



NOV 30 2015

Joseph Dickson  
University of Cal Vet School  
18830 Road 112  
Tulare, CA 93274

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: S-495**  
**Project Number: S-1153750**

Dear Mr. Dickson:

Enclosed for your review and comment is the District's analysis of University of Cal Vet School's application for an Authority to Construct for the installation of two emergency IC engine/generators, at 18830 Road 112 in Tulare.

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. Steve Roeder of Permit Services at (661) 392-5615.

Sincerely,



Arnaud Marjollet  
Director of Permit Services

AM:SR/ya

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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**Northern Region**  
4800 Enterprise Way  
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**San Joaquin Valley Air Pollution Control District**  
**Authority to Construct (ATC) Application Review**  
Diesel-Fired Emergency Standby IC Engine

Facility Name:	University of Cal Vet School	Date:	11/4/15
Mailing Address:	18830 Road 112 Tulare, CA 93274	Engineer:	Steve Roeder
Contact Person:	Joseph Dickson	Lead Engineer:	Steve Leonard
Telephone:	(530) 219-0797		
Application #:	S-495-5-0 and 6-0		
Project #:	S-1153750		
Complete:	10/20/2015		

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**I. Proposal**

University of California Veterinary School is proposing to install one 755 bhp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator, and one 197 hp (intermittent) diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator.

This project will require a 30-day public noticing period due to potential NO<sub>x</sub> emissions that exceed 100 lb/day from the 755 bhp engine. 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 ATCs for this equipment.

**II. Applicable Rules**

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

### III. Project Location

The equipment is located at 18830 Road 112 in Tulare, 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 engines power electrical generators. Other than emergency standby operation, the engines may be operated up to 50 hours per year each for maintenance and testing purposes.

### V. Equipment Listing

**S-495-5-0:** 755 HP (INTERMITTENT) CUMMINS MODEL 450DFEJ TIER-2 CERTIFIED EMERGENCY IC ENGINE POWERING AN ELECTRICAL GENERATOR

**S-495-6-0:** 197 HP (INTERMITTENT) JOHN DEERE MODEL JU6H-UFADNO DIESEL-FIRED TIER-3 CERTIFIED INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR

### VI. Emission Control Technology Evaluation

The applicant has proposed to install one Tier-2 certified and one Tier-3 diesel-fired IC engine that are fired on very low-sulfur diesel fuel. 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.

The proposed engines meet the latest ARB/EPA Tier Certification requirements and emission standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide, for their horsepower ranges. (See Engine Data Sheet in Appendix C).

### VII. General Calculations

#### A. Assumptions

Emergency operating schedule:	24 hours/day
Non-emergency operating schedule:	50 hours/year
Density of diesel fuel:	7.1 lb/gal
EPA F-factor (adjusted to 60 °F):	9,051 dscf/MMBtu
Fuel heating value:	137,000 Btu/gal
BHP to Btu/hr conversion:	2,542.5 Btu/bhp-hr
Thermal efficiency of engine:	commonly ≈ 35%
PM <sub>10</sub> fraction of diesel exhaust:	0.96 (CARB, 1988)

**B. Emission Factors**

**S-495-5-0**

Emission Factors			
NO <sub>x</sub>	3.7	g/hp·hr	ARB/EPA Certification
SO <sub>x</sub>	0.0051	g/hp·hr	Mass Balance Equation Below
PM <sub>10</sub>	0.09	g/hp·hr	ARB/EPA Certification
CO	1.0	g/hp·hr	ARB/EPA Certification
VOC	0.2	g/hp·hr	ARB/EPA Certification

$$\frac{0.000015 \text{ lb} \cdot \text{S}}{\text{lb} \cdot \text{fuel}} \times \frac{7.1 \text{ lb fuel}}{\text{gallon}} \times \frac{64 \text{ lb } SO_x}{32 \text{ lb} \cdot \text{S}} \times \frac{1 \text{ gallon}}{137,000 \text{ Btu}} \times \frac{1 \text{ hp}_{in}}{0.35 \text{ hp}_{out}} \times \frac{2,542.5 \text{ Btu}}{\text{hp} \cdot \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} \cdot SO_x}{\text{hp} \cdot \text{hr}}$$

