

APR 05 2018

Jonathon Postma
Pete Postma Dairy
P. O. Box 1059
Empire, CA 95319

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-7603
Project Number: N-1180059

Dear Mr. Postma:

Enclosed for your review and comment is the District's analysis of Pete Postma Dairy's application for an Authority to Construct for 809 horsepower Tier 2 certified diesel engine to provide emergency power in the event of an electric outage, at 1439 Albers Road, Modesto, 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. Rupi Gill of Permit Services at (209) 557-6458.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:rg

Enclosures

cc: Tung Le, CARB (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Type of Project: Agricultural Diesel-Fired Emergency Standby IC Engine

Facility Name:	Pete Postma Dairy	Date:	March 26, 2018
Mailing Address:	P. O. Box 1059 Empire, CA 95319	Engineer:	Rupi Gill
Contact Person:	Jonathon Postma	Lead Engineer:	Nick Peirce
Telephone:	209-495-9557		
E-Mail:	Jonathonpostma@gmail.com		
Application #(s):	N-7603-9-0		
Project #:	N-1180059		
Deemed Complete:	February 08, 2018		

I. Proposal

Pete Postma Dairy has requested an Authority to Construct (ATC) permit for the installation of an 809 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator. The draft ATC is included in Appendix A.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4701 Stationary Internal Combustion Engines - Phase 1 (8/21/03)
Rule 4702 Stationary Internal Combustion Engines (11/14/13)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at 1439 Albers Road in Modesto, CA. 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 which will be used for the growing of crops and/or animals. Other than emergency standby operation, the engine may be operated up to 100 hours per year for maintenance and testing purposes.

V. Equipment Listing

N-7603-9-0: 809 BHP (INTERMITTENT) VOLVO MODEL TAD-1642GE TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

The applicant has proposed to install a Tier 2 certified diesel-fired IC engine that is fired on very low-sulfur diesel fuel.

The proposed engine meet 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/or the ARB/EPA executive order).

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

VII. General Calculations

A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	100 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 applicant has only supplied an emissions factor for NO_x and VOC emissions combined. Therefore the District will use data from the EPA document "Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compressions Ignition", dated November 2002, as presented in the following table to estimate NO_x and VOC emissions (District assumption).

Tier 2 and Tier 3 Diesel-Fired IC Engines NO _x and VOC Estimated Emissions						
Horsepower Range (bhp)	Combined Standard, NO _x + VOC (g/bhp-hr)		Estimated NO _x Emissions (g/bhp-hr)		Estimated VOC Emissions (g/bhp-hr)	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
≥ 50 to < 100	5.6	3.5	5.2	3.3	0.4	0.2
≥ 100 to < 175	4.9	3.0	4.5	2.8	0.4	0.2
≥ 175 to < 300	4.9	3.0	4.5	2.8	0.4	0.2
≥ 300 to < 600	4.8	3.0	4.5	2.8	0.3	0.2
≥ 600 to < 750	4.8	3.0	4.5	2.8	0.3	0.2
≥ 750	4.8	N/A	4.5	N/A	0.3	N/A

For this application for a 809 bhp Tier 2 certified IC engine the applicant supplied NO_x + VOC emissions factor is 4.02 g/bhp-hr. Therefore, the NO_x and VOC emissions factors for this engine are calculated as follows:

$$\begin{aligned} \text{NO}_x \text{ (g/bhp-hr)} &= \text{NO}_x + \text{VOC (g/bhp-hr)} \times (4.5 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \\ \text{NO}_x \text{ g/bhp-hr} &= 4.02 \text{ g/bhp-hr} \times (4.5 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \end{aligned}$$

$$\text{NO}_x = 3.77 \text{ g/bhp-hr}$$

$$\begin{aligned} \text{VOC (g/bhp-hr)} &= \text{NO}_x + \text{VOC (g/bhp-hr)} \times (0.3 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \\ \text{VOC g/bhp-hr} &= 4.02 \text{ g/bhp-hr} \times (0.3 \text{ g/bhp-hr} \div 4.8 \text{ g/bhp-hr}) \end{aligned}$$

$$\text{VOC} = 0.25 \text{ g/bhp-hr}$$

B. Emission Factors

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	3.77	ARB/EPA Certification
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.07	ARB/EPA Certification
CO	0.52	ARB/EPA Certification
VOC	0.25	ARB/EPA Certification

