



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



JUN 20 2013

Brenden Rose  
FedEx Freight, Inc.  
3255 Victor Street  
Santa Clara, CA 95054-2318

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: N-8880**  
**Project Number: N-1131597**

Dear Mr. Rose:

Enclosed for your review and comment is the District's analysis of FedEx Freight, Inc.'s application for an Authority to Construct for the permitting of a 300 bhp diesel fired emergency engine powering an electrical generator, at 4520 South Highway 99 Frontage Road, Stockton.

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. Fred Cruz of Permit Services at (209) 557- 6456.

Sincerely,

David Warner  
Director of Permit Services

DW:fjc

Enclosures

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

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

Northern Region  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-8400 FAX: (209) 557-6475

Central Region (Main Office)  
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Southern Region  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585

Stockton Record

Newspaper notice for publication in Stockton Record and for posting on valleyair.org

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**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to FedEx Freight, Inc. for the permitting of a 300 bhp diesel fired emergency engine powering an electrical generator, at 4520 South Highway 99 Frontage Road, Stockton.

The analysis of the regulatory basis for this proposed action, Project #N-1131597, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and at any District office. For additional information, please contact the District at (209) 557-6400. Written comments on this project must be submitted by July 29, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356.**

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

Facility Name:	FedEx Freight, Inc. - Stockton	Date:	June 5, 2013
Mailing Address:	3255 Victor Street Santa Clara, CA 95054-2318	Engineer:	Fred Cruz
Contact Person:	Brenden Rose	Lead Engineer:	Mark Schonhoff
Telephone:	(870) 365-4087		
FAX:	(901) 492-2384		
Email:	<u><a href="mailto:Brenden.Rose@fedex.com">Brenden.Rose@fedex.com</a></u>		
Application No:	N-8880-1-0		
Project No:	N-1131597		
Complete:	May 23, 2013		

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**I. PROPOSAL:**

FedEx Freight, Inc. submitted an Authority to Construct application to permit an existing 300 bhp diesel-fired emergency standby internal combustion (IC) engine powering an electrical generator. FedEx purchased this property and during an audit realized that this emergency engine was installed without first obtaining an Authority to Construct permit. This John Deere engine was manufactured on March 30, 1999 (see email from JD Power) and installed in late 1999. This emergency engine would have met the applicable Best Available Control Technology (BACT) requirements at the time the engine was installed, see discussion in Appendix C of this document. Per Title 17 CCR, Section 93115 ATCM for Stationary Compression Ignition (CI) Engines, this engine meets the ACTM requirements for "in-use" emergency engines.

**II. APPLICABLE RULES:**

Rule 2201 New and Modified Stationary Source Review Rule (4/21/2011)  
Rule 2410 Prevention of Significant Deterioration (6/16/2011)  
Rule 2520 Federally Mandated Operating Permits (6/21/2001)  
Rule 4001 New Source Performance Standards (4/14/1999)  
Rule 4002 National Emission Standards for Hazardous Air Pollutants (5/20/2004)  
Rule 4101 Visible Emissions (2/17/2005)  
Rule 4102 Nuisance (12/17/1992)  
Rule 4201 Particulate Matter Concentration (12/17/1992)  
Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/2003)  
Rule 4702 Stationary Internal Combustion Engines – Phase 2 (8/18/2011)  
Rule 4801 Sulfur Compounds (12/17/1992)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice

Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines California Environmental Quality Act (CEQA)

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:  
CEQA Guidelines

### III. PROJECT LOCATION:

The facility is located at 4520 South Highway 99 Frontage Road, Stockton, CA. The District has verified that the equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

### IV. PROCESS DESCRIPTION:

The emergency standby engine powers an electrical generator. Other than emergency standby operation, the engine may be operated up to 20 hours per year for maintenance and testing purposes.

### V. EQUIPMENT LISTING:

**N-8880-1-0:** 300 BHP JOHN DEERE MODEL 6081AF001 DIESEL-FIRED EMERGENCY ENGINE (NON-CERTIFIED) POWERING AN ELECTRICAL GENERATOR.

### VI. EMISSION CONTROL TECHNOLOGY EVALUATION:

The engine is equipped with:

- Turbocharger
- Intercooler/aftercooler
- Injection timing retard (or equivalent per District Policy SSP-1805, dated 8/14/1996)
- Positive Crankcase Ventilation (PCV) or 90% efficient control device<sup>1</sup>
- This engine is required to be, and is UL certified
- Catalytic particulate filter
- Very Low (0.0015%) sulfur diesel

The emission control devices/technologies and their effect on diesel engine emissions detailed below are from *Non-catalytic NO<sub>x</sub> Control of Stationary Diesel Engines*, by Don Koeberlein, CARB.

The turbocharger reduces the NO<sub>x</sub> emission rate from the engine by approximately 10% by increasing the efficiency and promoting more complete burning of the fuel.

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<sup>1</sup> The applicant has proposed to install a positive crankcase ventilation (PCV) system on this engine. See email from Mr. Brenden Rose dated May 20, 2013.