**S-495-6-0**

Emission Factors			
NO <sub>x</sub>	2.49	g/hp·hr	ARB/EPA Certification
SO <sub>x</sub>	0.0051	g/hp·hr	Mass Balance Equation Below
PM <sub>10</sub>	0.09	g/hp·hr	ARB/EPA Certification
CO	1.0	g/hp·hr	ARB/EPA Certification
VOC	0.21	g/hp·hr	ARB/EPA Certification

$$\frac{0.000015 \text{ lb} \cdot \text{S}}{\text{lb} \cdot \text{fuel}} \times \frac{7.1 \text{ lb fuel}}{\text{gallon}} \times \frac{64 \text{ lb } SO_x}{32 \text{ lb} \cdot \text{S}} \times \frac{1 \text{ gallon}}{137,000 \text{ Btu}} \times \frac{1 \text{ hp}_{in}}{0.35 \text{ hp}_{out}} \times \frac{2,542.5 \text{ Btu}}{\text{hp} \cdot \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} \cdot SO_x}{\text{hp} \cdot \text{hr}}$$

**C. Calculations**

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

Since these are new emissions units, PE1 = 0.

**2. Post-Project PE (PE2)**

The daily and annual PE are calculated as follows.

**S-495-5-0**

Daily PE2 S-495-5-0										
NO <sub>x</sub>	3.7	g/hp·hr x	755	hp x	24	hr/day ÷	454	g/lb=	147.7	lb/day
SO <sub>x</sub>	0.0051	g/hp·hr x	755	hp x	24	hr/day ÷	454	g/lb=	0.2	lb/day
PM <sub>10</sub>	0.09	g/hp·hr x	755	hp x	24	hr/day ÷	454	g/lb=	3.6	lb/day
CO	1.0	g/hp·hr x	755	hp x	24	hr/day ÷	454	g/lb=	39.9	lb/day
VOC	0.2	g/hp·hr x	755	hp x	24	hr/day ÷	454	g/lb=	8.0	lb/day

Annual PE2 S-495-5-0										
NO <sub>x</sub>	3.7	g/hp·hr x	755	hp x	50	hr/yr ÷	454	g/lb=	308	lb/yr
SO <sub>x</sub>	0.0051	g/hp·hr x	755	hp x	50	hr/yr ÷	454	g/lb=	0	lb/yr
PM <sub>10</sub>	0.09	g/hp·hr x	755	hp x	50	hr/yr ÷	454	g/lb=	7	lb/yr
CO	1.0	g/hp·hr x	755	hp x	50	hr/yr ÷	454	g/lb=	83	lb/yr
VOC	0.2	g/hp·hr x	755	hp x	50	hr/yr ÷	454	g/lb=	17	lb/yr

### S-495-6-0

Daily PE2 S-495-6-0										
NO <sub>x</sub>	2.49	g/hp·hr x	197	hp x	24	hr/day ÷	454	g/lb=	25.9	lb/day
SO <sub>x</sub>	0.0051	g/hp·hr x	197	hp x	24	hr/day ÷	454	g/lb=	0.1	lb/day
PM <sub>10</sub>	0.09	g/hp·hr x	197	hp x	24	hr/day ÷	454	g/lb=	0.9	lb/day
CO	1.0	g/hp·hr x	197	hp x	24	hr/day ÷	454	g/lb=	10.4	lb/day
VOC	0.21	g/hp·hr x	197	hp x	24	hr/day ÷	454	g/lb=	2.2	lb/day

Annual PE2 S-495-6-0										
NO <sub>x</sub>	2.49	g/hp·hr x	197	hp x	50	hr/yr ÷	454	g/lb=	54	lb/yr
SO <sub>x</sub>	0.0051	g/hp·hr x	197	hp x	50	hr/yr ÷	454	g/lb=	0	lb/yr
PM <sub>10</sub>	0.09	g/hp·hr x	197	hp x	50	hr/yr ÷	454	g/lb=	2	lb/yr
CO	1.0	g/hp·hr x	197	hp x	50	hr/yr ÷	454	g/lb=	22	lb/yr
VOC	0.21	g/hp·hr x	197	hp x	50	hr/yr ÷	454	g/lb=	5	lb/yr

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

The SSPE1 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

The SSPE1 is posted in the following table.

SSPE1 (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-495-1-0	0	0	0	0	0
S-495-2-0	288	0	8	66	1
SSPE1	288	0	8	66	1

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

The SSPE2 is the 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 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.

The SSPE2 is presented in the following table.

