



MAR 08 2018

Terri Boschma  
Boschma & Sons  
9032 Etchart Rd.  
Bakersfield, CA 93314

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: S-6078**  
**Project Number: S-1180347**

Dear Ms. Boschma:

Enclosed for your review and comment is the District's analysis of Boschma & Sons's application for an Authority to Construct for a diesel-fired emergency standby internal combustion engine powering an electrical generator, at 24794 Sherwood Ave. in Kern County.

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. David Torii of Permit Services at (661) 392-5620.

Sincerely,



Arnaud Marjollet  
Director of Permit Services

AM:dbt

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**

**Agricultural Diesel-Fired Emergency Standby IC Engine**

Facility Name:	Boschma & Sons	Date:	3/5/18
Mailing Address:	9032 Etchart Rd. Bakersfield, CA 93314	Engineer/ Specialist:	David Torii
Contact Person:	Terri Boschma	Lead Engineer:	Steve Davidson
Telephone:	909-917-1687		 3-6-18
Application #:	S-6078-12-0		
Project #:	1180347		
Deemed Complete:	2/5/18		

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**I. Proposal**

Boschma & Sons is proposing to install a 904 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

**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 equipment will be located at 24794 Sherwood Ave. in Kern County.

#### 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

**S-6078-12-0:** 904 BHP (INTERMITTENT) VOLVO MODEL TWD1643GE 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(s) meet the latest Tier Certification requirements; therefore, the engine(s) meets the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix D 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<sub>x</sub> 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 <sub>10</sub> fraction of diesel exhaust:	0.96 (CARB, 1988)
g/bhp-hr = g/kW-hr + 1.341	

##### B. Emission Factors

The applicant has supplied the emissions factors for NO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC at 10% load, 25% load, 50% load, 75% load, and full standby. Therefore, the District will use the ISO 8178 weighted average of each emissions factor as the emissions factors for this engine as follows (District calculation to determine emissions).

	Percent Load	NO <sub>x</sub> Emissions Factor (g/kW-hr)	SO <sub>2</sub> Emissions Factor (g/kW-hr)	PM <sub>10</sub> Emissions Factor (g/kW-hr)	CO Emissions Factor (g/kW-hr)	VOC Emissions Factor (g/kW-hr)
	100	5.13	NA	0.048	0.727	0.064
	75	5.399	NA	0.039	0.349	0.041
	50	5.647	NA	0.047	0.202	0.095
	25	6.041	NA	0.191	0.497	0.185
Total (g/kW-hr):		22.217	NA	0.325	1.775	0.385
Average Emissions Factor (g/kW-hr)		5.55425	NA	0.08125	0.44375	0.09625
Emissions Factor (g/hp-hr)		4.14	0.0051	0.061	0.33	0.07

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

**C. Calculations**

**1. Pre-Project Potential to Emit (PE1)**

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

**2. Post-Project Potential to Emit (PE2)**

The daily and annual PE are calculated as follows:

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

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

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO <sub>x</sub>	4.14	904	24	100	198.1	825
SO <sub>x</sub>	0.0051	904	24	100	0.2	1
PM <sub>10</sub>	0.06	904	24	100	2.9	12
CO	0.33	904	24	100	15.8	66
VOC	0.07	904	24	100	3.4	14

**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 summarized in the following table.

SSPE1 (lb/yr)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-6078-1-1 through -4-1 and -10-0*	0	0	27,608	0	101,840
<b>SSPE1 Total</b>	<b>0</b>	<b>0</b>	<b>27,608</b>	<b>0</b>	<b>101,840</b>

\*See SSPE Report in Appendix B

#### 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.

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

SSPE2 (lb/yr)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	0	0	27,608	0	101,840
S-6078-12-0	825	1	12	66	14
<b>SSPE2 Total</b>	<b>825</b>	<b>1</b>	<b>27,620</b>	<b>66</b>	<b>101,854</b>

#### 5. Major Source Determination

##### Rule 2201 Major Source Determination:

Pursuant to Section 3.25 of District Rule 2201, a major source is a stationary source with post-project emissions or a post-project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.25.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Since emissions at a dairy 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, as discussed in more detail below.

**Milking Center:** The mechanical system for the milking parlors can be utilized to capture the gases emitted from the milking parlors; however in order to capture all of the gases, and to keep an appropriate negative pressure throughout the system, the holding area would also need to be entirely enclosed. No facility currently encloses the holding area since cows are continuously going in and out of the barn throughout the day. The capital required to enclose this large area would also be significant. Since the holding area is primarily kept open, the District cannot reasonably demonstrate that emissions can pass through a stack, chimney, vent, or other functionally equivalent opening.

