



FEB 18 2016

Robert Gurdikian  
Level 3 Communications LLC  
1025 Eldorado Blvd, 43C-325  
Broomfield, CO 80021

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: C-3117**  
**Project Number: C-1160008**

Dear Mr. Gurdikian:

Enclosed for your review and comment is the District's analysis of Level 3 Communications LLC's application for an Authority to Construct for a 1,490 horsepower Cummins model QST30-G5 Tier 2 certified diesel-fired emergency standby internal combustion engine powering an electrical generator, at 7576 N. Del Mar Ave, Fresno.

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. Jonah Aiyabei of Permit Services at (559) 230-5910.

Sincerely,

Arnaud Marjollet  
Director of Permit Services

AM:jka

Enclosures

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

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

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

Facility Name:	Level 3 Communications LLC	Date:	February 11, 2016
Mailing Address:	1025 Eldorado Blvd, 43C-325 Broomfield, CO 80021	Engineer:	Jonah Aiyabei
Contact Person:	Robert Gurdikian	Lead Engineer:	Jerry Sandhu
Telephone:	(720) 888-0676		
Application #:	C-3117-4-0		
Project #:	C-1160008		
Complete:	January 14, 2016		

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**I. Proposal**

Level 3 Communications LLC has applied for an Authority to Construct (ATC) permit for one 1,490 bhp Cummins model QST30-G5 Tier 2 certified diesel-fired emergency standby internal combustion engine powering an electrical generator.

An ATC permit for this engine (#C-3117-3-0) was initially issued to Tw Telecom, via project #C-1130019 (finalized March 20, 2013). Tw Telecom installed the engine but did not complete the process required to convert the ATC into a valid PTO. The ATC expired on March 20, 2015. In April 2015, ownership of Tw Telecom was transferred to Level 3 communications LLC. Since ATC #C-3117-3-0 had not been converted into a valid PTO at the time of the transfer of ownership, it could not be transferred to the new owner. As a result, a new ATC permit will need to be issued to Level 3 Communications.

The new ATC permit will cancel and supersede the previously issued permit. The following permit condition will be added to the new ATC:

- *This Authority to Construct (ATC) cancels and supersedes ATC C-3117-3-0. [District Rule 2201]*

**II. Applicable Rules**

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emission Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)

Rule 4201            Particulate Matter Concentration (12/17/92)  
Rule 4701            Internal Combustion Engines - Phase 1 (8/21/03)  
Rule 4702            Internal Combustion Engines (11/14/13)  
Rule 4801            Sulfur Compounds (12/17/92)  
CH&SC 41700        Health Risk Assessment  
CH&SC 42301.6      School Notice  
Title 17 CCR, Section 93115 - Airborne Toxic Control Measure (ATCM) for Stationary  
Compression-Ignition (CI) Engines  
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:  
CEQA Guidelines

### **III. Project Location**

The equipment is located at 7576 N. Del Mar Avenue in Fresno. The District has verified that the equipment is not located within 1,000 feet of the outer boundary of any K-12 schools. 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 50 hours per year for maintenance and testing purposes.

### **V. Equipment Listing**

**C-3117-4-0:** 1,490 BHP (INTERMITTENT) CUMMINS MODEL QST30-G5 (S/N 37237714) TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

### **VI. Emission Control Technology Evaluation**

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

The proposed engine meets the latest Tier Certification requirements; therefore, the engine meets the latest ARB/EPA emissions standards for diesel particulate matter, hydrocarbons, nitrogen oxides, and carbon monoxide (see Appendix C for a copy of the ARB certification executive order).

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

## VII. General Calculations

### A. Assumptions

Emergency operating schedule: 24 hours/day  
 Non-emergency operating schedule: 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)  
 The engine has certified NO<sub>x</sub> + NMHC (VOC) emissions of 4.4 g/bhp-hr (5.9 g/kW-hr). It will be assumed the NO<sub>x</sub> + VOC emission factor is split 95% NO<sub>x</sub> and 5% VOC, per the District's Carl Moyer program.