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb-fuel}}{\text{gallon}} \times \frac{2 \text{ lb-SO}_2}{1 \text{ lb-S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp-hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g-SO}_x}{\text{bhp-hr}}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

The daily and annual PE are calculated as follows:

$$\text{Daily PE2 (lb-pollutant/day)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/day)} / 453.6 \text{ g/lb}$$

$$\text{Annual PE2 (lb-pollutant/yr)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/yr)} / 453.6 \text{ g/lb}$$

Daily Post Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Conversion (g/lb)	PE2 Total (lb/day)
NO _x	3.77	809	24	453.6	161.4
SO _x	0.0051	809	24	453.6	0.2
PM ₁₀	0.07	809	24	453.6	3.0
CO	0.52	809	24	453.6	22.3
VOC	0.25	809	24	453.6	10.7

Annual Post Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hrs/yr)	Conversion (g/lb)	PE2 Total (lb/yr)
NO _x	3.77	809	100	453.6	672
SO _x	0.0051	809	100	453.6	1
PM ₁₀	0.07	809	100	453.6	12
CO	0.52	809	100	453.6	93
VOC	0.25	809	100	453.6	45

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

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site. SSPE1 is from the most recent project N-1160762.

SSPE1 (lb/year)							
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃	H ₂ S
N-7603-1-2	0	0	0	0	1,232	421	0
N-7603-2-2	0	0	50,403	0	53,004	97,212	0
N-7603-3-2	0	0	0	0	12,576	34,217	537
N-7603-4-3	0	0	0	0	2,447	12,817	0
N-7603-5-0	185	0	9	56	21	0	0
N-7603-6-0	185	0	9	56	21	0	0
N-7603-7-0	0	0	0	0	70	0	0
N-7603-8-1	0	0	0	0	139,233	0	0
SSPE1	370	0	50,421	112	208,604	144,667	537

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

SSPE2 (lb/year)							
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃	H ₂ S
N-7603-1-2	0	0	0	0	1,232	421	0
N-7603-2-2	0	0	50,403	0	53,004	97,212	0
N-7603-3-2	0	0	0	0	12,576	34,217	537
N-7603-4-3	0	0	0	0	2,447	12,817	0
N-7603-5-0	185	0	9	56	21	0	0
N-7603-6-0	185	0	9	56	21	0	0
N-7603-7-0	0	0	0	0	70	0	0
N-7603-8-1	0	0	0	0	139,233	0	0
N-7603-9-0	672	1	12	93	45	0	0
SSPE2	1,042	1	50,433	205	208,649	144,667	537

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Since agricultural operations do not fall under any of the specific source categories specified in 40 CFR 51.165, fugitive emissions are not counted when determining if an agricultural operation is a major source.

Since emissions at this facility are not actually collected, a determination of whether emissions could be reasonably collected must be made by the permitting authority. The California Air Pollution Control Association (CAPCOA) prepared guidance in 2005 for estimating potential to emit of Volatile Organic Compounds from dairy farms. The guidance states that *"VOC emissions from the milking centers, cow housing areas, corrals, common manure storage areas, and land application of manure are not physically contained and could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening. No collection technologies currently exist for VOC emissions from these emissions units. Therefore, the VOC emissions from these sources are considered fugitive."* The guidance also concludes that, because VOC collection technologies do exist for liquid waste systems at dairies, *"... the VOC emissions from waste lagoons and storage ponds are considered non-fugitive."*

The District has researched this issue and concurs with the CAPCOA assessment. All fugitive emissions are excluded from the Major Source determination.

