CO/bhp-hr, or 0.10 g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115]

- Emissions from this IC engine shall not exceed 0.06 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 13 CCR 2423 and 17 CCR 93115]

N-7855-900-0:

- Emissions from this IC engine shall not exceed any of the following limits: 2.80 g-NOx/bhp-hr, 1.00 g-CO/bhp-hr, or 0.10 g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115]

- Emissions from this IC engine shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 13 CCR 2423 and 17 CCR 93115]

In addition, the DEL for SO_X is established by the sulfur content of the fuel being combusted in the engine. Therefore, the following condition will be listed on each ATC to ensure compliance:

- {3395} 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 IC engines to demonstrate compliance with Rule 2201.

2. Monitoring

Monitoring is not required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification, and daily emission limit requirements of Rule 2201. As required by District Rule 4701, *Stationary Internal Combustion Engines - Phase 1*, and District Rule 4702, *Stationary Internal Combustion Engines - Phase 2*, this IC engine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4701 and 4702, will be discussed in Section VIII, *District Rules 4701 and 4702*, of this evaluation.

4. Reporting

Reporting is not required to ensure compliance with Rule 2201.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule and has received their Title V Operating Permit. The proposed modification is a Minor Modification to the Title V Permit pursuant to Section 3.20 of this rule. As discussed previously in the proposal section, the facility has applied for a Certificate of Conformity (COC).

In accordance with Rule 2520, these modifications:

1. Do not violate requirements of any applicable federally enforceable local or federal requirement;
2. Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;
3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
4. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
   a. A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act; and
   b. An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and

5. Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act; and
6. Do not seek to consolidate overlapping applicable requirements.

As discussed above, the facility has applied for a Certificate of Conformity (COC). Therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may construct/operate under the ATC upon submittal of the Title V administrative amendment/minor modification application. The following conditions will appear on each ATC permit:

- {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201]

- {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]

Rule 4001 New Source Performance Standards (NSPS)

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

Pursuant to § 60.4200 of Subpart IIII, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of this regulation. The applicant will be so notified in a permit condition.

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)

Pursuant to § 63.6585 of Subpart ZZZZ, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of 40 CFR 63 Subpart ZZZZ for non-Part 70 sources (Major Sources). The applicant will be so notified in a permit condition.

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 each 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 each 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.

RMR Summary				
Categories	**Emergency Diesel ICE (Unit 899-0)**	**Emergency Diesel ICE (Unit 900-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	N/A[1]	N/A[1]	N/A[1]	>1
Acute Hazard Index	N/A[2]	N/A[2]	N/A[2]	0.00
Chronic Hazard Index	N/A[2]	N/A[2]	N/A[2]	0.00
Maximum Individual Cancer Risk	**8.29E-08**	**5.87E-08**	1.42E-07	1.88E-07
T-BACT Required?	**No**	**No**		
Special Permit Conditions?	**Yes**	**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.

Unit 899-0

The individual cancer risk associated with the operation of the proposed emergency diesel IC engine is 8.29E-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).

Unit 900-0

The individual cancer risk associated with the operation of the proposed emergency diesel IC engine is **5.87E-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 following permit conditions will be included on each ATC permit:

Unit 899-0

1. Modified {1901} The PM10 emissions rate shall not exceed **0.06** g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. Modified {1344} The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **100** hours per year. [District NSR Rule and District Rule 4701]

Unit 900-0

1. Modified {1901} The PM10 emissions rate shall not exceed **0.09** g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. Modified {1344} The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **100** hours per year. [District NSR Rule and District Rule 4701]

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 PM_{10} emission factor for each engine is less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on each ATC:

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

Rule 4701 Internal Combustion Engines – Phase 1

District Rule 4701 is applicable to diesel-fired emergency standby or emergency IC engines. Rule 4702 is at least as stringent as this rule in all aspects; therefore, compliance with that rule will ensure compliance with Rule 4701.

Rule 4702 Internal Combustion Engines – Phase 2

The following table demonstrates how the proposed engines will comply with the requirements of District Rule 4702.