SSPE2 (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-495-1-0	0	0	0	0	0
S-495-2-0	288	0	8	66	1
S-495-5-0	308	0	7	83	17
S-495-6-0	54	0	2	22	5
SSPE2	650	0	17	171	23

## 5. Major Source Determinations

### Rule 2201 Major Source Determination

A Major Source is a stationary source with an SSPE2 equal to or exceeding one or more of the following threshold values.

Major Source Determination					
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Major Source Threshold (lb/yr)	Existing Major Source?	Becoming a Major Source?
NO <sub>x</sub>	288	650	20,000	No	No
SO <sub>x</sub>	0	0	140,000	No	No
PM <sub>10</sub>	8	17	140,000	No	No
CO	66	171	200,000	No	No
VOC	1	23	20,000	No	No

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

### Rule 2410 Major Source Determination:

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,

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, Section 3.18 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM<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 used to complete the emission profile screen for the District's PAS database. The QNEC for each pollutant is calculated as follows.

$$QNEC = \frac{(PE2 - PE1) \frac{lb}{yr}}{4 \frac{Quarters}{yr}}$$

QNEC				
Unit	Pollutant	PE1 (lb/yr)	PE2 (lb/yr)	QNEC (lb/qtr)
S-495-5-0	NO <sub>x</sub>	0	308	77
	SO <sub>x</sub>	0	0	0
	PM <sub>10</sub>	0	7	2
	CO	0	83	21
	VOC	0	17	4

QNEC				
Unit	Pollutant	PE1 (lb/yr)	PE2 (lb/yr)	QNEC (lb/qtr)
S-495-6-0	NO <sub>x</sub>	0	54	14
	SO <sub>x</sub>	0	0	0
	PM <sub>10</sub>	0	2	1
	CO	0	22	6
	VOC	0	5	1

## VIII. Compliance

### Rule 2201 New and Modified Stationary Source Review Rule

#### A. Best Available Control Technology (BACT)

##### 1. BACT Applicability

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

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

Since this project does not result in an SB288 Major Modification or a Federal Major Modification, BACT can only be triggered if the daily emissions exceed 2.0 lb/day for any pollutant.



The daily emissions from each new engine are compared to the BACT threshold levels in the following tables.

New Emissions Unit BACT Applicability S-495-5-0				
Pollutant	Daily Emissions (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	147.7	> 2.0	n/a	Yes
SO <sub>x</sub>	0.2	> 2.0	n/a	No
PM <sub>10</sub>	3.6	> 2.0	n/a	Yes
CO	39.9	> 2.0 and SSPE2 ≥ 200,000 lb/yr	171	No
VOC	8.0	> 2.0	n/a	Yes

New Emissions Unit BACT Applicability S-495-6-0				
Pollutant	Daily Emissions (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	25.9	> 2.0	n/a	Yes
SO <sub>x</sub>	0	> 2.0	n/a	No
PM <sub>10</sub>	0.9	> 2.0	n/a	No
CO	10.4	> 2.0 and SSPE2 ≥ 200,000 lb/yr	171	No
VOC	2.2	> 2.0	n/a	Yes

As shown above, BACT is triggered for NO<sub>x</sub>, PM<sub>10</sub> and VOC emissions for unit S-495-5-0 and BACT is triggered for NO<sub>x</sub> and VOC for unit S-495-6-0.

## 2. BACT Guideline

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

## 3. Top Down BACT Analysis

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

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

S-495-5-0

NO<sub>x</sub>: Tier-2 Certification  
PM<sub>10</sub>: Tier-2 Certification  
VOC: Tier-2 Certification

S-495-6-0

NO<sub>x</sub>: Tier-3 Certification  
VOC: Tier-3 Certification

## **B. Offsets**

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

## **C. Public Notification**

### **1. Applicability**

Public notification is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications
- b. New emissions units with a PE > 100 lb/day
- c. Modifications that increase the SSPE across the offset threshold for any pollutant
- d. New Stationary Sources with an SSPE2 exceeding any emissions offset threshold
- e. Any Permitting Action resulting in a SSIPE > 20,000 lb/yr for any pollutant.

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

Since this project is neither of these, public notification is not required for this purpose.

#### **b. New Emissions Unit with a PE > 100 lb/day**

Since emissions of NO<sub>x</sub> are greater than 100 lb/day, public notification is required for S-495-5-0.