The intercooler/aftercooler functions in conjunction with the turbocharger to reduce the inlet air temperature. By reducing the inlet air temperature, the peak combustion temperature is lowered, which reduces the formation of thermal NO<sub>x</sub>. NO<sub>x</sub> emissions are reduced by approximately 15% with this control technology.

The PCV system reduces crankcase VOC and PM<sub>10</sub> emissions by at least 90% over an uncontrolled crankcase vent.

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

Operating schedule:	24 hours/day, 20 hours/year <sup>2</sup>
Density of diesel fuel:	7.1 lb/gal
EPA F-factor:	9051 dscf/MMBtu (corrected to 60° F)
PM <sub>10</sub> fraction of diesel exhaust is	96% (Reference - CARB, 1988)
Fuel heating value:	137,000 Btu/gal
BHP to Btu/hr conversion:	2542.5 Btu/hp-hr
Thermal efficiency of engine	commonly ≈ 35%
Fuel rate:	15.9 gal/hr @ 100% load

Fuel rate calculated as follows:

$$\text{Fuel rate} = \frac{(\text{BHP rating})(\text{BHP to Btu/hr conversion})}{(\text{Fuel heating value})(\text{Thermal efficiency of engine})}$$

$$\frac{(300 \text{ bhp})(2,542.5 \text{ Btu/hr})}{(137,000 \text{ Btus/hr})(0.35)} = 15.9 \text{ gals/hr}$$

### B. Emission Factors

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

Pollutant	Emission Factor (g/bhp-hr)	Source <sup>3</sup>
NO <sub>x</sub>	6.9	EPA Engine Certificate
CO	8.5	EPA Engine Certificate
VOC	1.0	EPA Engine Certificate
PM <sub>10</sub>	0.4	EPA Engine Certificate
SO <sub>x</sub>	0.005	Calculated below

<sup>2</sup> Annual emissions are based on 20 hours of operation for testing and maintenance purpose for this emergency engine. Typical operation of this emergency engine will be for testing and maintenance purposes and not for emergency situations. Therefore, annual emissions are based on 20 hours per calendar year.

<sup>3</sup> Based on emission certification for engine family XJDXL08.1008- see attachment.

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

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

**C. Emission Calculations**

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

This is a new emissions unit, so PE1 is zero for all pollutants.

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

The potential to emit for this emergency IC engine is based on the maximum operating capacity of the engine for 24 hours per day. The following calculation for NO<sub>x</sub> emissions is representative of emission calculations for all pollutants. Annual emissions are based on 20 hours per year for non-emergency operation.

NO<sub>x</sub>: 6.9 g/hp-hr × 300 hp × lb/453.6 g  
 NO<sub>x</sub>: 4.56 lb/hr, 109.5 lb/day, 91 lb/yr  
 CO: 5.62 lb/hr, 134.9 lb/day, 112 lb/yr  
 VOC: 0.66 lb/hr, 15.9 lb/day, 13 lb/yr  
 PM<sub>10</sub>: 0.27 lb/hr, 6.3 lb/day, 5 lb/yr  
 SO<sub>x</sub>: 0.003 lb/hr, 0.1 lb/day, 0.1 lb/yr<sup>4</sup>

	NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>	SO <sub>x</sub>
<b>Daily PE</b>	109.5	134.9	15.9	6.3	0.1
<b>Annual PE</b>	91	112	13	5	0

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. There are no other permitted emission units at this facility. SSPE1 equals zero for all pollutants.

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid ATCs

<sup>4</sup> Per District Policy APR 1105, Use of Significant Figures, annual emissions less than 0.5 lb are set to zero.

or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

<b>Post Project Stationary Source Potential to Emit (SSPE2) (lb/year)</b>					
Permit No.	NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>	SO <sub>x</sub>
N-8880-1-0	91	112	13	5	0
<b>Total</b>	<b>91</b>	<b>112</b>	<b>13</b>	<b>5</b>	<b>0</b>
<b>Major Source Threshold</b>	<b>20,000</b>	<b>200,000</b>	<b>20,000</b>	<b>140,000</b>	<b>140,000</b>
<b>Existing Major Source?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

**5. Major Source Determination**

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

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

<b>Rule 2201 Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Facility emissions pre-project	0	0	0	0	0
Facility emissions – post project	91	0	5	112	13
<b>Major Source Threshold</b>	<b>20,000</b>	<b>140,000</b>	<b>140,000</b>	<b>200,000</b>	<b>20,000</b>
<b>Major Source?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

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 or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

<b>PSD Major Source Determination (tons/year)</b>							
	NO <sub>2</sub>	VOC	SO <sub>2</sub>	CO	PM	PM <sub>10</sub>	CO <sub>2e</sub>
Estimated Facility PE before Project Increase	0	0	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

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

**6. Baseline Emissions (BE)**

BE = Pre-project Potential to Emit for:

- Clean Emissions 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 Unit, located at a Major Source.

Otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201.

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore, Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1).

**7. SB 288 Major Modification:**

SB 288 Major Modification is defined in Rule 2201. As discussed in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore, the project does not constitute a SB 288 Major Modification.

**8. Federal Major Modification:**

Federal Major Modification is defined in Rule 2201. As discussed in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore, the project does not constitute a Federal Major Modification.