District Rule 4702 Requirements Emergency Standby IC Engines	Proposed Method of Compliance with District Rule 4702 Requirements
Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter.	The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) for new emergency fire pump assemblies that are driven directly by stationary diesel-fueled CI engines are limited to the number of hours required for the NFPA 25 Standards for maintenance and testing purposes to 100 hours/year. Thus, compliance is expected.
The owner/operator must operate and maintain the engines and any installed control devices according to the manufacturers written instructions.	The following permit condition will appear on the ATC permit: • 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]
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: • {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 Rules 4701 and 4702]
Records of the total hours of operation of the emergency engine, purpose for operating the engine, all hours of non-emergency and emergency operation and support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.	The following conditions will be included on the permit: • {3489} 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, and the purpose of the operation (for example: load testing, weekly testing). 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] • {3475} All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 4701 and 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) = $\frac{10.73\,\text{psi}\cdot\text{ft}^3}{\text{lb}\cdot\text{mol}\cdot{}^\circ\text{R}}$

Clearinghouse, relevant information under each of the following steps may be simply cited from the Clearinghouse without further analysis."

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

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

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

N-7855-899-0:

- Emissions from this IC engine shall not exceed any of the following limits: 2.70 g-NOx/bhp-hr, 0.40 g-CO/bhp-hr, or 0.10 g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115]

N-7855-900-0:

- Emissions from this IC engine shall not exceed any of the following limits: 2.80 g-NOx/bhp-hr, 1.00 g-CO/bhp-hr, or 0.10 g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115]

B. Offsets

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

C. Public Notification

1. Applicability

Public noticing is required for:

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

a. New Major Source

A New Major Source is a new facility, which is also a major source. This is an existing facility and public noticing is not required for this project for New Major Source purposes.

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

Since 1.0 ppmv is ≤ 2,000 ppmv, each engine is expected to comply with Rule 4801. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on each ATC to ensure compliance:

- {3395} 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

The following table demonstrates how the proposed engines will comply with the requirements of Title 17 CCR Section 93115.

<table>
<tr><th>Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Fire Pump Assemblies</th><th>Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements</th></tr>
<tr><td>Emergency engines must be fired on CARB diesel fuel, or an approved alternative diesel fuel.</td><td>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.</td></tr>
<tr><td>Per Table 2 of this ATCM, a new direct-drive fire pump, rated at 220 hp and model year 2009 or later, must meet the following emissions standards:
<table>
<tr><th>Max Engine Power</th><th>NOx + VOC (g/bhp-hr)</th><th>CO (g/bhp-hr)</th><th>PM (g/bhp-hr)</th></tr>
<tr><td>175 ≤ HP < 300</td><td>3.0</td><td>2.6</td><td>0.15</td></tr>
</table></td><td>The applicant has proposed the use of engines that are certified to the latest EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of this ATCM. Additionally, the proposed diesel PM emissions rate for each engine is less than or equal to 0.15 g/bhp-hr.</td></tr>
<tr><td>The engine may not be operated more than the number of hours necessary to comply with the testing requirements of National Fire Protection Association (NFPA) 25 – "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection</td><td>The following condition will be included on each permit:
• The engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and</td></tr>
</table>

Systems" 2002 edition.	during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 – "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" 2002 edition. Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rules 2201, 4102, and 4702,and 17 CCR 93115]
Engines, with a PM10 emissions rate greater than 0.01 g/bhp-hr and located at schools, may not be operated for maintenance and testing whenever there is a school sponsored activity on the grounds. Additionally, engines located within 500 feet of school grounds may not be operated for maintenance and testing between 7:30 AM and 3:30 PM.	The District has verified that this engine is not located within 500 feet of a school.
An owner or operator shall maintain monthly records of the following: emergency use hours of operation, maintenance and testing hours of operation, hours of operation for emission testing, initial start-up testing hours, hours of operation for all other uses and the type of fuel used. All records shall be retained for a minimum of 36 months.	Permit conditions enforcing these requirements were shown earlier in the evaluation. Records shall be maintained for a minimum of five years. • {3475} All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permits N-7855-899-0 and N-7855-900-0 subject to the permit conditions on the attached draft Authorities to Construct in Appendix A.