### B. Emission Factors

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	4.18	ARB Executive Order U-R-002-0426
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.09	ARB Executive Order U-R-002-0426
CO	0.52	ARB Executive Order U-R-002-0426
VOC	0.22	ARB Executive Order U-R-002-0426

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

### C. Calculations

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

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

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

The daily and annual PE are calculated as follows:

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

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

The daily and annual PE are summarized in the following table:

Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hrs/day)	Annual Hours of Operation (hrs/yr)	Daily PE2 (lb/day)	Annual PE2 (lb/yr)
NO <sub>x</sub>	4.18	1,490	24	50	329.5	687
SO <sub>x</sub>	0.0051	1,490	24	50	0.4	1
PM <sub>10</sub>	0.09	1,490	24	50	7.1	15
CO	0.52	1,490	24	50	41.0	85
VOC	0.22	1,490	24	50	17.3	36

### 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 sum of 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.

This facility does not have any ERCs. The PE values for unit C-3117-1-0 are calculated in Appendix F. The SSPE1 is as summarized in the following table:

SSPE1 (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
C-3117-1-0	156	0	8	17	8
<b>SSPE1</b>	<b>156</b>	<b>0</b>	<b>8</b>	<b>17</b>	<b>8</b>

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

Pursuant to Section 4.10 of District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the sum of the Potential to Emit (PE) from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

This facility does not have any ERCs. The SSPE2 is therefore the sum of the PE

<b>SSPE2 (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
C-3117-1-0	156	0	8	17	8
C-3117-4-0	687	1	15	85	36
<b>SSPE2</b>	<b>843</b>	<b>1</b>	<b>23</b>	<b>102</b>	<b>44</b>
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offset Threshold Surpassed?	No	No	No	No	No

## 5. Major Source Determination

### Rule 2201 Major Source Determination:

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

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

<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	156	0	8	17	8
Facility emissions post-project	843	1	23	102	44
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

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

Otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

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 calculated solely to establish emissions that are used to complete

the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix E.

## VIII. Compliance

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

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

##### 1. BACT Applicability

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

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

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

<b>New Emissions Unit BACT Applicability</b>				
<b>Pollutant</b>	<b>PE (lb/day)</b>	<b>BACT Threshold (lb/day)</b>	<b>SSPE2 (lb/yr)</b>	<b>BACT Triggered?</b>
NO <sub>x</sub>	329.5	> 2.0	n/a	Yes
SO <sub>x</sub>	0.4	> 2.0	n/a	No
PM <sub>10</sub>	7.1	> 2.0	n/a	Yes
CO	41.0	> 2.0 and SSPE2 ≥ 200,000 lb/yr	253	No
VOC	17.3	> 2.0	n/a	Yes



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

## 2. BACT Guideline

BACT Guideline 3.1.1, which is included in Appendix B of this evaluation, 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 part of the application review for each application subject to the BACT requirements of the District's NSR Rule. For source categories or classes covered in the BACT Clearinghouse, relevant information under each of the analysis steps may be simply cited from the Clearinghouse.

Pursuant to the Top-Down BACT Analysis in Appendix B of this evaluation, BACT is satisfied with:

NO<sub>x</sub>: Latest Available Tier Certification level for applicable horsepower\*

VOC: Latest Available Tier Certification level for applicable horsepower\*

PM<sub>10</sub>: 0.15 g/bhp-hr

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

The applicant has proposed to install a 1,490 bhp Tier 2 certified engine with a PM<sub>10</sub> certified level of 0.09 g-PM<sub>10</sub>/bhp-hr. Therefore, BACT is satisfied for NO<sub>x</sub>, VOC and PM<sub>10</sub>.

## B. Offsets

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

## C. Public Notification

### 1. Applicability

Public noticing is required for:

- a. New Major Sources, SB288 Major Modifications, and Federal Major Modifications

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

Modification, respectively.