**9. Quarterly Net Emissions Change (QNEC)**

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

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

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

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

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

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

**Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds:**

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold and if the total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination: Potential to Emit (tons/year)							
	NO <sub>2</sub>	VOC	SO <sub>2</sub>	CO	PM	PM <sub>10</sub>	CO <sub>2e</sub> <sup>5</sup>
Total PE from New and Modified Units	0.046	0.007	0	0.056	0.003	0.003	1.24
PSD Major Source threshold	250	250	250	250	250	250	100,000
New PSD Major Source?	N	N	N	N	N	N	N

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore, Rule 2410 is not applicable and no further discussion is required

## VIII. COMPLIANCE

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

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

##### 1. BACT Applicability

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

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

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

##### a. **New emissions units – PE > 2.0 lb/day**

Since this engine is a new emissions unit, the daily emissions are compared to the BACT thresholds in the following table:

<sup>5</sup> GHG emissions equal: 20 hr/yr x 300 bhp-hr x 0.000187 metric tons-CO<sub>2e</sub>/bhp-hr = 1.12 metric tons CO<sub>2e</sub>  
 (1.12 metric tons- CO<sub>2e</sub> x 2,205 lbs/metric ton) ÷ 2,000 lb/ton = 1.24 tons- CO<sub>2e</sub>

New Emissions Unit BACT Applicability				
Pollutant	Daily Emissions for unit -1-0 (lb/day)	BACT Threshold (lb/day)	SSPE2 (lb/yr)	BACT Triggered?
NO <sub>x</sub>	109.5	> 2.0	n/a	Yes
SO <sub>x</sub>	0.1	> 2.0	n/a	No
PM <sub>10</sub>	6.3	> 2.0	n/a	Yes
CO	134.9	> 2.0 and SSPE2 ≥ 200,000 lb/yr	112	No
VOC	15.9	> 2.0	n/a	Yes

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

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

This engine is not being relocated from one stationary source to another as a result of this project. BACT is not triggered for the relocation of emissions units with a PE > 2.0 lb/day.

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

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

**d. Major Modification**

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

**2. BACT Guideline**

Per District Policy FYI-98, this engine would have been subject to BACT at the time of installation. BACT Guideline 3-6, 3<sup>rd</sup> quarter 1995, which appears in Appendix C of this report, covers diesel-fired emergency IC engines of greater than or equal to 117 and less than 400 brake horsepower would have been the applicable BACT guideline. Per the applicant, this engine was installed in 1999.

**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>: Certified NO<sub>x</sub> emissions of 10.0 g/bhp-hr or less

VOC: Use of positive crankcase ventilation  
PM<sub>10</sub>: Use of low-sulfur diesel fuel (0.05% sulfur by weight) and use of positive crankcase ventilation system or crankcase control device

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

- {edited 3485} Emissions from this IC engine shall not exceed any of the following limits: 6.9 g-NOx/bhp-hr, 8.5 g-CO/bhp-hr, or 1.0 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.4 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]
- {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system which recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency for the control of VOC emissions. [District Rule 2201]

## **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 offset calculations are not required.

## **C. Public Notification**

### **1. Applicability**

Public noticing is required for:

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

#### **a. New Major Source**

New Major Sources are new facilities, which also become a new Major Source. This new facility does not become a Major Source as a result of this project. Therefore, public noticing is not required for this project for new Major Source purposes.

**b. Major Modification**

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

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

PE for any pollutant does not exceed 100 lbs/day. Therefore, public noticing for new emissions unit with a Potential to Emit greater than 100 lb/day for any one pollutant is not required.

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

PE > 100 lb/day Public Notice Thresholds			
Pollutant	Daily PE for unit -1-0 (lb/day)	Public Notice Threshold (lb/day)	Public Notice Triggered?
NO <sub>x</sub>	109.5	100	Yes
SO <sub>x</sub>	0.1	100	No
PM <sub>10</sub>	6.3	100	No
CO	134.9	100	Yes
VOC	15.9	100	No

**d. Offset Threshold**

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

Offset Threshold				
Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Offset Threshold (lb/yr)	Public Notice Required?
NO <sub>x</sub>	0	91	20,000	No
SO <sub>x</sub>	0	0	54,750	No
PM <sub>10</sub>	0	5	29,200	No
CO	0	112	200,000	No
VOC	0	13	20,000	No

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

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

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

SSIPE Public Notice Threshold					
Pollutant	SSPE2 (lb/yr)	SSPE1 (lb/yr)	SSIPE (lb/yr)	SSIPE Threshold (lb/yr)	Public Notice Required?
NO <sub>x</sub>	91	0	91	20,000	No
SO <sub>x</sub>	0	0	0	20,000	No
PM <sub>10</sub>	5	0	5	20,000	No
CO	112	0	112	20,000	No
VOC	13	0	13	20,000	No

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

**2. Public Notice Action**

As discussed above, public noticing is required for this project for daily PE for NO<sub>x</sub> and CO emissions exceeding the 100 lb threshold.