The following table shows the non-fugitive Pre and Post-Project Stationary Source Potential to Emit for the dairy. The non-fugitive emissions from the dairy lagoons/storage ponds are from the most recent project N-1160762.

Non-Fugitive Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
N-7603-1-2 through -8-1	370	0	18	112	6,163
Non Fugitive SSPE1	370	0	18	112	6,163

Non-Fugitive Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
N-7603-1-2 through -8-1	370	0	18	112	6,163
N-7603-9-0 (New Engine)	672	1	12	93	45
Non Fugitive SSPE2	1,042	1	30	205	6,208

Rule 2201 Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
Non-Fugitive SSPE1*	370	0	18	18	112	6,163
Non-Fugitive SSPE2*	1,042	1	30	30	205	6,208
Major Source Threshold	20,000	140,000	140,000	200,000	200,000	20,000
Major Source?	No	No	No	No	No	No

Note: PM2.5 assumed to be equal to PM10

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

Rule 2410 Major Source Determination:

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 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 District Rule 2201.

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant.

Therefore BE = PE1.

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

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "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.

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

The project potential to emit, by itself, will not exceed any PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance Determination

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 ATC 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]
- {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]

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. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- 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 Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 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.

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

As seen in Section VII.C.2 above, the applicant is proposing to install a new diesel-fired IC engine with a PE greater than 2 lb/day for NO_x, PM₁₀, and VOC. BACT is

triggered for NO_x, PM₁₀, and VOC only since the PEs are greater than 2 lb/day. However BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lb/year, as demonstrated in Section VII.C.5 above.

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

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. Therefore BACT is not triggered for any pollutant.

2. BACT Guideline

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

3. Top Down BACT Analysis

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

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

NO_x: Latest Available Tier Certification level for applicable horsepower*
VOC: Latest Available Tier Certification level for applicable horsepower*
PM₁₀: 0.15 g/bhp-hr

*Note: The certification requirements for emergency engines are as follows: 50 ≤ bhp < 75 – Tier 4I; 75 ≤ bhp < 750 – Tier 3; ≥ 750 bhp – Tier 2.

B. Offsets

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

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed,
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
- e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

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

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

b. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	161.4	100 lb/day	Yes
SO _x	0.2	100 lb/day	No
PM ₁₀	3.0	100 lb/day	No
CO	22.3	100 lb/day	No
VOC	10.7	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	370	1,042	20,000 lb/year	No
SO _x	0	1	54,750 lb/year	No
PM ₁₀	50,421	50,433	29,200 lb/year	No
CO	112	205	200,000 lb/year	No
VOC	208,604	208,649	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	1,042	370	672	20,000 lb/year	No
SO _x	1.0	0	1	20,000 lb/year	No
PM ₁₀	50,433	50,421	12	20,000 lb/year	No
CO	205	112	93	20,000 lb/year	No
VOC	208,649	208,604	45	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_x emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

For this IC engine, the DELs are stated in the form of emission factors (g/hp-hr or lb/MMBtu), the maximum engine horsepower rating, and the maximum operational time of 24 hours per day.

Proposed Rule 2201 (DEL) Conditions:

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 3.77 g-NOx/bhp-hr, 0.52 g-CO/bhp-hr, or 0.25 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 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 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 demonstrate 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 PM₁₀ 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 PM₁₀ and PM_{2.5}.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do 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 Subpart IIII 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 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* 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.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Appendix D**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 9-0 (809 BHP DICE)	NA ¹	NA ²	0.00	4.90E-07	No	Yes
Project Totals	NA ¹	NA ²	0.00	4.90E-07		
Facility Totals	>1	0.09	0.04	1.18E-06		

¹Prioritization 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.

²Acute Hazard Index was not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

- The PM10 emissions rate shall not exceed .07 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
- 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.
- This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year.