**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>1</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.

**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

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<sup>1</sup> Letter from William Wehrum, EPA Acting Administrator, to Terry Stokes, Chief Executive Officer – National Cattlemen's Beef Association (November 2, 2006)  
(<http://www.epa.gov/Region7/programs/artd/air/nsr/nsrmemos/cowdust.pdf>)

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 milking center, cows 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, such as lagoons, storage ponds, IC engines, and gasoline tanks, will be used to determine if dairies are major sources.

The emissions are calculated as follows:

<b>Lagoon Emissions (Flushed Freestalls &amp; Flushed Corrals)</b>			
<b>Daily Potential to Emit</b>			
<b>Type of Cow</b>	<b>Number of Cows</b>	<b>lb-VOC/hd-yr</b>	<b>lbs-VOC/yr</b>
Milking Cow	3,960	x 1.17	4633
Dry Cow	880	x 0.64	563
Support Stock	112	x 0.49	55
<b>Total</b>			<b>5,251</b>

Major Source Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-6078-1-2 through -4-2 and -10-1	0	0	0	0	5,251
Stationary Source Potential to Emit	0	0	0	0	5,251
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As seen in the table above, the facility is not a Major Source.

#### **Rule 2410 Major Source Determination:**

The facility is not an existing major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

#### **6. Baseline Emissions (BE)**

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

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

#### **7. SB 288 Major Modification**

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

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. Additionally, since the facility is not a major source for PM<sub>10</sub> (140,000 lb/year), it is not a major source for PM<sub>2.5</sub> (200,000 lb/year).



## **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 F.

# **VIII. Compliance**

## **Rule 1070 Inspections**

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

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

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or

- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

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

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	198.1	> 2.0	n/a	Y
SO <sub>x</sub>	0.2	> 2.0	n/a	N
PM <sub>10</sub>	2.9	> 2.0	n/a	Y
CO	15.8	> 2.0 and SSPE2 ≥ 200,000 lb/yr	124,815	N
VOC	3.4	> 2.0	n/a	Y

As shown above, BACT will be triggered for NO<sub>x</sub>, PM<sub>10</sub> and VOC emissions from the engine for this project.

## 2. BACT Guideline

BACT Guideline 3.1.1, which appears in Appendix C 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 C of this report, BACT is satisfied with:

- NO<sub>x</sub>: Latest Available Tier Certification level for applicable horsepower\*
- VOC: Latest Available Tier Certification level for applicable horsepower\*
- PM<sub>10</sub>: 0.15 g/bhp-hr

\*Note: The certification requirements for emergency engines are as follows:  
50 ≤ bhp < 75 – Tier 4l; 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, SB288 Major Modifications, and Federal Major Modifications

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

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

As calculated in Section VII.C.2, daily emissions of NO<sub>x</sub> are greater than 100 lb/day.

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

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

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

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

e. Title V Significant Modification

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

### 2. Public Notice Action

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

## D. Daily Emissions Limits

Daily Emissions Limitations (DELs) and other enforceable conditions are required by 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. Therefore, the following conditions will be listed on the ATC to ensure compliance:

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 4.14 g-NOx/bhp-hr, 0.33 g-CO/bhp-hr, or 0.07 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.06 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 17 CCR 93115]
- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

## E. Compliance Assurance

### 1. Source Testing

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

### 2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

### 3. Recordkeeping

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

### 4. Reporting

No reporting is required to ensure compliance with Rule 2201.

## F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix E of this document 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 2410 Prevention of Significant Deterioration**

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 to emit does not exceed any major source thresholds of Rule 2201, this facility is not a Major Source, and Rule 2520 does not apply.

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

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

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

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

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

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

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
Unit 12-0 (904 bhp Diesel ICE)	NA <sup>1</sup>	NA <sup>2</sup>	NA <sup>2</sup>	2.09E-07	No	Yes
Project Totals	NA <sup>1</sup>	NA <sup>2</sup>	NA <sup>2</sup>	2.09E-07		
Facility Totals	>1	0.0	0.0	2.09E-07		

<sup>1</sup>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.

<sup>2</sup>Acute and Chronic Hazard Indices were 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.

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

- The PM10 emissions rate shall not exceed 0.06 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 PM<sub>10</sub> emission factor of 0.4 g-PM<sub>10</sub>/bhp-hr.