X. Billing Information:

Billing Schedule			
Permit Number	**Fee Schedule**	**Fee Description**	**Fee Amount**
N-7855-899-0	3020-10-C	305 bhp	$240
N-7855-900-0	3020-10-B	110 bhp	$117

Appendices

A. Authority to Construct permits N-7855-899-0 and N-7855-900-0
B. Engine Emissions Data
C: QNEC Calculations
D. BACT Guideline and BACT Analysis
E. HRA Summary

Appendix A

Authority to Construct permits
N-7855-899-0 & N-7855-900-0

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-7855-899-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: SUTTER HOME WINERY
MAILING ADDRESS: ATTN: DAVE HENRY
P O BOX 248
ST HELENA, CA 94574-0248

LOCATION: 18667 N JACOB BRACK RD
LODI, CA 95242

EQUIPMENT DESCRIPTION:
305 BHP JOHN DEERE MODEL JU6H-UFADX8 DIESEL-FIRED EMERGENCY ENGINE POWERING A FIRE PUMP.

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {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]
7. 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] Federally Enforceable Through Title V Permit
8. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115] Federally Enforceable Through Title V Permit

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

Arnaud Marjollet, Director of Permit Services
N-7855-899-0 : May 22 2014 2:30PM -- CRUZF : Joint Inspection NOT Required

9. Emissions from this IC engine shall not exceed any of the following limits: 2.70 g-NOx/bhp-hr, 0.40 g-CO/bhp-hr, or 0.10 g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115] Federally Enforceable Through Title V Permit

10. Emissions from this IC engine shall not exceed 0.06 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115] Federally Enforceable Through Title V Permit

11. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems". Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115] Federally Enforceable Through Title V Permit

12. 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] Federally Enforceable Through Title V Permit

13. 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, and the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.). 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] Federally Enforceable Through Title V Permit

14. All records shall be maintained and retained on-site for a minimum of five years and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115] Federally Enforceable Through Title V Permit

15. U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-7855-900-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: SUTTER HOME WINERY
MAILING ADDRESS: ATTN: DAVE HENRY
P O BOX 248
ST HELENA, CA 94574-0248

LOCATION: 18667 N JACOB BRACK RD
LODI, CA 95242

EQUIPMENT DESCRIPTION:
110 BHP JOHN DEERE MODEL JU4H-UFAD5G DIESEL-FIRED EMERGENCY ENGINE POWERING A FIRE PUMP.

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {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]
7. 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] Federally Enforceable Through Title V Permit
8. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115] Federally Enforceable Through Title V Permit

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

DRAFT

Arnaud Marjollet, Director of Permit Services

N-7855-900-0 May 22 2014 2:30PM -- CRUZF Joint Inspection NOT Required

9. Emissions from this IC engine shall not exceed any of the following limits: 2.80 g-NOx/bhp-hr, 1.0 g-CO/bhp-hr, or 0.10 g-VOC/bhp-hr. [District Rule 2201 and 13 CCR 2423 and 17 CCR 93115] Federally Enforceable Through Title V Permit

10. Emissions from this IC engine shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115] Federally Enforceable Through Title V Permit

11. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. For testing purposes, the engine shall only be operated the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems". Total hours of operation for all maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rule 4702 and 17 CCR 93115] Federally Enforceable Through Title V Permit

12. 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] Federally Enforceable Through Title V Permit

13. 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, and the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.). 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] Federally Enforceable Through Title V Permit

14. 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] Federally Enforceable Through Title V Permit

15. U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in these subparts. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002] Federally Enforceable Through Title V Permit

Appendix B

Engine Emissions Data

N-7855-899-0

Rating Specific Emissions Data - John Deere Power Systems

JOHN DEERE

Nameplate Rating Information

Clarke Model	JU6H-UFADX8
Power Rating (BHP / kW)	305 / 227.5
Certified Speed (RPM)	1760

Rating Data

Rating	6068HFC48A
Certified Power (kW)	235
Rated Speed	1760
Vehicle Model Number	Clarke Fire Pump

Units	g/kW-hr	g/hp-hr
NOx	3.6	2.7
HC	0.1	0.1
NOx + HC	3.7	2.8
Pm	0.07	0.06
CO	0.6	0.4