Rule 4201 Particulate Matter Concentration

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

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

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

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

Rule 4701 Internal Combustion Engines - Phase 1

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp, that requires a PTO.

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 engine(s) 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 the ATC(s) 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. The following condition will be included on the permit:
 - {4775} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rules 2201 and 4702]
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 SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

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

n = moles SO₂

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

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

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

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

The following requirements apply to new engines (those installed after 1/1/05):

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
The requirements in Sections 93115.6, 93115.7, and 93115.10(a) do not apply to new stationary diesel-fueled CI engines used in agricultural operations.	The following condition will be added to the permit: <ul style="list-style-type: none"> • {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]
Emergency engine(s) must 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.
The engine(s) must meet Table 6 of the ATCM, which requires the Off-road engine certification standard for the specific power rating of the proposed engine on the date of acquisition (purchase date) or	For emergency engines, the Off-road engine certification standards are identified in Table 1 of the ATCM ¹ . The applicant has proposed the use of an emergency engine that meets the Table 1 emission standards (Off-road engine certification standards) for the applicable horsepower range).

¹ Although Section 93115.8 of the ATCM states that new IC engines used in agricultural operations must meet the emissions limits in Table 6, the ATCM Staff Report clarifies that all new emergency standby IC engines must meet the emissions limits specified in Table 1 of the ATCM. This eliminates the requirement that new agricultural emergency standby IC engines would otherwise have to meet the after-treatment based Tier 4 standards specified in Table 6.

<p>permit application submittal to the District, whichever is earliest.</p>	
<p>A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> • {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]
<p>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.</p>	<p>Permit conditions enforcing these requirements were shown earlier in the evaluation.</p>

California Environmental Quality Act (CEQA)

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 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; and
- 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.

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 the ATC(s):

- 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].

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project’s potential for litigation risk, which in turn may be based on a project’s potential to generate public concern, its potential for significant impacts, and the project proponent’s ability to pay for the costs of litigation without a letter of credit, among other factors.

As described above, the project requires only ministerial approval, and is exempt from the provisions of CEQA. As such, an Indemnification Agreement or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC N-7603-9-0 subject to the permit conditions on the attached draft ATC in **Appendix A**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-7603-9-0	3020-10-E	809 hp IC engine	\$659

Appendixes

- A: Draft ATC
- B: BACT Guideline & BACT Analysis
- C: Engine Certification & Emission Data
- D: HRA Summary & AAQA
- E: Quarterly Net Emissions Change

Appendix A
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-7603-9-0

LEGAL OWNER OR OPERATOR: PETE POSTMA DAIRIES
MAILING ADDRESS: PO BOX 1059
EMPIRE, CA 95319

LOCATION: 1439 ALBERS RD
MODESTO, CA

EQUIPMENT DESCRIPTION:
809 BHP (INTERMITTENT) VOLVO MODEL TAD-1642GE TIER 2 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

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

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Arnaud Marjolle, Director of Permit Services

N-7603-9-0 Mar 26 2018 11:40AM - GILLR : Joint Inspection NOT Required

7. {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 Rules 4701 and 4702, and 17 CCR 93115]
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. {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]
11. Emissions from this IC engine shall not exceed any of the following limits: 3.77 g-NOx/bhp-hr, 0.52 g-CO/bhp-hr, or 0.25 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
12. Emissions from this IC engine shall not exceed 0.07 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
13. {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]
14. {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]
15. {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 and 17 CCR 93115]
16. {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 and 17 CCR 93115]
17. {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]
18. {4775} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per calendar year. [District Rules 2201 and 4702]
19. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
20. {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]

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Appendix B
BACT Guideline and BACT Analysis

San Joaquin Valley Unified Air Pollution Control District

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

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

*Note: The certification requirements are as follows: for emergency engines $50 \leq \text{bhp} < 75$ - Tier 4 Interim; for emergency engines $75 \leq \text{bhp} < 750$ - Tier 3; for emergency engines ≥ 750 bhp - Tier 2.