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

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

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

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

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

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

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

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

### Proposed DEL conditions:

- {modified 4771} Emissions from this IC engine shall not exceed any of the following limits: 4.18 g-NO<sub>x</sub>/bhp-hr, 0.52 g-CO/bhp-hr, or 0.22 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- {4772} Emissions from this IC engine shall not exceed 0.09 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]

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

## **E. Compliance Assurance**

### **1. Source Testing**

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

### **2. Monitoring**

No monitoring is required to demonstrate compliance with Rule 2201.

### **3. Recordkeeping**

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

### **4. Reporting**

No reporting is required to ensure compliance with Rule 2201.

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

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

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

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

## **Rule 2410 Prevention of Significant Deterioration**

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

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

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

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

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

The District has not been delegated the authority to implement Subpart IIII requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

### **Rule 4002 National Emission Standards for Hazardous Air Pollutants**

#### 40 CFR 63 Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Emissions (RICE)

The District has not been delegated the authority to implement NESHAP regulations for Area Source requirements for non-Major Sources; therefore, no requirements shall be included on the permit.

### **Rule 4101 Visible Emissions**

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

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

### **Rule 4102 Nuisance**

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

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

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

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

Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

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

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
C-3117-4-0	2.99 per million	Yes

### Discussion of T-BACT

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

For this project T-BACT is triggered for PM<sub>10</sub>. T-BACT is satisfied with BACT for PM<sub>10</sub> (see Appendix B), which is an emissions rate of 0.15 g/bhp-hr or less. Compliance with the District's Risk Management Policy is therefore 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 20 in a million). As outlined by the HRA Summary in Appendix D of this report, the risk increases for this project were determined to be less than significant.

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

- {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]
- {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]
- {modified 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, 4102 and 4702, and 17 CCR 93115]

### Rule 4201 Particulate Matter Concentration

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

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

The new engine has a PM<sub>10</sub> emission factor less than 0.4 g/bhp-hr. Therefore, compliance is expected and the following condition will be listed on the ATC:

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

### Rule 4701 Internal Combustion Engines - Phase 1

The purpose of this rule is to limit the emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine rated greater than 50 bhp that requires a PTO.

The proposed engine is 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 for emergency engines, compliance with District Rule 4702 requirements will satisfy requirements of District Rule 4701.

### Rule 4702 Internal Combustion Engines

The following summarizes District Rule 4702 Requirements for emergency standby IC engines:

1. Operation of emergency standby engines is limited to 100 hours or less per calendar year for non-emergency purposes. The 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:

- {modified 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, 4102 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 will be included on the permit:

- {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]

5. Emergency standby engines cannot be used to reduce the demand for electrical power when normal electrical power line service has not failed, or to produce power for the electrical distribution system, or in conjunction with a voluntary utility demand reduction program or interruptible power contract.

The following conditions will be included on the permit:

- {3807} An emergency situation is an unscheduled electrical power outage

caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702]

- {3808} This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702]
6. Records of the total hours of operation, type of fuel used, purpose for operating the engine, all hours of non-emergency and emergency operation, and other support documentation must be maintained. All records shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request.

The following conditions will be included on the permit:

- {3496} The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702 and 17 CCR 93115]
- {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
- {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

### Rule 4801 Sulfur Compounds

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

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

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

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

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

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



Since 1.0 ppmv is  $\leq$  2,000 ppmv, this engine is expected to comply with Rule 4801. Therefore, the following condition will be listed on the ATC to ensure compliance:

- {4258} Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [District Rules 2201 and 4801, and 17 CCR 93115]

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

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

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

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

Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
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.
The engine 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 an engine that is 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>• {modified 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, 4102 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	The District has verified that this engine is not located within 500' of a school.