**c. Modifications Exceeding any Offset Thresholds**

Public notification is required for projects that raise the SSPE above the offset threshold for any pollutant. The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Public Notice Offset Threshold Values				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold (lb/year)	SSPE Crosses the Offset Threshold?
NO <sub>x</sub>	288	650	20,000	No
SO <sub>x</sub>	0	0	54,750	No
PM <sub>10</sub>	8	17	29,200	No
CO	66	171	200,000	No
VOC	1	23	20,000	No

Since none of the offset thresholds are exceeded during this project, public notification is not required for this purpose.

**d. New Stationary Sources Exceeding any Offset Thresholds**

Public notification is required for any new stationary source with an SSPE2 exceeding any offset threshold. Since this is not a new stationary source, public notification for new stationary sources is not required.

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

Public notification is required for any permitting action that results in a SSIPE (SSPE2 - SSPE1) of more than 20,000 lb/year of any affected pollutant. The following table demonstrates that the SSIPE is below the public notice thresholds.

SSIPE Public Notice Thresholds					
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	288	650	362	20,000 lb/year	No
SO <sub>x</sub>	0	0	0	20,000 lb/year	No
PM <sub>10</sub>	8	17	9	20,000 lb/year	No
CO	66	171	105	20,000 lb/year	No
VOC	1	23	22	20,000 lb/year	No

## 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 for this equipment.

### D. Daily Emissions Limits

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

The following conditions will be listed on the permits to ensure compliance.

#### S-495-5-0

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 3.7 g-NOx/bhp-hr, 1.0 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 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]

#### S-495-6-0

- {4771} Emissions from this IC engine shall not exceed any of the following limits: 2.49 g-NOx/bhp-hr, 1.0 g-CO/bhp-hr, or 0.21 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, and 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.

## **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**

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. The following condition is listed on the permit 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 (see Appendix D). The RMR results are summarized in the following table, and can be seen in detail in Appendix D.

RMR Summary				
Categories	Diesel IC Engine (Unit 5-0)	Diesel IC Engine (Unit 6-0)	Project Totals	Facility Totals
Prioritization Score	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
Acute Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
Chronic Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	2.8E-07	1.7E-07	4.50E-07	4.50E-07
T-BACT Required?	No	No		
Special Permit Conditions?	Yes	Yes		

- 1 Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.
- 2 Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

BACT for toxic emission control (T-BACT) is not required for this project because the HRA indicates that the risk is below the District's thresholds for triggering T-BACT requirements.

The following conditions are listed on each permit to ensure compliance.

1. Modified {1901} The PM10 emissions rate shall not exceed **0.09** g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rule 2201]

2. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. The engine shall be operated only for maintenance, testing, and required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per year. [District Rule 4702]

Compliance with the District's Risk Management Policy is expected.

### **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>/hp·hr.

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

The new engines have a PM<sub>10</sub> emission factor less than 0.4 g/bhp-hr. The following condition is listed on each permit to ensure compliance.

- {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.

The proposed engine is also subject to District Rule 4702, *Internal Combustion Engines*. Since emissions limits and all other requirements of Rule 4702 are equivalent or more stringent than Rule 4701 for emergency engines, compliance with Rule 4702 requirements will satisfy requirements of Rule 4701.

### **Rule 4702 Internal Combustion Engines**

The following summarizes 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 Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this engine maintenance and testing to 50 hours/year; therefore, compliance is expected. The following condition will be included on the permit:

- {4777} 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 and 4702, and 17 CCR 93115]
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:

- {4257} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
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:

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

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

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

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

$$\frac{0.000015 \text{ lb} \cdot \text{S}}{\text{lb} \cdot \text{fuel}} \times \frac{7.1 \text{ lb(fuel)}}{\text{gallon}} \times \frac{64 \text{ lb SO}_2}{32 \text{ lb} \cdot \text{S}} \times \frac{1 \text{ MMBtu}}{9,051 \text{ scf}} \times \frac{1 \text{ gallon}}{0.137 \text{ MMBtu}} \times \frac{1 \text{ lb} \cdot \text{mole}}{64 \text{ lb} \cdot \text{SO}_2} \times \frac{10.73 \text{ psi} \cdot \text{scf}}{\text{lb} \cdot \text{mole} \cdot \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times \frac{1,000,000 \text{ parts}}{\text{million}} = 1.0 \text{ ppmv SO}_2$$

Since 1.0 ppmv is  $\leq$  2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on each permit 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 facility 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
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 the emission standards in Table 1 of the ATCM for the specific power rating and model year of the proposed engine.	The applicant has proposed the use of engine(s) that are certified to the latest EPA Tier Certification standards for the applicable horsepower range, guaranteeing compliance with the emission standards of the ATCM. 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 Rules 2201 and 4702, and 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.