Certificate Data

Engine Model Year	2013
EPA Family Name	DJDXL13.5103
EPA JD Name	650HAA
EPA Certificate Number	DJDXL13.5103-006
CARB Executive Order	Not Applicable
Parent of Family	6135HF485A

Units	g/kW-hr
NOx	3.3
HC	0.1
NOx + HC	3.4
Pm	0.10
CO	0.6

* The emission data listed is measured from a laboratory test engine according to the test procedures of 40 CFR 89 or 40 CFR 1039, as applicable. The test engine is intended to represent nominal production hardware, and we do not guarantee that every production engine will have identical test results. The family parent data represents multiple ratings and this data may have been collected at a different engine speed and load. Emission results may vary due to engine manufacturing tolerances, engine operating conditions, fuels used, or other conditions beyond our control.

N-7855-900-0

Rating Specific Emissions Data - John Deere Power Systems

JOHN DEERE

Nameplate Rating Information

Clarke Model	JU4H-UFAD5G
Power Rating (BHP / kW)	110 / 82
Certified Speed (RPM)	1760

Rating Data

Rating	4045HFC28A
Certified Power (kW)	117
Rated Speed	1760
Vehicle Model Number	Clarke Fire Pump

Units	g/kW-hr	g/hp-hr
NOx	3.7	2.8
HC	0.1	0.1
NOx + HC	3.8	2.8
Pm	0.12	0.09
CO	1.3	1.0

Certificate Data

Engine Model Year	2011
EPA Family Name	BJDXL06.8105
EPA JD Name	350HAC
EPA Certificate Number	JDX-NRCI-11-14
CARB Executive Order	U-R-004-0429
Parent of Family	4045HF285A

Units	g/kW-hr
NOx	3.3
HC	0.1
NOx + HC	3.4
Pm	0.25
CO	1.5

* The emission data listed is measured from a laboratory test engine according to the test procedures of 40 CFR 89 or 40 CFR 1039, as applicable. The test engine is intended to represent nominal production hardware, and we do not guarantee that every production engine will have identical test results. The family parent data represents multiple ratings and this data may have been collected at a different engine speed and load. Emission results may vary due to engine manufacturing tolerances, engine operating conditions, fuels used, or other conditions beyond our control.

Appendix C

QNEC Calculations

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

Using the emission calculations in this evaluation, $PE2_{quarterly}$ and $BE_{quarterly}$ can be calculated as follows:

This calculation is required for application emission profile purposes. It is assumed that the unit's annual emissions are evenly distributed throughout the year as follows: ΔPE (lb/qtr) = PE (lb/yr) ÷ 4 qtr/yr.

N-7855-899-0

ΔPE_{NOx} = 182 lb-NOx/year – 0 lb-NOx/year = 182 lb/year
ΔPE_{CO} = 27 lb-CO/year – 0 lb-CO/year = 27 lb/year
ΔPE_{VOC} = 7 lb-VOC/year – 0 lb-VOC/year = 7 lb/year
ΔPE_{PM10} = 4 lb-PM10/year – 0 lb-PM10/year = 4 lb/year
ΔPE_{SOx} = 0 lb-SOx/year – 0 lb-SOx/year = 0 lb/year

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NOx	45	45	46	46
CO	6	7	7	7
VOC	1	2	2	2
PM_{10}	1	1	1	1
SOx	0	0	0	0

N-7855-900-0

ΔPE_{NOx} = 68 lb-NOx/year – 0 lb-NOx/year = 68 lb/year
ΔPE_{CO} = 24 lb-CO/year – 0 lb-CO/year = 24 lb/year
ΔPE_{VOC} = 2 lb-VOC/year – 0 lb-VOC/year = 2 lb/year
ΔPE_{PM10} = 2 lb-PM10/year – 0 lb-PM10/year = 2 lb/year
ΔPE_{SOx} = 0 lb-SOx/year – 0 lb-SOx/year = 0 lb/year

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NOx	17	17	17	17
CO	6	6	6	6
VOC	0	0	1	1
PM_{10}	0	0	1	1
SOx	0	0	0	0