Requirements for New Emergency IC Engines Powering Electrical Generators	Proposed Method of Compliance with Title 17 CCR Section 93115 Requirements
between 7:30 AM and 3:30 PM	
<p>A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of sections 93115.6, 93115.7, or 93115.8(a) unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.</p>	<p>The following condition will be included on the permit:</p> <ul style="list-style-type: none"> <li>• {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]</li> </ul>
<p>An owner or operator shall maintain monthly records of the following: emergency use hours of operation; maintenance and testing hours of operation; hours of operation for emission testing; initial start-up testing hours; hours of operation for all other uses; and the type of fuel used. All records shall be retained for a minimum of 36 months.</p>	<p>Permit conditions enforcing these requirements were shown earlier in the evaluation.</p>

### California Environmental Quality Act (CEQA)

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

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- 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 Authority to Construct C-3117-4-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix A.

**X. Billing Information**

<b>Billing Schedule</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Fee Amount</b>
C-3117-4-0	3020-10-F	1,490 bhp IC Engine	\$785

**Appendices**

- A: Draft ATC
- B: BACT Guideline and BACT Analysis
- C: ARB Certification Executive Order
- D: HRA Summary and AAQA
- E: QNEC Calculations
- F: SSPE1 Calculations

# **Appendix A**

## **Draft ATC**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: C-3117-4-0

LEGAL OWNER OR OPERATOR: LEVEL 3 COMMUNICATIONS LLC  
MAILING ADDRESS: ATTN: AP-42C  
1025 ELDORADO BLVD  
BROOMFIELD, CO 80021

LOCATION: 7576 N DEL MAR AVE - STE 106  
FRESNO, CA 93711

EQUIPMENT DESCRIPTION:  
1,490 BHP (INTERMITTENT) CUMMINS MODEL QST30-G5 (S/N 37237714) TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

**CONDITIONS**

1. This Authority to Construct (ATC) cancels and supersedes ATC C-3117-3-0. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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]
6. {4749} This engine shall be equipped with a non-resettable hour meter with a minimum display capability of 9,999 hours, unless the District determines that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history. [District Rule 4702 and 17 CCR 93115]
7. {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]
8. Emissions from this IC engine shall not exceed any of the following limits: 4.18 g-NOx/bhp-hr, 0.52 g-CO/bhp-hr, or 0.22 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

**DRAFT**

Arnaud Marjolle, Director of Permit Services  
C-3117-4-0 Feb 9 2016 9:57AM - AIYABEU : Joint Inspection NOT Required

9. 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]
10. {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]
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. {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]
13. {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]
14. {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]
15. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102, and 4702, and 17 CCR 93115]
16. {4263} The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
17. {3475} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702 and 17 CCR 93115]

DRAFT

## **Appendix B**

### **BACT Guideline and BACT Analysis**

# San Joaquin Valley Unified Air Pollution Control District

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

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

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

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



## Top Down BACT Analysis for the Emergency IC Engine

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

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

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

BACT Guideline 3.1.1 identifies only the following option:

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

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 does not meet the definition of a nonroad engine. Therefore, only Title 17 CCR, Section 93115 applies directly to the proposed emergency engine.

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).

<b>Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)</b>					
<b>Maximum Engine Power</b>	<b>Tier</b>	<b>Model Year(s)</b>	<b>PM</b>	<b>NMHC+NOx</b>	<b>CO</b>
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 engine is rated at 755 bhp. Therefore, the applicable control technology option is EPA Tier 2 certification.

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

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

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

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

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

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

**e. Step 5 - Select BACT**

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

## **2. BACT Analysis for PM<sub>10</sub> Emissions:**

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

BACT Guideline 3.1.1 identifies only the following option:

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

The latest EPA Tier Certification level for an engine of the proposed model year and horsepower rating is Tier 2. Refer to the Top-Down BACT analysis for NO<sub>x</sub> for a discussion regarding the determination of the EPA Tier level to be considered.

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

Therefore, a PM/PM<sub>10</sub> emission standard of 0.15 g/hp-hr is required as BACT.

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

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

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

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

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

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

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

BACT for PM<sub>10</sub> is emissions of 0.15 g/bhp-hr or less. The applicant is proposing an engine with a PM<sub>10</sub> emissions rate of 0.09 g/bhp-hr. Therefore, BACT will be satisfied.