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

The 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**

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), 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 SO<sub>2</sub>) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

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

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

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

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

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

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:

- {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 engine 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"> <li>• {XXXX} 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]</li> </ul>
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	For emergency engines, the Off-road engine certification standards are identified in Table 1 of the

<p>certification standard for the specific power rating of the proposed engine on the date of acquisition (purchase date) or permit application submittal to the District, whichever is earliest.</p>	<p>ATCM<sup>2</sup>. 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).</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"> <li>• {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]</li> </ul>
<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)**

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.

<sup>2</sup> 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.

- 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].

**IX. Recommendation**

Pending a successful NSR Public Noticing period, issue Authority to Construct subject to the permit conditions on the attached draft 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>
S-6078-12-0	3020-10-E	904 bhp IC engine	\$659

**Appendixes**

- A. Draft ATC
- B. SSPE Report
- C. BACT Guideline and BACT Analysis
- D. Emissions Data Sheet
- E. RMR Summary and AAQA
- F. QNEC Calculations

Appendix A  
Draft ATC

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-6078-12-0

LEGAL OWNER OR OPERATOR: BOSCHMA AND SONS  
MAILING ADDRESS: 9032 ETCHART RD  
BAKERSFIELD, CA 93314

LOCATION: 24794 SHERWOOD AVE  
WASCO, CA 93280

**EQUIPMENT DESCRIPTION:**

904 BHP (INTERMITTENT) VOLVO MODEL TWD1643GE 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 (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.**

Seyed Sadredin, Executive Director, APCO

**DRAFT**

Arnaud Marjolle, Director of Permit Services

9-6078-12-0 : Mar 6 2010 12:23PM - TORID : 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: 4.14 g-NO<sub>x</sub>/bhp-hr, 0.33 g-CO/bhp-hr, or 0.07 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
12. Emissions from this IC engine shall not exceed 0.06 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]
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]

**DRAFT**

**Appendix B**  
**SSPE Report**

# Detailed SSPE Report

Region	Facility	Unit	Mod	NOx	SOx	PM10	CO	VOC	Number of Outstanding ATCs
S	6078	1	2	0	0	0	0	1584	0
S	6078	2	2	0	0	27608	0	44425	0
S	6078	3	2	0	0	0	0	10898	0
S	6078	4	2	0	0	0	0	2105	0
S	6078	10	1	0	0	0	0	42828	0
<b>SSPE (lbs)</b>				0	0	27608	0	101840	

Monday, March 5, 2018

Page 1 of 1

**Notes:**

**Blank values for a particular permit unit do not necessarily reflect zero emissions. For units with blank values, the PE must still be determined based on physical PE or as limited by permit condition.**

**For permits that show outstanding ATCs, consult PAS ATC Emission Profile records to determine what the highest PE is for each pollutant.**

**ATCs for new units (e.g. S-XXXX-X-0) must be added in separately.**

**ERC's for onsite reductions must be added in separately per Rule 2201 as well.**



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: September 10, 2013**  
**Emergency Diesel IC Engine**

<b>Pollutant</b>	<b>Achieved in Practice or in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
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 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*		

**\*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  $\geq 750$  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<sub>x</sub> 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\**

The proposed engine is rated at 904 hp. 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 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.

### **3. 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 2/3/4i.

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/PM<sub>10</sub> 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 PM<sub>10</sub> 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 D**  
**Emissions Data Sheet**

# COPY

## KOHLER. POWER SYSTEMS

### 600REOZVB 60 HZ. DIESEL INDUSTRIAL GENERATOR SET EMISSION DATA SHEET

#### ENGINE INFORMATION

Model:	Valvo. TWD1643GE	Bore:	144mm (5.67 in.)
Nameplate BPH @ 1800 RPM:	904	Stroke:	165mm (6.50 in.)
Type:	4-Cycle, 6 Cylinder, Inline	Displacement:	16.12 L (984 cu. in.)
Aspiration:	Turbocharged, Charge Air-Cooled	EPA Family:	DVPXL16.1ACW
Compression Ratio	16.5:1	EPA Certificate:	DVPXL16.1ACW-004
Emission Control Device	EM, TC, CAC		

#### PERFORMANCE DATA:

	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine kW @ Stated Load	167.00	335.00	503.00	674.00
Fuel Consumption (g/kWh)	220.00	200.00	188.00	204.00
Exhaust Gas Flow (m <sup>3</sup> /s)				2.17
Exhaust Temperature (°C)				461.00