**D. Daily Emissions Limits**

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

- {edited 3485} Emissions from this IC engine shall not exceed any of the following limits: 6.9 g-NO<sub>x</sub>/bhp-hr, 8.5 g-CO/bhp-hr, or 1.0 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- Emissions from this IC engine shall not exceed 0.4 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]
- {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system which recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency for the control of VOC emissions. [District Rule 2201]

In addition, the DEL for SO<sub>x</sub> is established by the sulfur content of the fuel being combusted in the engine. Therefore, the following condition will be listed on the ATC to ensure compliance:

- {3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]

#### **E. Compliance Assurance**

##### **1. Source Testing**

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

##### **2. Monitoring**

Additional monitoring is not required to demonstrate compliance with Rule 2201.

##### **3. Recordkeeping**

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

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

Additional reporting is not required to ensure compliance with Rule 2201.

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

Section 4.14.1 of Rule 2201 requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis.

As shown by the AAQA summary sheet in Appendix D, the proposed equipment will not cause or make worse a violation of an air quality standard for NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub> or SO<sub>x</sub>.

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

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

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

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

##### **§60.4200 - Applicability**

This subpart is applicable to owners and operators of stationary compression ignited internal combustion engines that commence construction after July 11, 2005, where the engines are:

- 1) Manufactured after April 1, 2006, if not a fire pump engine.
- 2) Manufactured as a National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

Per the applicant this engine was installed in 1999. Therefore, this subpart is not applicable.

### **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 Engines (RICE)**

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

### **Rule 4101 Visible Emissions**

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

Pursuant to the APR 1905 policy, a risk management review has been performed for this project to analyze the impact of toxic emissions. For projects where the increase in cancer risk is greater than one per million, Toxic Best Available Control Technology (T-BACT) is required. The HRA results for this project are shown below (see the RMR Summary in Appendix D):

<b>RMR Summary</b>			
<b>Categories</b>	<b>Emergency Diesel ICE (Unit 1-0)</b>	<b>Project Totals</b>	<b>Facility Totals</b>
<b>Prioritization Score</b>	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
<b>Acute Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A
<b>Chronic Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A
<b>Maximum Individual Cancer Risk</b>	1.30E-06	1.30E-06	1.30E-06
<b>T-BACT Required?</b>	Yes – PM10		
<b>Special Permit Conditions?</b>	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 required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is required for this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements.

For this project T-BACT is triggered for PM<sub>10</sub>. T-BACT is satisfied with the BACT requirements for the control of PM<sub>10</sub> emissions, as discussed in Appendix C, which is the use of low-sulfur diesel fuel (0.05% sulfur, by weight) and the use of a positive crankcase

ventilation or crankcase control device. This emergency engine will be required to use CARB certified diesel fuel (0.0015% sulfur, by weight) and this emergency engine will be equipped with a positive crankcase ventilation system. Therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). The cancer risk from this project is less than 10 in a million.

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

- {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]
- {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system which recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency for the control of VOC emissions. [District Rule 2201]
- {edited 3486} Emissions from this IC engine shall not exceed 0.4 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 & 4102 and 17 CCR 93115]

**Rule 4201 Particulate Matter Concentration**

Particulate matter emissions from the engine will be less than or equal to the rule limit of 0.1 grain per cubic foot of gas at dry standard conditions as shown by the following:

$$0.4 \frac{g - PM_{10}}{bhp - hr} \times \frac{1g - PM_{10}}{0.96g - PM_{10}} \times \frac{1bhp - hr}{2,542.5 Btu} \times \frac{10^6 Btu}{9,051 dscf} \times \frac{0.35 Btu_{out}}{1 Btu_{in}} \times \frac{15.43 grain}{g} = 0.098 \frac{grain - PM}{dscf}$$

Since 0.098 grain-PM/dscf is ≤ to 0.1 grain per dscf, compliance with Rule 4201 is expected.

Therefore, the following condition will be listed on the ATC 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 (NOx), 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.

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

**Rule 4702 Internal Combustion Engines – Phase 2**

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

<b>District Rule 4702 Requirements Emergency Standby IC Engines</b>	<b>Proposed Method of Compliance with District Rule 4702 Requirements</b>
Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes, verified through the use of a non-resettable elapsed operating time meter.	The Air Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) limits this in-use engine maintenance and testing to 20 hours/year. Thus, compliance is expected.
Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract.	The following conditions will be included on the permit: <ul style="list-style-type: none"> <li>• {3807} An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]</li> <li>• {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]</li> </ul>
The owner/operator must operate and maintain the engines and any installed control devices according to the manufacturers written instructions.	A permit condition enforcing this requirement was shown earlier in the evaluation.
The owner/operator must monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.	The following condition will be included on the permit: <ul style="list-style-type: none"> <li>• {3478} During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or</li> </ul>

	<p>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]</p>
<p>Records of the total hours of operation of the emergency standby engine, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.</p>	<p>The following conditions will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]</li> <li>• The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]</li> <li>• {3475} All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]</li> </ul>

**Rule 4801 Sulfur Compounds**

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

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

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

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

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

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

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

- {3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]

**California Health & Safety Code 42301.6 (School Notice)**

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

**Title 17 California Code of Regulations (CCR), Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary Compression-Ignition (CI) Engines**

