

JAN 07 2020

Mark Ahlem  
Charles Ahlem Dairy  
23546 West American Avenue  
Hilmar, CA 95324

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: N-5660**  
**Project Number: N-1193363**

Dear Mr. Ahlem:

Enclosed for your review and comment is the District's analysis of Charles Ahlem Dairy's application for an Authority to Construct for the installation of a 896 bhp diesel-fired emergency engine powering an electrical generator located at 23546 West American Avenue, Hilmar, CA.

The notice of preliminary decision for this project has been posted on the District's website ([www.valleyair.org](http://www.valleyair.org)). 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. Fred Cruz of Permit Services at (209) 557-6456.

Sincerely,



Arnaud Marjollet  
Director of Permit Services

AM:fjc

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

**Samir Sheikh**  
Executive Director/Air Pollution Control Officer

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**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

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

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

Facility Name:	Charles Ahlem Ranch	Date:	January 6, 2020
Mailing Address:	23546 West American Avenue Hilmar, CA 95324	Engineer:	Fred Cruz
Contact Person:	Mark Ahlem	Lead Engineer:	James Harader
Telephone:	(209) 668-0867		
Email:	<a href="mailto:mahlem@hilmarcheese.com">mahlem@hilmarcheese.com</a>		
Application No:	N-5660-8-0		
Project No:	N-1193363		
Complete:	October 14, 2019		

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**I. Proposal:**

The Charles Ahlem Ranch submitted an Authority to Construct application to install a 896 bhp diesel-fired emergency engine powering a 600 kW electrical generator.

**II. Applicable Rules:**

Rule 2201 New and Modified Stationary Source Review Rule (8/15/2019)  
Rule 2410 Prevention of Significant Deterioration (6/16/2011)  
Rule 2520 Federally Mandated Operating Permits (8/15/2019)  
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 (11/14/2013)  
Rule 4801 Sulfur Compounds (12/17/1992)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice  
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary  
Compression-Ignition (CI) Engines  
California Environmental Quality Act (CEQA)  
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:  
CEQA Guidelines

### III. Project Location:

The facility is located at 23546 West American Avenue, Hilmar, CA. The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

### IV. Process Description:

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

### V. Equipment Listing:

N-5660-8-0: 896 BHP MTU MODEL 12V1600GS80S DIESEL-FIRED (TIER 2 CERTIFIED) EMERGENCY 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 meets the latest Tier Certification requirements for emergency standby engines; therefore, the engine meets the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix B for a copy of the emissions data sheet and/or the ARB/EPA executive order).

The use of CARB certified diesel fuel (0.0015% by weight sulfur maximum) reduces SO<sub>x</sub> emissions by over 99% from standard diesel fuel.

### VII. General Calculations:

#### A. Assumptions

Operating schedule:	24 hours/day, 100 hours/year
Density of diesel fuel:	7.1 lb/gal
EPA F-factor:	9051 dscf/MMBtu (corrected to 60° F)
PM <sub>10</sub> 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:	40.0 gal/hr @ 100% load (engine data sheet)

#### B. Emission Factors

The engine manufacturer supplied the emission factors for NO<sub>x</sub>, CO, VOC and PM<sub>10</sub> emissions.

Pollutant	Emission Factor (g/bhp-hr)	Source
NOx	4.37	Engine manufacturer
CO	0.90	Engine manufacturer
VOC	0.21	Engine manufacturer
PM10	0.14	Engine manufacturer
SOx	0.005	Mass Balance Equation Below*

The emission factor for SO<sub>x</sub> may be calculated based on the current CARB standard for diesel sulfur content, which is 15 ppm by weight.

$$\frac{0.000015 \text{ lb-S}}{\text{lb-fuel}} \times \frac{7.1 \text{ lb-fuel}}{\text{gallon}} \times \frac{2 \text{ lb-SO}_2}{1 \text{ lb-S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp-hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.005 \frac{\text{g-SO}_x}{\text{bhp-hr}}$$

### C. Calculations:

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

This is a new emissions unit and PE1 will equal zero for all pollutants.