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.4*

Last Update 6/30/2001

Emergency Diesel I.C. Engine Driving a Fire Pump

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
CO		Oxidation Catalyst	
NOx	Certified NOx emissions of 6.9 g/bhp-hr or less		
PM10	0.1 grams/bhp-hr (if TBACT is triggered) (corrected 7/16/01) 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 [unless it voids the Underwriters Laboratories (UL) certification]	Catalytic Oxidation	

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 required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Appendix D
BACT Guideline and BACT Analysis

Top Down BACT Analysis for Emergency IC Engines

Oxides of nitrogen (NO_X) are generated from the high temperature combustion of the diesel fuel. A majority of the NO_X emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO_X emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

1. BACT Analysis for NO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVAPCD BACT Clearinghouse guideline 3.1.4, 2nd quarter 2001, identifies the achieved in practice BACT for NO_X emissions from emergency diesel IC engines powering a firewater pump as follows:

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

There are no technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source.

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

Ranking is not necessary since the applicant has proposed the achieved in practice option for each emergency engine.

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 SJVAPCD BACT policy, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for NO_X emissions from each emergency diesel engine powering a firewater pump is the use of an engine with certified emissions of 6.9 g-NO_X/bhp-hr, or less. The applicant has proposed to install a 305 bhp emergency diesel engine and a 110 bhp emergency engine each powering a firewater pump with certified emissions of 6.9 g-NO_X/bhp-hr, or less. Therefore, BACT for NO_X emissions is satisfied for each engine.

Appendix E
HRA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To: Fred Cruz – Permit Services

From: Cheryl Lawler - Technical Services

Date: May 12, 2014

Facility Name: Sutter Home Winery

Location: 18667 North Jacob Brack Road, Lodi

Application Nos: N-7855-899-0 & 900-0

Project No: N-1141458

A. RMR SUMMARY

RMR Summary				
Categories	**Emergency Diesel ICE (Unit 899-0)**	**Emergency Diesel ICE (Unit 900-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	N/A[1]	N/A[1]	N/A[1]	>1
Acute Hazard Index	N/A[2]	N/A[2]	N/A[2]	0.00
Chronic Hazard Index	N/A[2]	N/A[2]	N/A[2]	0.00
Maximum Individual Cancer Risk	**8.29E-08**	**5.87E-08**	1.42E-07	1.88E-07
T-BACT Required?	**No**	**No**		
Special Permit Conditions?	**Yes**	**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 899-0

1. Modified {1901} The PM10 emissions rate shall not exceed **0.06** g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. Modified {1344} The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **100** hours per year. [District NSR Rule and District Rule 4701]

Unit 900-0

1. Modified {1901} The PM10 emissions rate shall not exceed **0.09** g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201]
2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. Modified {1344} The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed **100** hours per year. [District NSR Rule and District Rule 4701]

B. RMR REPORT

I. Project Description

Technical Services received a request on May 9, 2014, to perform a Risk Management Review for a 305 bhp emergency diesel IC engine and a 110 bhp emergency diesel IC engine both powering fire pumps.

II. Analysis

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

The following parameters were used for the review:

Analysis Parameters						
Unit #	**bhp-hr**	**PM_{10} g/hp-hr**	**Receptor (m)**	**Quad**	**Hours/Year**	**Load%**
899-0	305	0.06	502.31	2	100	100
Location Type		Rural	**Receptor Type**		Residence	

Analysis Parameters						
Unit #s	**bhp-hr**	**PM_{10} g/hp-hr**	**Receptor (m)**	**Quad**	**Hours/Year**	**Load%**
900-0	110	0.09	548.64	2	100	100
Location Type		Rural	**Receptor Type**		Business	

III. Conclusion

Unit 899-0

The individual cancer risk associated with the operation of the proposed emergency diesel IC engine is **8.29E-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 this proposed unit.

Unit 900-0

The individual cancer risk associated with the operation of the proposed emergency diesel IC engine is **5.87E-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 this proposed unit.

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

Attachments

RMR Request Form
DICE Screening Risk Tool Worksheets
Facility Summary