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

<b>Title 17 CCR Section 93115 Requirements for In-use Emergency IC Engines Powering Electrical Generators</b>	<b>Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements</b>
Emergency engines must be fired on CARB diesel fuel, or an approved alternative diesel fuel.	The applicant has proposed the use of CARB certified diesel fuel. The proposed permit condition, requiring the use of CARB certified diesel fuel, was included earlier in this evaluation.
No owner or operator shall operate an in-use stationary emergency standby diesel-fueled CI engine (>50) that emits a diesel PM at a rate greater than 0.40 g/bhp-hr more than 20 hours per year for maintenance and testing purposes. PM emissions rate is only guaranteed to the tenth place and to allow this emergency engine to operate up to 30 hours per year the PM emissions rate must be guaranteed to the hundredth place. Therefore, this emergency engine will be limited to 20 hours per year.	The applicant has proposed the use of an engine with a PM rate of 0.40 g/bhp-hr.
The engine may not be operated more than 20 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 20 hours per calendar year. [District Rule 4702, 17 CCR 93115 and 40 CFR Part 60 Subpart III]</li> </ul>

<p>In-use stationary emergency standby diesel-fueled CI engines (&gt; 50 bhp) must meet the applicable requirements of Section 93115.6(b) Table 3.</p>	<p>The applicant has proposed the use of an engine with a PM10 emission factor of 0.4 g/bhp-hr. Based on this PM10 emission factor this engine will be limited to 20 hours per calendar year for testing and maintenance purposes.</p>
<p>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</p>	<p>The District has verified that this engine is not located within 500' of a school.</p>
<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.
- 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.

Consistent with California Environmental Quality Act (CEQA) and CEQA Guidelines requirements, the San Joaquin Valley Air Pollution Control District (District) has adopted procedures and guidelines for implementing CEQA. The District's Environmental Review Guidelines (ERG) establishes procedures for avoiding unnecessary delay during the District's permitting process while ensuring that significant environmental impacts are

thoroughly and consistently addressed. The ERG includes policies and procedures to be followed when processing permits for projects that are exempt under CEQA. The State Legislature granted a number of exemptions from CEQA, including projects that require only ministerial approval. Based upon analysis of its own laws and consideration of CEQA provisions, the District has identified a limited number of District permitting activities considered to be ministerial approvals. As set forth in §4.2.1 of the ERG, projects permitted consistent with the District's *Guidelines for Expedited Application Review* (GEAR) are standard application reviews in which little or no discretion is used in issuing Authority to Construct (ATC) documents.

For the proposed project, the District performed an Engineering Evaluation (this document) and determined that the project qualifies for processing under the procedures set forth in the District's Permit Services Procedures Manual in the Guidelines for Expedited Application Review (GEAR). Thus, as discussed above, this issuance of such ATC(s) is a ministerial approval for the District and is not subject to CEQA provisions.

**IX. RECOMMENDATION:**

Issue Authority to Construct N-8880-1-0 subject to the permit conditions on the attached Authority to Construct in Appendix A.

**X. BILLING INFORMATION:**

<b>Billing Schedule</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Fee Amount</b>
N-8880-1-0	3020-10-C	300 bhp IC engine	\$240

**APPENDICES:**

- A. Authority to Construct permit N-8880-1-0
- B. QNEC Calculations
- C. BACT Guideline and BACT Analysis
- D. HRA Summary and Ambient Air Quality Analysis

## **Appendix A**

Authority to Construct permit N-8880-1-0



San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-8880-1-0

LEGAL OWNER OR OPERATOR: FEDEX FREIGHT INC - STK  
MAILING ADDRESS: 3255 VICTOR ST  
SANTA CLARA, CA 95054-2318

LOCATION: 4520 S HWY 99 FRONTAGE RD  
STOCKTON, CA

EQUIPMENT DESCRIPTION:  
300 BHP JOHN DEERE MODEL 6081AF001 DIESEL-FIRED EMERGENCY ENGINE (NON-CERTIFIED) POWERING AN ELECTRICAL GENERATOR.

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. {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]
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. {1897} This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201]
6. {3395} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801 and 17 CCR 93115]
7. {3403} This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702 and 17 CCR 93115]
8. Emissions from this IC engine shall not exceed any of the following limits: 6.9 g-NOx/bhp-hr, 8.5 g-CO/bhp-hr, or 1.0 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Sayed Sadredin, Executive Director, APCO

**DAVID WARNER**, Director of Permit Services

N-8880-1-0 Jun 10 2013 9:10AM -- CRUZT Joint Inspection NOT Required

9. Emissions from this IC engine shall not exceed 0.4 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 17 CCR 93115]
10. {3405} 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]
11. {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]
12. 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 20 hours per calendar year. [District Rule 4702 and 17 CCR 93115]
13. {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]
14. {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]
15. {3479} 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]
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]
17. U.S. EPA administers the requirements of 40 CFR Part 63 Subpart ZZZZ. The owner or operator shall comply with the emission and operating limitations, testing requirements, initial and continuous compliance requirements as specified in this subpart. The owner or operator shall submit all applicable notifications, reports, and records to the administrator by the required compliance dates. [District Rules 4001 and 4002]

DRAFT

# Appendix B

## QNEC Calculations

### Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - BE, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- BE = Baseline Emissions (per Rule 2201) for each emissions unit, lb/qtr.