## **Appendix C**

### **ARB Certification Executive Order**



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

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

**IT IS ORDERED AND RESOLVED:** That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2008	8CEXL030.AAD	30.0	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler			Generator	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NO<sub>x</sub>), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NO<sub>x</sub>), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NO <sub>x</sub>	NMHC+NO <sub>x</sub>	CO	PM	ACCEL	LUG	PEAK
KW > 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	N/A	N/A	N/A
		CERT	--	--	5.9	0.7	0.12	--	--	--

**BE IT FURTHER RESOLVED:** That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

**This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.**

Executed at El Monte, California on this 6 day of December 2007.

Annette Hebert, Chief  
Mobile Source Operations Division

ATTACHMENT B (of 1)  
**Engine Model Summary Form**

U-R-002-0426

Manufacturer: **Cummins Inc.**  
 Engine category: **Nonroad CI**  
 EPA Engine Family: **8CEXL030.AAD**  
 Mfr Family Name: **D573**  
 Process Code: **Running Change**

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
1175:FR5247	QST30-G	1490@1800	426	517.1	N/A	N/A	N/A	DDI, TC, CAC ↓ ↓ ↓
1704:FR5250	QST30-G	1490@1800	426	517.1	N/A	N/A	N/A	
2713:FR5263	QST30-G	1362@1800	373	453.3	N/A	N/A	N/A	
2714:FR5264	QST30-G	1362@1800	373	453.3	N/A	N/A	N/A	
2717:FR5269	QST30-G	1400 @ 1500	505	511.1	N/A	N/A	N/A	
2716:FR5265	QST30-G	1300 @ 1500	465	470.5	N/A	N/A	N/A	
2717:FR5266	QST30-G	1300 @ 1500	465	470.5	N/A	N/A	N/A	
2718:FR5267	QST30-G	1231 @ 1500	435	440	N/A	N/A	N/A	
2719:FR5268	QST30-G	1231 @ 1500	435	440	N/A	N/A	N/A	
1808:FR5253	QST30-G	1239 @ 1800	366	443.9	N/A	N/A	N/A	
1818:FR5254	QST30-G	1239 @ 1800	366	443.9	N/A	N/A	N/A	
3197:FR5270	QST30-G	1490@1800	436	517.1	N/A	N/A	N/A	
3198:FR5271	QST30-G	1490@1800	436	517.1	N/A	N/A	N/A	

**Appendix D**  
**HRA Summary and AAQA**



# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Jonah Aiyanei, AQE - Permit Services  
 From: Tadeh Issakhanian, AQS - Permit Services  
 Date: January 13, 2016  
 Facility Name: Level 3 Communications Llc  
 Location: 7576 N Del Mar Ave - Ste 106, Fresno, CA  
 Application #(s): C-3117-4  
 Project #: C-1160008

---

## A. RMR SUMMARY

RMR Summary			
Categories	Diesel-Fired IC Engine (Unit 4)	Project Totals	Facility Totals
Prioritization Score	N/A <sup>1</sup>	N/A <sup>1</sup>	>1.0
Acute Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Chronic Hazard Index	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	2.99	2.99	5.51
T-BACT Required?	Yes		
Special Permit Conditions?	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.

### Proposed Permit Conditions

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

#### Unit # 4.

1. The PM10 emissions rate shall not exceed 0.09 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District Rules 2201 and 4102 and 13 CCR 2423 and 17 CCR 93115]
2. {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] N
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 Rules 2201, and 4702 and 17 CCR 93115] N

**T-BACT is required for this unit because of emissions of diesel particulate matter which is a PM-10. In accordance with District policy, BACT for this unit will be considered to be T-BACT.**

## **B. RMR REPORT**

### **I. Project Description**

Technical Services received a request on January 13, 2016, to perform a Risk Management Review and an Ambient Air Quality Analysis for a proposed installation of a 1490 hp diesel-fired emergency IC engine powering an electrical generator.