#### 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<sub>x</sub> emissions is representative of emission calculations for all pollutants. Annual emissions are based on 50 hours per year for non-emergency operation.

NO<sub>x</sub>: 4.38 g/hp-hr × 896 hp × lb/453.6 g  
 NO<sub>x</sub>: 8.65 lb/hr, 207.6 lb/day, 433 lb/yr  
 CO: 1.78 lb/hr, 42.7 lb/day, 89 lb/yr  
 VOC: 0.43 lb/hr, 10.4 lb/day, 22 lb/yr  
 PM<sub>10</sub>: 0.26 lb/hr, 6.2 lb/day, 13 lb/yr  
 SO<sub>x</sub>: 0.01 lb/hr, 0.2 lb/day, 0.49 lb/yr<sup>1</sup>

	NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>	SO <sub>x</sub>
Daily PE	207.6	42.7	10.4	6.2	0.2
Annual PE	433	89	22	13	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

<sup>1</sup> Per District Policy APR 1105, Use of Significant Figures, annual emissions less than 0.5 lb are set to zero.

Emissions Reductions that have occurred at the source, and which have not been used on-site. This is an existing facility and SSPE1 emission calculations are from project N-1191317, unless otherwise noted.

<b>SSPE1 (lb/year)</b>							
<b>Permit Unit</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>	<b>NH<sub>3</sub></b>	<b>H<sub>2</sub>S</b>
N-5660-1 -2	0	0	0	0	1,200	410	0
N-5660-2-2	0	0	16,153	0	36,059	72,902	0
N-5660-3-4	0	0	0	0	8,838	26,166	408
N-5660-4-2	0	0	0	0	1,710	9,773	0
N-5660-5-0	0	0	0	0	94	0	0
N-5660-6-1	0	0	0	0	45,047	0	0
N-5660-7-0	783	74	39	238	89	0	0
<b>SSPE1</b>	<b>783</b>	<b>74</b>	<b>16,192</b>	<b>238</b>	<b>93,037</b>	<b>109,251</b>	<b>408</b>

**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.

<b>SSPE2 (lb/year)</b>							
<b>Permit Unit</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>	<b>NH<sub>3</sub></b>	<b>H<sub>2</sub>S</b>
N-5660-1 -2	0	0	0	0	1,200	410	0
N-5660-2-2	0	0	16,153	0	36,059	72,902	0
N-5660-3-4	0	0	0	0	8,838	26,166	408
N-5660-4-2	0	0	0	0	1,710	9,773	0
N-5660-5-0	0	0	0	0	94	0	0
N-5660-6-1	0	0	0	0	45,047	0	0
N-5660-7-0	783	74	39	238	89	0	0
<b>N-5660-8-0 (ATC)</b>	<b>433</b>	<b>0</b>	<b>13</b>	<b>89</b>	<b>22</b>	<b>0</b>	<b>0</b>
<b>SSPE2</b>	<b>1,216</b>	<b>74</b>	<b>16,205</b>	<b>327</b>	<b>93,059</b>	<b>109,251</b>	<b>408</b>

**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 emissions at a dairy, besides the covered lagoon, are not actually collected, a determination of whether emissions could be reasonably collected is 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, as discussed in more detail below.

**Cow Housing:** Although there are smaller dairy farms that have partially enclosed freestall barns, these barns are not fully enclosed and none of the barns have been found to vent the exhaust through a collection device. The airflow requirements through dairy barns are extremely high, primarily for herd health purposes. The airflow requirements will be even higher in the San Joaquin valley, where temperatures reach in excess of 110 degrees in the hot summer. Collection and control of the exhaust including the large amounts of airflow have not yet been achieved by any facility. Due to this difficulty, the District cannot reasonably demonstrate that emissions can pass through a stack, chimney, vent, or other functionally equivalent opening.