<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>• {4257} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart III]</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)**

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.

**IX. Recommendation**

Pending a successful NSR Public Noticing period, issue ATCs S-495-5-0 and 6-0 subject to the conditions listed on the attached draft ATCs.

**X. Billing Information**

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
S-495-5-0	3020-10-D	755 bhp IC engine	\$502
S-495-6-0	3020-10-B	197 bhp IC engine	\$123

**Appendixes**

- A. Draft ATC
- B. BACT Guideline and BACT Analysis
- C. Emissions Data Sheet
- D. RMR Summary

Appendix A  
Draft ATCs

San Joaquin Valley  
Air Pollution Control District

## AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-495-5-0

LEGAL OWNER OR OPERATOR: UNIVERSITY OF CAL VET SCHOOL  
MAILING ADDRESS: 18830 ROAD 112  
TULARE, CA 93274

LOCATION: 18830 ROAD 112  
TULARE, CA 93274

EQUIPMENT DESCRIPTION:  
755 HP (INTERMITTENT) CUMMINS MODEL 450DFEJ TIER-2 CERTIFIED EMERGENCY IC ENGINE POWERING AN ELECTRICAL GENERATOR

## CONDITIONS

1. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
2. {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]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {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]
5. {4257} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
6. {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]
7. Emissions from this IC engine shall not exceed any of the following limits: 3.7 g-NOx/bhp-hr, 1.0 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
8. Emissions from this IC engine shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
9. {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]

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

**Arnaud Marjolle, Director of Permit Services**  
5-495-5-0 : Nov 4 2015 11:32AM - ROEDERS : Joint Inspection NOT Required

10. {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]
11. {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]
12. {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]
13. {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]
14. {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {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

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-495-6-0

LEGAL OWNER OR OPERATOR: UNIVERSITY OF CAL VET SCHOOL  
MAILING ADDRESS: 18830 ROAD 112  
TULARE, CA 93274

LOCATION: 18830 ROAD 112  
TULARE, CA 93274

**EQUIPMENT DESCRIPTION:**

197 HP (INTERMITTENT) JOHN DEERE MODEL JU6H-UFADNO DIESEL-FIRED TIER-3 CERTIFIED INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR

**CONDITIONS**

1. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
2. {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]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {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]
5. {4257} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 17 CCR 93115, and 40 CFR 60 Subpart IIII]
6. {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]
7. Emissions from this IC engine shall not exceed any of the following limits: 2.49 g-NOx/bhp-hr, 1.0 g-CO/bhp-hr, or 0.21 g-VOC/bhp-hr. [District Rule 2201, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
8. Emissions from this IC engine shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102, 17 CCR 93115, and 40 CFR Part 60 Subpart IIII]
9. {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]

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

**Arnaud Marjolle, Director of Permit Services**  
S-495-6-0 : Nov 4 2016 11:32AM - ROEDERS : Joint Inspection NOT Required



10. {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]
11. {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]
12. {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]
13. {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]
14. {4262} This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart IIII]
15. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
16. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

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# Appendix B

## BACT Guideline and BACT Analysis

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

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	Latest EPA Tier Certification level for applicable horsepower range*		
NO <sub>x</sub>	Latest EPA Tier Certification level for applicable horsepower range*		
PM <sub>10</sub>	0.15 g/bhp-hr		
SO <sub>x</sub>	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
VOC	Latest EPA Tier Certification level for applicable horsepower range*		

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\*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.

## Top Down BACT Analysis for the Emergency IC Engines

BACT Guideline 3.1.1 (9/10/13) applies to emergency diesel IC engines. In accordance with the BACT policy, information from that guideline will be utilized without further analysis.

### 1. BACT Analysis for NO<sub>x</sub>, PM<sub>10</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

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

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

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

Title 17 CCR, Section 93115.6(a)(3)(A) (CARB stationary diesel engine ATCM) applies to emergency standby diesel-fired engines and requires that such engines be certified to the emission levels in Table 1 (below).