### **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:

<b>Analysis Parameters Unit 4</b>			
<b>Source Type</b>	<b>Point</b>	<b>Location Type</b>	<b>Urban</b>
<b>BHP</b>	1490	<b>PM<sub>10</sub> g/hp-hr</b>	0.09
<b>Closest Receptor (m)</b>	15.24	<b>Quad</b>	Quad 2
<b>Max Hours per Year</b>	50	<b>Type of Receptor</b>	Resident

Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>; as well as a RMR. The emission rates used for criteria pollutant modeling were 41 lb/hr CO, 330 lb/hr NO<sub>x</sub>, 0.4 lb/hr SO<sub>x</sub>, and 7.1 lb/hr PM<sub>10</sub>. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

### **Criteria Pollutant Modeling Results\***

<b>Diesel ICE</b>	<b>1 Hour</b>	<b>3 Hours</b>	<b>8 Hours.</b>	<b>24 Hours</b>	<b>Annual</b>
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. Conclusion**

The cancer risk associated with the operation of the proposed diesel IC engine is greater than 1.0 in a million, but less than 20 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 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 this proposed unit .

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

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

### **IV. Attachments**

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

# **Appendix E**

## **QNEC Calculations**

### Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr
- PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr

Since this is a new unit, PE1 = 0 for all pollutants. Thus, QNEC = PE2 (lb/qtr).

PE2 (lb/qtr) = PE2 (lb/yr) ÷ 4 quarters/year

Based on the PE2 (lb/yr) values calculated in Section VII.C.2, QNEC is summarized in the following table:

QNEC		
Pollutant	PE2 Total (lb/yr)	QNEC (lb/qtr)
NO <sub>x</sub>	687	171.75
SO <sub>x</sub>	1	0.25
PM <sub>10</sub>	15	3.75
CO	85	21.25
VOC	36	9.00

# **Appendix F**

## **SSPE1 Calculations**

## Potential to Emit (PE) Determination

### Permit Unit C-3117-1-0

#### I. Equipment Listing

**C-3117-1-0:** 380 BHP CUMMINS MODEL LTA 10-G1 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR

#### II. Emission Control Technology Evaluation

The engine is equipped with a turbocharger and intercooler/aftercooler for the control of NO<sub>x</sub> emissions; as well as a Positive Crankcase Ventilation system for the control crankcase VOC emissions.

The engine is fired on ultra low-sulfur diesel fuel (0.0015% by weight sulfur maximum), which reduces SO<sub>x</sub> emissions by over 99% in comparison to standard (low sulfur) diesel fuel.

#### III. General Calculations

##### A. Assumptions

Emergency operating schedule: 24 hours/day  
 Non-emergency operating schedule: 20 hours/year (current PTO/ATCM limit)  
 Density of diesel fuel: 7.1 lb/gal  
 Fuel heating value: 137,000 Btu/gal  
 BHP to Btu/hr conversion: 2,542.5 Btu/bhp-hr  
 Thermal efficiency of engine: commonly ≈ 35%

##### B. Emission Factors

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO <sub>x</sub>	9.30	Manufacturer Specifications
SO <sub>x</sub>	0.0051	Mass Balance Equation Below
PM <sub>10</sub>	0.50	Manufacturer Specifications
CO	1.0	Manufacturer Specifications
VOC	0.48	Manufacturer Specifications

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

**C. Calculations**

The daily and annual PE are calculated as follows:

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

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

The daily and annual PE are summarized in the table below:

<b>Pollutant</b>	<b>Emissions Factor (g/bhp-hr)</b>	<b>Rating (bhp)</b>	<b>Daily Hours of Operation (hrs/day)</b>	<b>Annual Hours of Operation (hrs/yr)</b>	<b>Daily PE2 (lb/day)</b>	<b>Annual PE2 (lb/yr)</b>
NO <sub>x</sub>	9.30	380	24	20	187.0	156
SO <sub>x</sub>	0.0051	380	24	20	0.1	0
PM <sub>10</sub>	0.50	380	24	20	10.1	8
CO	1.00	380	24	20	20.1	17
VOC	0.48	380	24	20	9.7	8