It must also be noted that EPA has determined that emissions from open-air cattle feedlots are fugitive in nature.<sup>2</sup> In the District's judgment, this determination for emissions from open feedlots necessitates a similar determination for the open-sided freestalls (usually with open access to corrals or pens and free movement of cattle in and out of the covered area) typical of the San Joaquin Valley since the typical open freestall barn in the San Joaquin Valley bears a far greater resemblance to an extensive shade structure located in a large open lot than an actual enclosed building. Therefore, emissions from open freestall barns are most appropriately treated as fugitive.

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<sup>2</sup> Letter from William Wehrum, EPA Acting Administrator, to Terry Stokes, CEO – National Cattlemen's Beef Association (November 2, 2006) (<http://www.epa.gov/Region7/programs/artd/air/nsr/nsrmemos/cowdust.pdf>)

**Manure Storage Areas:** Many dairies have been found to cover dry manure piles. Covering dry manure piles is also a mitigation measure included in District Rule 4570. However, the District was not able to find any facility, which currently captures the emissions from the storage or handling of manure piles. Although some of these piles are covered, the emissions cannot reasonably be captured. Therefore, the District cannot reasonably demonstrate that these emissions can pass through a stack, chimney, vent, or other functionally equivalent opening. In addition, emissions from manure piles have been shown to be insignificant in recent studies.

**Land Application:** Emissions generated from the application of manure on land cannot reasonably be captured due to the extremely large areas, in some cases thousands of acres, of cropland at dairies. Therefore, the District cannot reasonably demonstrate that these emissions can pass through a stack, chimney, vent, or other functionally equivalent opening.

**Feed Handling and Storage:** The majority of dairies store the silage piles underneath a tarp or in an Ag-bag. The entire pile is covered except for the face of the pile. The face of the pile is kept open due to the continual need to extract the silage for feed purposes. The silage pile is disturbed 2-3 times per day. Because of the ongoing disturbance to these piles, it makes it extremely difficult to design a system to capture the emissions from these piles. In fact, as far as the District is aware, no system has been designed to successfully extract the gases from the face of the pile to capture them, and, as important, no study has assessed the potential impacts on silage quality of a continuous air flow across the silage pile, as would be required by such a collection system. Therefore, the District cannot demonstrate that these emissions can be reasonably expected to pass through a stack, chimney, vent, or other functionally equivalent opening.

As discussed above, the VOC emissions from the cow housing, manure storage areas, land application of manure and feed handling and storage are considered fugitive. The District has determined that control technology to capture emissions from lagoons (biogas collection systems, for instance) is in use. Therefore, these emissions can be reasonably collected and are not fugitive. Therefore, only emissions from the non-fugitive sources and existing IC engine and gasoline dispensing operation (from project N-1191317) will be used to determine if this facility is a major source.

The facility's non-fugitive stationary source potential emissions are summarized in the following table:

<b>Non-Fugitive SSPE1 (lb/year)</b>					
	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>CO</b>	<b>VOC</b>
N-5660-3 Lagoons only	0	0	0	0	4,254
N-5660-5 Gasoline Tank	0	0	0	0	94
N-5660-7 IC Engine	783	74	39	238	89
<b>Non-Fugitive SSPE1</b>	<b>783</b>	<b>74</b>	<b>39</b>	<b>238</b>	<b>4,437</b>

Since this project does not result in any change in emissions, the non-Fugitive SSPE2 will equal non-fugitive SSPE1.

The major source determination is as summarized in the following table:

<b>Rule 2201 Major Source Determination (lb/year)</b>						
	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>CO</b>	<b>VOC</b>
SSPE1	783	74	39	39	238	4,437
SSPE2	1,216	74	52	52	327	4,459
Major Source Threshold	20,000	140,000	140,000	140,000	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 does not become a Major Source as a result of this project.

**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)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

Note that fugitive emissions are not included in this determination, as dairies are not one of the source categories listed in 40 CFR 52.21 (b)(1)(iii).