Using the emission calculations from this evaluation, PE2<sub>quarterly</sub> and BE<sub>quarterly</sub> can be calculated as follows:

- |                                 |                                 |
|---------------------------------|---------------------------------|
| PE2 = 91 lb-NO <sub>x</sub> /yr | PE1 = 0 lb-NO <sub>x</sub> /yr  |
| PE2 = 0 lb-SO <sub>x</sub> /yr  | PE1 = 0 lb-SO <sub>x</sub> /yr  |
| PE2 = 5 lb-PM <sub>10</sub> /yr | PE1 = 0 lb-PM <sub>10</sub> /yr |
| PE2 = 112 lb-CO/yr              | PE1 = 0 lb-CO/yr                |
| PE2 = 13 lb-VOC/yr              | PE1 = 0 lb-VOC/yr               |

Quarterly Emissions Change = (PE2 – PE1) ÷ (4 quarters/yr) – for each pollutant  
= 0 lb/quarter

Pollutant	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
NO <sub>x</sub>	22	23	23	23
SO <sub>x</sub>	0	0	0	0
PM <sub>10</sub>	1	1	1	2
CO	28	28	28	28
VOC	3	3	3	4

# **Appendix C**

## **BACT Guideline and BACT Analysis**

**San Joaquin Valley  
Unified Air Pollution Control District**

**Best Available Control Technology (BACT) Guideline 3-6\***

**Emissions Unit:** Diesel I.C. Engine Driving  
Emergency Generator

**Industry Type:** All

**Equipment Rating:** ≥ 117 hp and < 400 hp

**Last Update:** October 1, 1995

<b>Pollutant</b>	<b>Achieved in Practice or contained in SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	Positive crankcase ventilation		
SO <sub>x</sub>	Low-sulfur diesel fuel (0.05% by weight sulfur or less)		
NO <sub>x</sub>	Certified NO <sub>x</sub> emissions of 10.0 g/bhp-hr or less <b>OR</b> Turbocharger with intercooler or aftercooler and timing retarded 4° relative to standard timing <b>OR</b> Turbocharger with intercooler or aftercooler and injection timing not to be greater than 16° BTDC (this option may be used if it is consistent with District policy SSPE 16-1, "Determination of Injection Timing Retard for Diesel IC Engines", dated 08/14/96)		
PM <sub>10</sub>	Low-sulfur diesel fuel (0.05% by weight sulfur or less) and positive crankcase ventilation or crankcase control device		

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.

**\*This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

### Search Results for RG6081A084768 :

Serial Number	Base Code	Model	Material	Manufactured Date	Parts Catalog No.
RG6081A084768	1685F	6081AF001	KXRG1685F	1999-03-30	PC2527

Rating	EPA Family	EUR Family	Emissions Label Part No.	EPA Certificate	CARB Certificate
6081AF001D	XJDXL08.1008	N/A*	R501855	JDX-NRCI-99-02	U-R-4-53

Option Name	Ordered	Factory	Distributor
ROCKER ARM COVER	*	<u>1101</u>	<u>1101</u> *
Crankshaft Pulley, 8-Ribbed Poly-Vee Grooves, FIXED POSITION FAN DRIVE, Single Damper (Gen Set)	*	<u>1304</u>	<u>1304</u> *
Flywheel Housing, SAE #2, Gray Iron, with Front and Bottom Access Plate, Not Sealed, with Provision for Electronic Tach Drive	*	<u>1405</u>	<u>1405</u> *
Flywheel for 11.5" Over-Center Clutch, 129 Tooth 8/10 Pitch Ring Gear	*	<u>1505</u>	<u>1505</u> *
Injection Pump, 3-5% GOVERNOR, 12V Electric Shut-Off, Bosch P7100, 1800 Rpm, 300 Hp (Typical Stand-By Gen Set Rating 180 kWe)	*	<u>1623</u>	<u>1623</u> *
Intake for High Mount Turbo, Front Exhaust	*	<u>1731</u>	<u>1731</u> *
Oil Pan, Aluminum, Center Sump (Bottom, LH, RH, and Rear Drains), Off-Level Capability: 20 Degree Continuous, 30 Degree Intermittent (COMPATIBLE WITH LH PAN MOUNT DIPSTICK)	*	<u>1906</u>	<u>1906</u> *
THERMOSTAT COVER	*	<u>2102</u>	<u>2102</u> *
FAN DRIVE	*	<u>2335</u>	<u>2335</u> *
Fan Belt, 8-Ribbed Poly-Vee, 16.7" Fixed Position (1:1 ), NO A/C, 66.9" Length	*	<u>2402</u>	<u>2402</u> *
No Engine Cylinder Block Heater	*	<u>2699</u>	<u>2699</u> *
Exhaust Manifold, High Mount Turbocharger, Front Exhaust	*	<u>2812</u>	<u>2812</u> *
Starting Motor, 12V Denso 6 Hp, LH 3-Bolt Type 1 Mount, Gear Reduction, Sealed for Wet Clutch	*	<u>3004</u>	<u>3004</u> *
ALTERNATOR	*	<u>3140</u>	<u>3140</u> *
Fuel Filter (Bosch Mechanical Governor with Electric Shut-Off)	*	<u>3519</u>	<u>3519</u> *
Dipstick, RH, Block Mount	*	<u>4003</u>	<u>4003</u> *
Electronic Speed Sensor	*	<u>4421</u>	<u>4421</u> *
Cylinder Block, 107 mm Injection Pump Pilot Bore	*	<u>4602</u>	<u>4602</u> *
Pistons, High Compression (Ceramic Fiber Reinforced)	*	<u>4803</u>	<u>4803</u> *
GEAR-DRIVEN AUXILIARY DRIVE	*	<u>5204</u>	<u>5204</u> *