Maximum Engine Power	Tier	Model Year(s)	PM	NMHC+NO <sub>x</sub>	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75 ≤ HP < 100 (56 ≤ kW < 75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
100 ≤ HP < 175 (75 ≤ kW < 130)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
600 ≤ HP ≤ 750 (450 ≤ kW ≤ 560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP > 750 (kW > 560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
		2008+			

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

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

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

The proposed engines are rated at 755 and 197 hp. Therefore, the applicable control technology option is EPA Tier-2 and Tier- 3 certifications.

**b. Step 2 - Eliminate technologically infeasible options**

All control options are technologically feasible.

**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>, PM<sub>10</sub> and VOC will be the use of an EPA Tier-2 certified engine for the 755 hp unit and Tier-3 certified engine for the 197 hp unit. The applicant is proposing such units. Therefore, BACT will be satisfied.

Appendix C  
Emissions Data Sheets



# 2015 EPA Tier 2 Exhaust Emission Compliance Statement 450DFEJ Stationary Emergency 60 Hz Diesel Generator Set

### Compliance Information:

The engine used in this generator set complies with Tier 2 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII when tested per ISO8178 D2.

Engine Manufacturer:	Cummins Inc
EPA Certificate Number:	FCEXL015.AAJ-011
Effective Date:	08/11/2014
Date Issued:	08/11/2014
EPA Engine Family (Cummins Emissions Family):	FCEXL015.AAJ (J103)

### Engine Information:

Model:	QSX / QSX15 / QSX15-G / QSX15-G9	Bore:	5.39 in. (137 mm)
Engine Nameplate HP:	755	Stroke:	6.65 in. (169 mm)
Type:	4 Cycle, In-line, 6 Cylinder Diesel	Displacement:	912 cu. in. ( 15 liters )
Aspiration:	Turbocharged and CAC	Compression Ratio:	17.0:1
Emission Control Device:	Electronic Control	Exhaust Stack Diameter:	8 in.

### Diesel Fuel Emission Limits

#### D2 Cycle Exhaust Emissions

	Grams per BHP-hr			Grams per kWm-hr		
	<u>NOx + NMHC</u>	<u>CO</u>	<u>PM</u>	<u>NOx + NMHC</u>	<u>CO</u>	<u>PM</u>
Test Results - Diesel Fuel (300-4000 ppm Sulfur)	4.3	0.4	0.10	5.7	0.6	0.13
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20
Test Results - CARB Diesel Fuel (<15 ppm Sulfur)	3.9	0.4	0.08	5.2	0.6	0.11
CARB Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

The CARB emission values are based on CARB approved calculations for converting EPA (500 ppm) fuel to CARB (15 ppm) fuel.

**Test Methods:** EPA/CARB Nonroad emissions recorded per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines (ref. ISO8178-4, D2)

**Diesel Fuel Specifications:** Cetane Number: 40-48. Reference: ASTM D975 No. 2-D.

**Reference Conditions:** Air Inlet Temperature: 25°C (77°F), Fuel Inlet Temperature: 40°C (104°F). Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H2O/lb) of dry air; required for NOx correction, Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to a maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.

Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

NOx = 3.7  
VOC = 0.195

Rating Specific Emissions Data - John Deere Power Systems



**JOHN DEERE**

**Nameplate Rating Information**

<b>Clarke Model</b>	JU6H-UFADN0
<b>Power Rating (BHP / kW)</b>	197 / 147
<b>Certified Speed (RPM)</b>	2100

**Rating Data**

<b>Rating</b>	6068HFC28D	
<b>Certified Power (kW)</b>	147	
<b>Rated Speed</b>	2100	
<b>Vehicle Model Number</b>	OEM (Clarke Fire Pump -	
<b>Units</b>	<b>g/kW-hr</b>	<b>g/hp-hr</b>
<b>NOx</b>	3.34	2.49
<b>HC</b>	0.28	0.21
<b>NOx + HC</b>	N/A	N/A
<b>Pm</b>	0.12	0.09
<b>CO</b>	1.3	1.0

**Certificate Data**

<b>Engine Model Year</b>	2015
<b>EPA Family Name</b>	FJDXL06.8120
<b>EPA JD Name</b>	350HAK
<b>EPA Certificate Number</b>	FJDXL06.8120-004
<b>CARB Executive Order</b>	Not Applicable
<b>Parent of Family</b>	6068HFG82A
<b>Units</b>	<b>g/kW-hr</b>
<b>NOx</b>	3.79
<b>HC</b>	0.12
<b>NOx + HC</b>	N/A
<b>Pm</b>	0.12
<b>CO</b>	1.2

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

This information is property of Deere & Company. It is provided solely for the purpose of obtaining certification or permits of Deere powered equipment. Unauthorized distribution of this information is prohibited.