<b>PSD Major Source Determination (tons/year)</b>						
	<b>NO<sub>2</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>CO</b>	<b>PM</b>	<b>PM<sub>10</sub></b>
Estimated Facility PE before Project Increase	0.39	2.21	0.037	0.12	0.02	0.02
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source? (Y/N)	N	N	N	N	N	N

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 on a pollutant-by-pollutant basis to determine the amount of offsets required, where necessary. However, agricultural operations that are not major sources are exempt from offsets pursuant to Section 4.6.9 of District Rule 2201. Therefore, BE calculations are not required for the dairy permits.



**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. 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 B.

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

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

- NO<sub>2</sub> (as a primary pollutant)
- SO<sub>2</sub> (as a primary pollutant)
- CO
- PM
- PM<sub>10</sub>
- Greenhouse gases (GHG): CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs, PFCs, and SF<sub>6</sub>

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 further analysis will be needed.

<b>PSD Major Source Determination: Potential to Emit (tons/yr)</b>						
	NO <sub>2</sub>	VOC	SO <sub>2</sub>	CO	PM	PM <sub>10</sub>
Total PE from New and Modified Units	0.22	.01	0	0.04	0.007	0.007
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

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 2.0 pounds per day,
- b) The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding 2.0 pounds per day,
- c) Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding 2.0 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 > 2.0 lb/day**

This engine is a new emissions unit and the daily emissions are compared to the BACT thresholds in the following table:

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -8-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	207.2	> 2.0	N/A	Yes
SO <sub>x</sub>	0.2	> 2.0	N/A	No
PM <sub>10</sub>	6.6	> 2.0	N/A	Yes
CO	42.7	> 2.0 and SSPE2 ≥ 200,000 lb/yr	327	No
VOC	6.6	> 2.0	N/A	Yes

BACT is triggered for NO<sub>x</sub> PM<sub>10</sub> and VOC emissions for this engine.

**b. Relocation of emissions units – PE > 2.0 lb/day**

This engine is not being relocated from one stationary source to another stationary source as a result of this project.

**c. Modification of emissions units – Adjusted Increase in Permitted Emissions (AIPE) > 2.0 lb/day**

This engine is not being modified. Therefore, BACT is not triggered for the modification of emissions units with an AIPE > 2.0 lb/day.

**d. Major Modification**

This project does constitute a Federal Major Modification. Therefore, BACT is triggered for a Federal Major Modification.

**2. BACT Guideline:**

BACT Guideline 3.1.1, which appears in Appendix D 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 D, BACT is satisfied with:

NO<sub>x</sub>, VOC: Tier 2 emergency IC engine  
PM<sub>10</sub>: 0.15 g/bhp-hr

**B. Offsets:**

Since emergency standby IC engines are exempt from the offset requirements of Rule 2201, per Section 4.6.2, offsets are not required for this engine and offset calculations are not required.

**C. Public Notification:**

**1. Applicability:**

Public noticing is required for:

- a. New Major Sources, which is a new facility that also becomes 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,
- f. Title V Significant Modification.

**a. New Major Source**

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

**b. Major Modification**

As demonstrated previously in Sections VII.C.7 and VII.C.8, this project does constitute a SB Major Modification or Federal Major Modification. Therefore, public noticing for Major Modification purposes is required.

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

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

PE > 100 lb/day Public Notice Thresholds			
Pollutant	Daily PE for unit -1-0 (lb/day)	Public Notice Threshold (lb/day)	Public Notice Triggered?
NO <sub>x</sub>	207.2	100	Yes
SO <sub>x</sub>	0.2	100	No
PM <sub>10</sub>	6.6	100	No
CO	42.7	100	No
VOC	6.6	100	No

**d. Offset Threshold**

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

Offset Threshold				
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Offset Threshold (lb/yr)	Public Notice Required?
NO <sub>x</sub>	783	1,216	20,000	No
SO <sub>x</sub>	74	74	54,750	No
PM <sub>10</sub>	16,192	16,205	29,200	No
CO	238	327	200,000	No
VOC	93,037	93,059	20,000	No