Engine Wood Transport Pallet	*	<u>5531</u>	<u>5531*</u>
PAINT	*	<u>5601</u>	<u>5601*</u>
Alternator Mounting, Fixed Position Fan Drive with Tensioner and Injection Pump Cover (1:1), (1.2:1), (1.13:1)	*	<u>6202</u>	<u>6202*</u>
Exhaust Elbow, Front Vertical, High Mount Turbocharger	*	<u>6406</u>	<u>6406*</u>
Turbocharger, HIGH MOUNT, FRONT EXHAUST OUTLET (1800 Rpm, 180 kWe Gen Set)	*	<u>6530</u>	<u>6530*</u>
No Air Conditioning Compressor	*	<u>7499</u>	<u>7499*</u>
AIR COMPRESSOR	*	<u>7899</u>	<u>7899*</u>
No Wiring Harness, No Sensors	*	<u>9699</u>	<u>9699*</u>

## Top Down BACT Analysis for the Emergency IC Engine(s)

District Guidance FYI-98 addresses BACT requirements for equipment that was installed without first obtaining a required ATC. Pursuant to this guidance, if the equipment was installed with BACT (i.e., BACT at the time of installation), our BACT analysis is limited to the types of controls that can be applied to the specific equipment that was already installed. This BACT analysis is expected to show that the equipment was equipped with BACT at the time of installation. Therefore, the BACT guideline for the class and category of source for the proposed IC engine from the period that the engine was installed will be referenced for this BACT analysis.

The use of add-on control equipment will be considered. The use of an after-control system can control NO<sub>x</sub>, VOC and CO emissions. The use of an SCR system is not practicable for emergency engines since SCR systems provide NO<sub>x</sub>, VOC and CO control only when the catalyst reaches a temperature of approximately 600 to 700 degrees F. Events that would require the duration of use necessary to bring an SCR system up to temperature would be rare for emergency engines, so in reality, most of the engine's operation would not allow it to reach the catalyst temperature sufficiently to provide NO<sub>x</sub> emissions control. Since most or all episodes of operations for testing and maintenance purposes would be of short durations.

Oxides of nitrogen (NO<sub>x</sub>) are generated from the high temperature combustion of the diesel fuel. A majority of the NO<sub>x</sub> emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO<sub>x</sub> emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

### 1. BACT Analysis for NO<sub>x</sub> Emissions:

#### a. Step 1 - Identify all control technologies

The SJVAPCD BACT Clearinghouse guideline 3-6 4<sup>th</sup> quarter 1995, identifies achieved in practice BACT for NO<sub>x</sub> emissions from emergency diesel IC engines (≥ 117 bhp and < 400 bhp) as follows:

- 1) Certified emissions of 10.0 g-NO<sub>x</sub>/bhp-hr or less, or
- 2) Turbocharger with intercooler or aftercooler and timing retarded 4° relative to standard timing, or
- 3) Turbocharger with intercooler or aftercooler and injection timing not to be greater than 16° BTDC

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

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

There are no technologically infeasible options to eliminate from step 1.



**c. Step 3 - Rank remaining options by control effectiveness**

- 1) Certified emissions of 10.0 g-NO<sub>x</sub>/bhp-hr or less, or
- 2) Turbocharger with intercooler or aftercooler and timing retarded 4° relative to standard timing, or
- 3) Turbocharger with intercooler or aftercooler and injection timing not to be greater than 16° BTDC

**d. Step 4 - Cost Effectiveness Analysis**

The applicant has proposed the highest ranked option in the ranking list from Step 3. Therefore, per SJVAPCD BACT policy, a cost effectiveness analysis is not required.

**e. Step 5 - Select BACT**

BACT for NO<sub>x</sub> emissions from this emergency standby diesel IC engine (≥ 117 bhp and < 400 bhp) is having certified emissions of 10.0 g-NO<sub>x</sub>/bhp-hr or less. The applicant has an existing 300 bhp emergency standby diesel IC engine with certified emissions of 10.0 g-NO<sub>x</sub>/bhp-hr or less. Therefore, BACT for NO<sub>x</sub> emissions is satisfied.

## **2. BACT Analysis for VOC Emissions:**

Volatile organic compounds (VOC) are emitted from the crankcase of the engine as a result of piston ring blow-by.