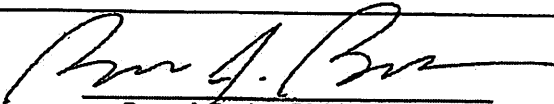


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
2015 MODEL YEAR  
CERTIFICATE OF CONFORMITY  
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION  
AND AIR QUALITY  
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Deere & Company  
(U.S. Manufacturer or Importer)  
Certificate Number: FJDXL06.8120-004

Effective Date:  
11/13/2014  
Expiration Date:  
12/31/2015

  
Byron J. Bunker, Division Director  
Compliance Division

Issue Date:  
11/13/2014  
Revision Date:  
N/A

Model Year: 2015  
Manufacturer Type: Original Engine Manufacturer  
Engine Family: FJDXL06.8120

Mobile/Stationary Indicator: Stationary  
Emissions Power Category: 130<=kW<225  
Fuel Type: Diesel  
After Treatment Devices: No After Treatment Devices Installed  
Non-after Treatment Devices: Non-standard Non-After Treatment Device Installed, Electronic Control, Smoke Puff Limiter, Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

The actual engine power may lie outside the limits of the Emissions Power Category shown above. See the certificate application for details.



## Appendix D Risk Management Review

To: Steve Roeder  
 From: Cheryl Lawler  
 Date: October 22, 2015  
 Facility Name: UC Davis South Valley Animal Health Lab  
 Location: 18830 Road 112, Tulare  
 Application #(s): S-495-5-0 & 6-0  
 Project #: S-1153750

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### A. RMR SUMMARY

RMR Summary				
Categories	Diesel IC Engine (Unit 5-0)	Diesel IC Engine (Unit 6-0)	Project Totals	Facility Totals
Prioritization Score	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
Acute Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
Chronic Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	2.8E-07	1.7E-07	4.50E-07	4.50E-07
T-BACT Required?	No	No		
Special Permit Conditions?	Yes	Yes		

- 3 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.  
 4 Acute and Chronic Hazard Indices were not calculated since there is no risk factor, or the risk factor is so low that the risk has been determined to be insignificant for this type of unit.

### Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

#### Unit 5-0

- The PM10 emissions rate shall not exceed 0.08 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
- 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]
- This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for

maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

### **Unit 6-0**

1. The PM10 emissions rate shall not exceed 0.09 g/bhp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201]
2. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
3. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

## **B. RMR REPORT**

### **I. Project Description**

Technical Services received a request on September 29, 2015, to perform a Risk Management Review (RMR) and an Ambient Air Quality Analysis (AAQA) for a 755 bhp and a 197 bhp emergency Diesel ICE.

### **II. Analysis**

Technical Services performed a screening level health risk assessment for each engine using the District developed DICE database.

The following parameters were used for the review:

<b>Analysis Parameters Unit 5-0 &amp; 6-0</b>			
<b>Source Type</b>	Point	<b>Location Type</b>	Rural
<b>BHP</b>	755 & 197	<b>PM<sub>10</sub> g/hp-hr</b>	0.08 & 0.09
<b>Closest Receptor (m)</b>	457.2	<b>Quad</b>	2
<b>Max Hours per Year</b>	50 each	<b>Type of Receptor</b>	Business

Technical Services also performed modeling for criteria pollutants NO<sub>x</sub>, Sox, and PM<sub>10</sub>; as well as a RMR. The emission rates used for criteria pollutant modeling were provided by the processing engineer.

The results from the Criteria Pollutant Modeling are as follows:

### Criteria Pollutant Modeling Results\*

Diesel ICEs	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA <sup>1</sup>	X	NA <sup>1</sup>	X	X
NO <sub>x</sub>	NA <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	NA <sup>1</sup>	NA <sup>1</sup>	X	NA <sup>1</sup>	Pass
PM <sub>10</sub>	X	X	X	NA <sup>1</sup>	Pass <sup>2</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).

### III. Conclusions

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

The Cancer Risks associated with the operation of the proposed Diesel IC engines are less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT) for PM10.

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on Page 1 of this report must be included for these proposed units.

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

### Attachments

RMR Request Form & Attachments  
DICE Screening Risk Tool  
Facility Summary  
AAQA Results Summary  
AERMOD Non-Regulatory Option Checklist