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

**e. SSIPE > 20,000 lb/year**

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

<b>SSIPE Public Notice Threshold</b>					
<b>Pollutant</b>	<b>SSPE2 (lb/yr)</b>	<b>SSPE1 (lb/yr)</b>	<b>SSIPE (lb/yr)</b>	<b>SSIPE Threshold (lb/yr)</b>	<b>Public Notice Required?</b>
NO <sub>x</sub>	1,216	783	433	20,000	No
SO <sub>x</sub>	74	74	0	20,000	No
PM <sub>10</sub>	16,205	16,192	13	20,000	No
CO	327	238	89	20,000	No
VOC	93,059	93,037	22	20,000	No

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

**f. Title V Significant 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, this project will result in emissions from NO<sub>x</sub> exceeding the 100 pounds per day threshold. Therefore, public notice will 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 this emergency standby IC engine, the DELs are stated in the form of emission factors, the maximum engine horsepower rating, and the maximum operational time of 24 hours per day. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- Emissions from this IC engine shall not exceed any of the following limits: 4.37 g-NO<sub>x</sub>/bhp-hr, 0.90 g-CO/bhp-hr, or 0.21 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.14 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]

- 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**

Per District Practice, source testing is not required for emergency standby 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 4702, *Stationary Internal Combustion Engines - Phase 2*, this IC engine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

##### **4. Reporting**

Reporting is not required to ensure compliance with Rule 2201.

#### **F. Ambient Air Quality Analysis (AAQA)**

Section 4.14 of District Rule 2201 requires that an AAQA be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix E for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for the state's PM<sub>10</sub> as well as federal and state PM<sub>2.5</sub> thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM<sub>10</sub> and PM<sub>2.5</sub>.

#### **Rule 2520 Federally Mandated Operating Permits**

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

### **Rule 4001 New Source Performance Standards (NSPS)**

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

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. 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)**

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). Therefore, no requirements shall be included on the permit.

### **Rule 4101 Visible Emissions**

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

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

### **Rule 4102 Nuisance**

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

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

### **California Health & Safety Code 41700 (Health Risk Assessment)**

District Policy APR 1905 - Risk Management Policy for Permitting New and Modified Sources (dated 3/2/01) specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the



possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required.

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for the proposed unit were calculated and provided by the processing engineer.

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table below). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for the Modesto area from 2013-2017 (rural dispersion coefficient selected) to determine the dispersion factors 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.

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
8	32.34	N/A <sup>1</sup>	0.00	1.59E-05	Yes	Yes
<b>Project Totals</b>	32.34	N/A <sup>1</sup>	0.00	1.59E-05		
<b>Facility Totals</b>	>1	0.00	0.00	1.59E-05		

Notes:

1. Acute Hazard Index was not calculated for Unit 8 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.

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. However, the cancer risk for one or more units in this project is greater than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved with Toxic Best Available Control Technology (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 required for this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project T-BACT is triggered for PM<sub>10</sub>. T-BACT is satisfied with BACT for PM<sub>10</sub> (see Appendix D), which is the use of an engine with PM<sub>10</sub> emissions of 0.15 g/bhp-hr, or less. Therefore, compliance with the District's Risk Management Policy is expected.

The following conditions will be listed on the ATC to ensure compliance with the health risk assessment (RMR):

Unit N-5660-8-0:

1. The PM<sub>10</sub> emissions rate shall not exceed 0.14 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 50 hours per calendar year.

**Rule 4201 Particulate Matter Concentration**

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

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

This new engine has a PM<sub>10</sub> 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**

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 engine will comply with the requirements of District Rule 4702.

<b>District Rule 4702 Requirements Emergency Standby IC Engines</b>	<b>Proposed Method of Compliance with District Rule 4702 Requirements</b>
Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified by the use of a non-resettable elapsed operating time meter.	The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits these engines for maintenance and testing purposes to 50 hours/year. Thus, compliance is expected.
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.	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {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 Rules 4701 and 4702]</li> <li>• {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 Rules 4701 and 4702]</li> </ul>
The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {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;</li> </ul>

	<p>replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rules 4701 and 4702]</p>
<p>Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained. 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.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {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]</li> <li>• The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]</li> <li>• {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]</li> </ul>

### Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO<sub>2</sub>) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

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

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

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

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

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

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:

- 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 engine will comply with the requirements of Title 17 CCR Section 93115.