#### EXHAUST EMISSION DATA:

HC (Total Unburned Hydrocarbons)	0.185	0.085	0.071	0.084
NOx (Oxides of Nitrogen as NO <sub>2</sub> )	6.041	5.647	5.399	5.130
CO (Carbon Monoxide)	0.497	0.202	0.349	0.727
PM (Particular Matter)	0.191	0.047	0.039	0.048

Values are in g/kWh

#### TEST METHODS AND CONDITIONS

Test Conditions- 40 CFR part 89 - 5 Mode US constant speed test cycle

Data and specifications subject to change without notice  
For further information, please contact Mark Annarumma @ 920-246-1968

Appendix E  
HRA Summary and AAQA

## San Joaquin Valley Air Pollution Control District Risk Management Review

To: David Torii, AQE – Permit Services  
 From: Stephanie Pellegrini, AQS – Technical Services  
 Date: March 1, 2018  
 Facility Name: Boschma & Sons  
 Location: 24794 Sherwood Avenue, Kern County  
 Application #(s): S-6078-12-0  
 Project #: S-1180347

### 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 12-0 (904 bhp Diesel ICE)	NA <sup>1</sup>	NA <sup>2</sup>	NA <sup>2</sup>	2.09E-07	No	Yes
<b>Project Totals</b>	NA <sup>1</sup>	NA <sup>2</sup>	NA <sup>2</sup>	2.09E-07		
<b>Facility Totals</b>	>1	0.0	0.0	2.09E-07		

<sup>1</sup>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.

<sup>2</sup>Acute and Chronic Hazard Indices were 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 # 12-0

1. The PM10 emissions rate shall not exceed 0.06 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 6, 2018, to perform an Ambient Air Quality Analysis and a Risk Management Review for a 904 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

### II. Analysis

Toxic emissions for this proposed unit were calculated using the PM10 emission rate provided by the project engineer, 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 2007-2011 from Wasco 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 12-0			
Source Type	Point	Location Type	Rural
Stack Height (m)	4.3	Closest Receptor (m)	1500
Stack Diameter (m)	0.2	Type of Receptor	Residential
Stack Exit Velocity (m/s)	66.9	Max Hours per Year	100
Stack Exit Temp. (°K)	734	Fuel Type	Diesel
Emissions Factor (g/bhp-hr)	0.06	PM10 Emission Rate (lb/yr)	12

Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub>, and PM10 with the emission rates below:

Unit #	NO <sub>x</sub> (Lbs.)		SO <sub>x</sub> (Lbs.)		CO (Lbs.)		PM <sub>10</sub> (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
12-0	N/A <sup>1</sup>	825	N/A <sup>1</sup>	1	N/A <sup>1</sup>	66	N/A <sup>1</sup>	12

<sup>1</sup>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.

The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***

	Background Site	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Bakersfield-Muni (2016)	NA <sup>1</sup>	X	NA <sup>1</sup>	X	X
NO <sub>x</sub>	Shafter (2016)	NA <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Fresno – Garland (2016)	NA <sup>1</sup>	NA <sup>1</sup>	X	NA <sup>1</sup>	Pass
PM <sub>10</sub>	Bakersfield Cal. (2016)	X	X	X	NA <sup>1</sup>	Pass <sup>2</sup>
PM <sub>2.5</sub>	Bakersfield Cal. (2016)	X	X	X	NA <sup>1</sup>	Pass <sup>3</sup>

\*Results were taken from the attached PSD spreadsheet.

<sup>1</sup>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).

<sup>3</sup>The court has vacated EPA's PM<sub>2.5</sub> SILs. Until such time as new SIL values are approved, the District will use the corresponding PM<sub>10</sub> SILs for both PM<sub>10</sub> and PM<sub>2.5</sub> 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.

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

# Appendix F

## QNEC Calculations

### Quarterly Net Emissions Change (QNEC)

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

$QNEC = PE2 - PE1$ , where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly} = PE2_{annual} \div 4 \text{ quarters/year}$

$PE1_{quarterly} = PE1_{annual} \div 4 \text{ quarters/year}$

Quarterly NEC [QNEC]					
	PE2 (lb/yr)	PE2 (lb/qtr)	PE1 (lb/yr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	825	206	0	0	206
SO <sub>x</sub>	1	0	0	0	0
PM <sub>10</sub>	12	3	0	0	3
CO	66	17	0	0	17
VOC	14	4	0	0	4