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)

BACT Guideline 3.1.1 (September 10, 2013) applies to emergency diesel IC engines. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

1. BACT Analysis for NO_x and VOC Emissions:

a. Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *Latest EPA Tier Certification level for applicable horsepower range*

To determine the latest applicable Tier level, the following EPA and state regulations were consulted:

- 40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR Part 89 – Control of Emissions from New and In-Use Nonroad Compression – Ignition Engines
- 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines
- Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines

40 CFR Parts 89 and 1039, which apply only to nonroad engines, do not directly apply because the proposed emergency engine(s) do not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 and 40 CFR Part 60 Subpart IIII apply directly to the proposed emergency engine(s).

Title 17 CCR, Section 93115.6(a)(3)(A) (CARB stationary diesel engine ATCM) applies to emergency standby diesel-fired engines and requires that such engines be certified to the emission levels in Table 1 (below). Please note that these levels are at least as stringent or more stringent than the emission levels in 40 CFR Subpart IIII.

Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)					
Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NOx	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
100 ≤ HP < 175 (75 ≤ kW < 130)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
600 ≤ HP ≤ 750 (450 ≤ kW ≤ 560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP > 750 (kW > 560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
		2008+			

Additionally, 40 CFR Subpart IIII establishes emission standards for emergency diesel IC engines. These emission standards are the same as those specified in the CARB ATCM, except for engines rated greater than or equal to 50 and less than 75 hp. For such IC engines, the CARB ATCM is more stringent.

Therefore, the most stringent applicable emission standards are those listed in the CARB ATCM (Table 1).

For IC engines rated greater than or equal to 50 hp and less than 75 hp the the highest Tier required is Tier 4i. For IC engines rated greater than or equal to 75 hp and less than 750 hp the highest Tier required is Tier 3. For engines rated equal to or greater than 750 hp the highest Tier required is Tier 2.

Also, please note that neither the state ATCM nor the Code of Federal Regulations require the installation of IC engines meeting a higher Tier standard than those listed above for emergency applications, due to concerns regarding the effectiveness of the exhaust emissions controls during periods of short-term operation (such as testing operational readiness of an emergency engine).

The proposed engine is rated at 809 bhp. Therefore, the applicable control technology option is EPA Tier 2 certification.

b. Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

c. Step 3 - Rank remaining options by control effectiveness

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

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for NOx and VOC will be the use of an EPA Tier 2 certified engine. The applicant is proposing such a unit. Therefore, BACT will be satisfied.

2. BACT Analysis for PM₁₀ Emissions:

a. Step 1 - Identify all control technologies

BACT Guideline 3.1.1 identifies only the following option:

- *0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)*

The latest EPA Tier Certification level for an engine of the proposed model year and horsepower rating is Tier 2/3/4i. Refer to the Top-Down BACT analysis for NOx for a discussion regarding the determination of the EPA Tier level to be considered.

Please note Tier 2, 3, or 4i IC engines do not have a PM emission standard that is more stringent than 0.15 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr for all new emergency diesel IC engines.

Therefore, a PM/PM₁₀ emission standard of 0.15 g/hp-hr is required as BACT.

b. Step 2 - Eliminate technologically infeasible options

The control option listed in Step 1 is not technologically infeasible.

c. Step 3 - Rank remaining options by control effectiveness

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

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for PM10 is emissions of 0.15 g/hp-hr or less. The applicant is proposing an engine that meets this requirement. Therefore, BACT will be satisfied.

Appendix C

Emissions Data Sheet



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

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

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control system 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	6VPXL16.1ACB	16.12	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Electronic Control Module			Generator Set	

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
kW > 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	N/A	N/A	N/A
		CERT	-	-	5.4	0.7	0.10	-	-	-

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 29th day of December 2005.