<b>Title 17 CCR Section 93115 Requirements for New Emergency IC Engines Powering Electrical Generators</b>	<b>Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements</b>
Emergency engines 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.
Engines must emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr or must meet the diesel PM standard, as specified in the off-road compression ignition standards for off-road engines with the same maximum rated power (17 CCR 93115)	The applicant has proposed the use of an engine that is certified to the applicable EPA Tier Certification level for the applicable horsepower range, guaranteeing compliance with the emission standards of Subpart IIII. Additionally, the proposed diesel PM emissions rate is less than or equal to 0.15 g/bhp-hr.
The engine may not be operated more than 50 hours per year for maintenance and testing purposes.	The following condition will be included on the permit: <ul style="list-style-type: none"> <li>• This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 &amp; 17 CCR 93115]</li> </ul>
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' of a school. See site map of proposed location of this emergency engine.
An owner or operator shall maintain monthly records of the following: emergency use hours of	Permit conditions enforcing these requirements were shown earlier in the evaluation.

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.	
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**California Environmental Quality Act (CEQA)**

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

The basic purposes of CEQA are to:

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

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

**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. Recommendations:**

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct N-5660-8-0 subject to the permit conditions on the attached Authority to Construct in Appendix A.

**X. Billing Information:**

<b>Billing Schedule</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Fee Amount</b>
N-5660-8-0	3020-10-E	896 bhp IC engine	\$723

**Appendices:**

- A. Authority to Construct permit N-5660-8-0
- B. QNEC Calculations
- C. BACT Guideline and Top-Down Analysis
- D. RMR Summary

# Appendix A

Authority to Construct permit  
N-5660-8-0



San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-5660-8-0

LEGAL OWNER OR OPERATOR: CHARLES AHLEM RANCH  
MAILING ADDRESS: 23546 W AMERICAN AVE  
HILMAR, CA 95324

LOCATION: 23546 W AMERICAN AVE  
HILMAR, CA 95324

EQUIPMENT DESCRIPTION:  
896 BHP MTU MODEL 12V1600GS80S DIESEL-FIRED (TIER 2 CERTIFIED) EMERGENCY 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.

Samir Sheikh, Executive Director / APDO

**DRAFT**

Arnaud Marjolle, Director of Permit Services  
11-5650-9-0 - Jan 9 2025 3:41PM - CRUZP - Jobit 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. Emissions from this IC engine shall not exceed any of the following limits: 4.37 g-NO<sub>x</sub>/bhp-hr, 0.90 g-CO/bhp-hr, or 0.21 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
9. Emissions from this IC engine shall not exceed 0.14 g-PM<sub>10</sub>/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
10. {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]
11. {4781} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rule 4801 and 17 CCR 93115]
12. {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]
13. {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]
14. {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]
15. {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]
16. {4920} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, 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. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
19. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

# Appendix B

## 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<sub>quarterly</sub> and BE<sub>quarterly</sub> 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-5660-8-0

- $\Delta PE_{NOx} = 432 \text{ lb-NOx/year} - 0 \text{ lb-NOx/year} = 432 \text{ lb/year}$
- $\Delta PE_{CO} = 89 \text{ lb-CO/year} - 0 \text{ lb-CO/year} = 89 \text{ lb/year}$
- $\Delta PE_{VOC} = 14 \text{ lb-VOC/year} - 0 \text{ lb-VOC/year} = 14 \text{ lb/year}$
- $\Delta PE_{PM10} = 14 \text{ lb-PM10/year} - 0 \text{ lb-PM10/year} = 14 \text{ lb/year}$
- $\Delta PE_{SOx} = 0 \text{ lb-SOx/year} - 0 \text{ lb-SOx/year} = 0 \text{ lb/year}$