### **a. Step 1 - Identify all control technologies**

The SJVAPCD BACT Clearinghouse guideline 3-6 4<sup>th</sup> quarter 1995, identifies achieved in practice BACT for VOC emissions from emergency diesel IC engines ( $\geq 117$  or less than 400 bhp) as follows:

- 1) Use of positive crankcase ventilation system

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

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

There are no technologically infeasible options to eliminate from step 1.

### **c. Step 3 - Rank remaining options by control effectiveness**

- 1) Use of positive crankcase ventilation system

### **d. Step 4 - Cost Effectiveness Analysis**

The applicant has proposed the only control option in the ranking list from Step 3. Therefore, per SJVAPCD BACT policy, the cost effectiveness analysis is not required.

### **e. Step 5 - Select BACT**

BACT for VOC emissions from this emergency standby diesel IC engine ( $\geq 117$  and less than 400 bhp) is the use of an emergency engine with a positive crankcase ventilation system. The applicant has an existing 300 bhp emergency standby diesel IC engine with a positive crankcase ventilation system. Therefore BACT for VOC emissions is satisfied.

## **BACT Analysis for PM10 emissions:**

### **3. BACT Analysis for PM10 Emissions:**

Particulate matter (PM<sub>10</sub>) emissions occur from the reaction of various elements in the diesel fuel including fuel sulfur.

#### **a. Step 1 - Identify all control technologies**

The SJVAPCD BACT Clearinghouse guideline 3-6 4<sup>th</sup> quarter 1995, identifies achieved in practice BACT for PM<sub>10</sub> emissions from emergency diesel IC engines ( $\geq$  117 or less than 400 bhp) as follows:

- 1) Use of low-sulfur diesel fuel (0.05% by weight, or less) and the use of a positive crankcase ventilation or crankcase control device.

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

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

There are no technologically infeasible options to eliminate from step 1.

#### **c. Step 3 - Rank remaining options by control effectiveness**

- 1) Use of low-sulfur diesel fuel (0.05% by weight, or less) and the use of a positive crankcase ventilation or crankcase control device.

#### **d. Step 4 - Cost effectiveness analysis**

The applicant has proposed the only control option in the ranking list from Step 3. Therefore, per SJVAPCD BACT policy, the cost effectiveness analysis is not required.

#### **e. Step 5 - Select BACT**

BACT for PM10 emissions from this emergency standby diesel IC engine ( $\geq$  117 or less than 400 bhp) is the use of low-sulfur diesel fuel (0.05% sulfur, by weight, or less) and the use of a positive crankcase ventilation or crankcase control device. This emergency engine will be required to use CARB certified diesel fuel with a sulfur content of 0.0015%, by weight, and the use of a positive crankcase ventilation. Therefore, BACT for PM10 emissions is satisfied.

# **Appendix D**

## RMR Summary

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Fred Cruz - Permit Services

From: Cheryl Lawler - Permit Services

Date: May 29, 2013

Facility Name: FedEx Freight, Inc. Stockton

Location: 4520 S. Highway 99 Frontage Road, Stockton

Application No: N-8880-1-0

Project No: N-1131597

## A. RMR SUMMARY

RMR Summary			
Categories	Emergency Diesel ICE (Unit 1-0)	Project Totals	Facility Totals
<b>Prioritization Score</b>	N/A <sup>1</sup>	N/A <sup>1</sup>	>1
<b>Acute Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
<b>Chronic Hazard Index</b>	N/A <sup>2</sup>	N/A <sup>2</sup>	0.00
<b>Maximum Individual Cancer Risk</b>	1.30E-06	1.30E-06	1.30E-06
<b>T-BACT Required?</b>	Yes – PM10	[REDACTED]	
<b>Special Permit Conditions?</b>	Yes	[REDACTED]	

<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 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 1-0

1. The PM10 emissions rate shall not exceed 0.4 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 20 hours per calendar year. [District Rule 4702 and 17 CCR 93115]

## B. RMR REPORT

### I. Project Description

Technical Services received a request on May 23, 2013, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for a 300 bhp emergency diesel IC engine.

### II. Analysis

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

The following parameters were used for the review:

Analysis Parameters			
Source Type	Point	Location Type	Urban
BHP	300	PM <sub>10</sub> g/hp-hr	0.4
Closest Receptor (m)	54.86	Quad	2
Max Hours per Year	20	Type of Closest Receptor	Business

Technical Services also performed modeling for criteria pollutants NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>; as well as the RMR. The emission rates used for criteria pollutant modeling were 91 lb/yr NO<sub>x</sub>, 0.1 lb/yr SO<sub>x</sub>, 5 lb/yr PM<sub>10</sub>, and 5 lb/yr PM<sub>2.5</sub>.

The results from the Criteria Pollutant Modeling are as follows:

#### Criteria Pollutant Modeling Results\*

Diesel ICE	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>
PM <sub>2.5</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 risk associated with the operation of the proposed diesel IC engine is greater than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved **with** Toxic Best Available Control Technology (T-BACT) for PM<sub>10</sub>.

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 the proposed unit.

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

**Attachments:**

RMR Request Form & Related Documents  
DICE Screening Risk Tool  
AAQA Results  
Facility Summary