Raphael Susnowitz
for Allen Lyons, Chief
Mobile Source Operations Division

Appendix D
HRA Summary and AAQA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Rupi Gill – Permit Services
 From: Will Worthley – Technical Services
 Date: February 12, 2018
 Facility Name: Pete Postma Dairy
 Location: 1439 Albers Road, Modesto
 Application #(s): N-7603-9-0
 Project #: N-1180059

A. RMR SUMMARY

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 9-0 (809 BHP DICE)	NA ¹	NA ²	0.00	4.90E-07	No	Yes
Project Totals	NA ¹	NA ²	0.00	4.90E-07		
Facility Totals	>1	0.09	0.04	1.18E-06		

¹Prioritization 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.

²Acute Hazard Index was not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 9-0

1. The PM10 emissions rate shall not exceed .07 g/bhp-hr based on US EPA certification using ISO 8178 test procedure.
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.
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 100 hours per calendar year.

B. RMR REPORT

I. Project Description

Technical Services received a request on February 09, 2004, to perform a Risk Management Review for a proposed installation of an 809 BHP diesel-fired emergency IC engine powering an electrical generator.

II. Analysis

Toxic emissions for this proposed unit were calculated and provided by the processing engineer for diesel particulate matter and input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). 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. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2010-2014 from Modesto to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 9-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	2.44	Closest Receptor (m)	630
Stack Diameter. (m)	0.15	Type of Receptor	Residential
Stack Exit Velocity (m/s)	100.88	Max Hours per Year	100
Stack Exit Temp. (°K)	751	Diesel PM10 (lb/yr)	12

Criteria Pollutant Modeling Results*

Technical Services performed modeling for criteria pollutants CO, NO_x, SO_x, and PM10 with the emission rates below:

Unit #	NO _x (Lbs.)		SO _x (Lbs.)		CO (Lbs.)		PM ₁₀ (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
9-0	N/A	672	N/A	1	N/A	N/A	N/A	12

The results from the Criteria Pollutant Modeling are as follows:

	Background Site	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Modesto (2016)	NA ¹	X	NA ¹	X	X
NO _x	Turlock (2016)	NA ¹	X	X	X	Pass
SO _x	Fresno – Garland (2016)	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	Modesto (2016)	X	X	X	NA ¹	Pass ²
PM _{2.5}	Modesto (2016)	X	X	X	NA ¹	Pass ³

*Results were taken from the attached PSD spreadsheet.

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

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

³The court has vacated EPA's PM_{2.5} SILs. Until such time as new SIL values are approved, the District will use the corresponding PM₁₀ SILs for both PM₁₀ and PM_{2.5} analyses.

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project 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).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements 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.

IV. Attachments

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

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

This calculation is required for application emission profile purposes. It is assumed that each unit's annual emissions are evenly distributed throughout the year as follows: $\Delta PE \text{ (lb/qtr)} = PE \text{ (lb/yr)} \div 4 \text{ qtr/yr}$

N-672-1-0:

- $\Delta PE_{NOx} = 672 \text{ lb-NOx/year} - 0 \text{ lb-NOx/year} = 672 \text{ lb/year}$
- $\Delta PE_{CO} = 93 \text{ lb-CO/year} - 0 \text{ lb-CO/year} = 93 \text{ lb/year}$
- $\Delta PE_{VOC} = 45 \text{ lb-VOC/year} - 0 \text{ lb-VOC/year} = 45 \text{ lb/year}$
- $\Delta PE_{PM10} = 12 \text{ lb-PM10/year} - 0 \text{ lb-PM10/year} = 12 \text{ lb/year}$
- $\Delta PE_{SOx} = 1 \text{ lb-SOx/year} - 0 \text{ lb-SOx/year} = 1 \text{ lb/year}$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NOx	168	168	168	168
CO	23	23	23	24
VOC	11	11	11	12
PM₁₀	3	3	3	3
SOx	0	0	0	1