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
<b>NOx</b>	108	108	108	108
<b>CO</b>	22	22	22	23
<b>VOC</b>	3	3	4	4
<b>PM<sub>10</sub></b>	3	3	4	4
<b>SOx</b>	0	0	0	0

# **Appendix C**

## **BACT Guideline and BACT Analysis**

# San Joaquin Valley Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1  
Last Update: 6/13/2019  
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		
PM <sub>10</sub>	0.15 g/hp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	Latest EPA Tier Certification level for applicable horsepower range		

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

## **Top Down BACT Analysis for NOx and VOC emissions:**

This application was deemed complete on October 14, 2019. Therefore, BACT Guideline 3.1.1 (June 13, 2019) was in effect at the time the project was deemed complete and will be used for this emergency diesel IC engine. In accordance with the District BACT policy, information from that guideline will be utilized without further analysis.

### **1. BACT analysis for NOx 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 steps were taken:

- Conduct a survey of all the emergency IC engines permitted in the District to determine the latest EPA Tier certification level that has been permitted for the proposed engine size,
- Conduct a survey of the major IC engine manufacturers/genset vendors to determine the latest EPA Tier certification level that is readily available for the proposed engine size and use,
- Review Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines to determine the latest Tier certification level required in California for the proposed engine size.

#### **Survey of Permitted Units:**

The proposed emergency IC engine is rated at 896 bhp. Based on the latest survey of all permitted emergency IC engines powering electrical generators in the horsepower range applicable to the proposed unit, the District found that a Tier 2 certification level is the highest certification level that has been permitted for an IC engine of the size associated with the proposed project.

#### **Survey of IC Engine Manufacturers/Genset Vendors:**

Based on the latest survey of the major IC engine/genset manufacturers and vendors (Cummins, Caterpillar, Kohler, MQ Power, etc.) to determine the availability of Tier 4F certified units in the size range associated with the proposed project that are suitable for stationary emergency standby applications, the District concluded that no Tier 4F certified unit is suitable and available for stationary emergency standby use in the size range appropriate for the proposed project.

#### **Stationary ATCM:**

Table 1 of the CARB Stationary Air Toxic Control Measure (ATCM) for stationary emergency standby diesel-fired IC engines requires a Tier 2 certification level for IC

engines rated greater than 750 bhp. The ATCM does not require a Tier certification level higher than Tier 2 for engines rated greater than 750 bhp.

**Summary:**

The proposed emergency IC engine is rated at 896 bhp. The District has not permitted any emergency diesel-fired IC engines rated greater than 750 bhp with a tier certification level higher than Tier 2. Moreover, according to the engine manufacturers and genset vendors contacted, a Tier 2 certification level is the latest available for an 896 bhp emergency standby diesel-fired IC engine powering a generator.

Based on the above analysis, the District finds that a Tier 4F emergency IC engine/generator with a rating of approximately 896 bhp is not readily available.

Consequently, the District considers a Tier 2 certification level to be the latest available Tier certification level for the proposed engine size. Furthermore, a Tier 2 certification level satisfies the stationary ATCM requirement for emergency standby IC engines rated greater than 750 bhp.

**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**

Ranking is not necessary since 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 NO<sub>x</sub> 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.

## **BACT Analysis for PM<sub>10</sub> 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. Refer to the Top-Down BACT analysis for NO<sub>x</sub> for a discussion regarding the determination of the EPA Tier level to be considered.

Please note the proposed Tier 2 IC engine has a PM emission factor of 0.14 g/hp-hr. Additionally, the ATCM requires a PM emission standard of 0.15 g/hp-hr, or less, for all new emergency standby diesel IC engines.

Therefore, the proposed PM/PM<sub>10</sub> emission factor of 0.14 g/hp-hr meets BACT requirements, and also satisfies the stationary ATCM requirement for new emergency standby diesel IC engines.

### **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**

Ranking is not necessary since 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 PM<sub>10</sub> is the use of an engine with PM<sub>10</sub> emissions of 0.15 g/hp-hr, or less. The applicant is proposing an engine that meets this requirement. Therefore, BACT is satisfied.



# **Appendix D**

## **RMR Summary**

# San Joaquin Valley Air Pollution Control District Risk Management Review and Ambient Air Quality Analysis

To: Fred Cruz – Permit Services  
 From: Diana Walker – Technical Services  
 Date: November 13, 2019  
 Facility Name: Charles Ahlem Ranch  
 Location: 23546 West American Avenue, Hilmar, CA  
 Application No: N-5660-8-0  
 Project No: N-1193363

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## 1. Summary:

### 1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
8	32.34	N/A <sup>1</sup>	0.00	1.59E-05	Yes	Yes
<b>Project Totals</b>	32.34	N/A <sup>1</sup>	0.00	1.59E-05		
<b>Facility Totals</b>	>1	0.00	0.00	1.59E-05		

Notes:

- Acute Hazard Index was not calculated for Unit 8 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.

### 1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	N/A <sup>1</sup>		N/A <sup>1</sup>		
NO <sub>x</sub>	N/A <sup>1</sup>				Pass
SO <sub>x</sub>	N/A <sup>1</sup>	N/A <sup>1</sup>		N/A <sup>1</sup>	Pass
PM <sub>10</sub>				N/A <sup>1</sup>	Pass <sup>4</sup>
PM <sub>2.5</sub>				N/A <sup>1</sup>	Pass <sup>5</sup>
Ozone	N/A <sup>1</sup>		N/A <sup>1</sup>		

Notes:

- Results were taken from the attached AAQA Report.
- The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.
- <sup>2</sup>The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted.
- Modeled PM<sub>10</sub> concentrations were below the District SIL for non-fugitive sources of 1 µg/m<sup>3</sup> for the annual concentration.
- Modeled PM<sub>2.5</sub> concentrations were below the District SIL for non-fugitive sources of 0.2 µg/m<sup>3</sup> for the annual concentration.

### 1.3 Proposed Permit Requirements

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

#### Unit # 8-0

1. The PM<sub>10</sub> emissions rate shall not exceed 0.14 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 50 hours per calendar year.

**T-BACT is required for this unit because of emissions of Diesel Particulate Matter which is a PM10.**

### 2. Project Description:

Technical Services received a request on November 5, 2019 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -8-0: 896 BHP MTU MODEL 12V1600GS80S DIESEL-FIRED (TIER 2 CERTIFIED) EMERGENCY ENGINE POWERING AN ELECTRICAL GENERATOR

### 3. RMR Report:

#### 3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for the proposed unit were calculated and provided by the processing engineer.

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. 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 2013-2017 from Modesto (rural dispersion coefficient selected) 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:

Source Process Rates					
Unit Id	Process Id	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
8	1	Diesel PM <sub>10</sub>	lb	0.28	14.00

Point Source Parameters						
Unit Id	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
8	896 BHP DICE	3.35	698	21.23	0.13	Vertical

#### 4. AAQA Report:

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO<sub>2</sub> standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

Monitoring Stations				
Pollutant	Station Name	County	City	Measurement Year
CO	Turlock	Stanislaus	Hilmar	2015
NOx	Turlock	Stanislaus	Hilmar	2016
PM10	Turlock	Stanislaus	Hilmar	2016
PM2.5	Turlock	Stanislaus	Hilmar	2016
SOx	Fresno - Garland	Fresno	Fresno	2016

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)						
Unit Id	Process	NOx	SOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
8	1	8.63	0.01	1.78	0.28	0.28

Emission Rates (lbs/year)						
Unit Id	Process	NOx	SOx	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
8	1	432	0.00	89.00	14.00	14.00

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for 2013-2017 from Modesto (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit Id	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
8	896 BHP DICE	3.35	698	21.23	0.13	Vertical

## 5. Conclusion:

### 5.1 RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. However, the cancer risk for one or more units in this project is greater than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved with 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.

## **5.2 AAQA**

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

### **Attachments**

- A. Modeling request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. Facility Summary
- E. AAQA results