

APR 05 2016

Celine Granger
Tesla Motors, Inc.
45500 Fremont Blvd
Fremont, CA 94538-6326

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-4447
Project Number: N-1160588

Dear Ms. Granger:

Enclosed for your review and comment is the District's analysis of Tesla Motors, Inc.'s application for an Authority to Construct for the installation of a 1,490 bhp diesel-fueled emergency internal combustion engine, at 18260 Harlan Rd, Lathrop, California.

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. Jag Kahlon of Permit Services at (209) 557-6452.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:JK

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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**San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review**

Facility Name:	Tesla Motors, Inc.	Date:	March 30, 2016
Mailing Address:	45500 Fremont Blvd Fremont, CA 94538	Engineer:	Jag Kahlon
Contact Person:	Celine Granger	Lead Engineer:	Nick Peirce
Telephone:	(408) 859-5835		
Application #(s):	N-4447-16-0		
Project #:	N-1160588		
Deemed Complete:	March 7, 2016		

I. PROPOSAL

Tesla Motors, Inc. is requesting an Authority to Construct (ATC) permit to install a 1,490 bhp Tier 2 certified diesel-fueled emergency internal combustion (IC) engine that will power an electric generator.

This engine is a portable rental engine that will be placed at a designated location at the facility, where it may reside for more than 12 consecutive months; therefore, this engine is being treated as "stationary" diesel engine for the purpose of addressing local, State and Federal regulations.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (2/18/16)
Rule 4001 New Source Performance Standards (04/14/99)
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)
California Health & Safety Code 41700 (Public Nuisance)
California Health & Safety Code 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 proposed engine will be located at 18260 Harlan Road, Lathrop, California. There is no K-12 school within 1,000 feet of this location. Therefore, school notice under the California Health & Safety Code 42301.6 is not required.

IV. PROCESS DESCRIPTION

The proposed engine will be connected to an electric generator. Other than emergency operation, the engine may be operated up to 50 hours per year for maintenance and testing purposes.

V. EQUIPMENT LISTING

N-2865-4-0:

1,490 BHP CUMMINS MODEL QST30-G5 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

The proposed engine is equipped with turbocharger and intercooler/aftercooler systems.

The turbocharger is expected to reduce NO_x emission rate by approximately 10% by increasing engine's efficiency by promoting more complete burning of the fuel.

The intercooler/after cooler functions in conjunction with the turbocharger will reduce the inlet air temperature. By reducing the inlet air temperature, the peak combustion temperature is lowered, which reduces the formation of thermal NO_x. NO_x emissions are reduced by approximately 15% with this control technology.

VII. GENERAL CALCULATIONS

A. Assumptions

Emergency operating schedule:	24 hr/day
Non-emergency operating schedule:	50 hr/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 ₁₀ fraction of diesel exhaust:	0.96 (CARB, 1988)

The proposed engine is a Tier 2 certified engine with NO_x and NMHC (VOC) emissions rate of 4.4 g/bhp-hr. NO_x contribution is presumed to be 95%, whereas the remaining contribution of 5% is allocated to VOC emissions (per the Carl Moyer program).

B. Emission Factors

1. Pre-Project Emission Factors (EF1)

The proposed unit is a new emissions unit; therefore, EF1 does not exist at this point.

2. Post-Project Emission Factors (EF2)

Pollutant	EF2 (g/bhp-hr)	Source
NO _x	4.2	95% of 4.4 g/bhp-hr (NO _x + VOC); NO _x + VOC from CARB Executive order U-R-002-0426
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.09	CARB Executive order U-R-002-0426
CO	0.5	CARB Executive order U-R-002-0426
VOC	0.2	5% of 4.4 g/bhp-hr (NO _x + VOC); NO _x + VOC from CARB Executive order U-R-002-0426

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

C. Calculations

1. Pre-Project Potential to Emit (PE1)

The proposed unit is a new emissions unit. Therefore, PE1 is equal to zero.

2. Post-Project Potential to Emit (PE2)

$$\begin{aligned} \text{PE2 (lb/day)} &= (\text{EF2 g/bhp-hr})(1,490 \text{ bhp})(24 \text{ hr/day})(\text{lb}/453.6 \text{ g}) \\ \text{PE2 (lb/yr)} &= (\text{EF2 g/bhp-hr})(1,490 \text{ bhp})(50 \text{ hr/yr})(\text{lb}/453.6 \text{ g}) \end{aligned}$$

Pollutant	EF2 (g/bhp-hr)	PE2 (lb/day)	PE2 (lb/yr)
NO _x	4.2	331.1	690
SO _x	0.0051	0.4	1
PM ₁₀	0.09	7.1	15
CO	0.5	39.4	82
VOC	0.2	15.8	33

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 Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. The potential emissions for each permit unit are taken from the application review under project N-1160095.

Permit #	Pollutants (lb/yr)				
	NO _x	SO _x	PM ₁₀	CO	VOC
N-4447-1-0	144	0	6	44	25
N-4447-2-0	144	0	6	44	25
N-4447-3-1	51	0	4	16	9
N-4447-4-0	0	0	0	0	402
N-4447-5-0	1,469	69	183	1,739	132
N-4447-6-0	935	44	117	2,775	84
N-4447-7-3	5,147	219	730	2,993	1,347
N-4447-8-0	0	0	329	0	0
N-4447-9-0	0	0	329	0	0
N-4447-10-0	0	0	329	0	0
N-4447-11-0	741	27	37	16	159
N-4447-12-0	741	27	37	16	159
N-4447-13-0	741	27	37	16	159
N-4447-14-0	2,957	146	365	4,052	256
N-4447-15-0	1,606	73	183	2,190	146
ERC	0	0	0	0	0
SSPE1	14,676	632	2,692	13,901	2,903

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 Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Permit #	Pollutants (lb/yr)				
	NO _x	SO _x	PM ₁₀	CO	VOC
N-4447-1-0	144	0	6	44	25
N-4447-2-0	144	0	6	44	25
N-4447-3-1	51	0	4	16	9

Continue...

Permit #	Pollutants (lb/yr)				
	NO _x	SO _x	PM ₁₀	CO	VOC
N-4447-4-0	0	0	0	0	402
N-4447-5-0	1,469	69	183	1,739	132
N-4447-6-0	935	44	117	2,775	84
N-4447-7-3	5,147	219	730	2,993	1,347
N-4447-8-0	0	0	329	0	0
N-4447-9-0	0	0	329	0	0
N-4447-10-0	0	0	329	0	0
N-4447-11-0	741	27	37	16	159
N-4447-12-0	741	27	37	16	159
N-4447-13-0	741	27	37	16	159
N-4447-14-0	2,957	146	365	4,052	256
N-4447-15-0	1,606	73	183	2,190	146
N-4447-16-0	690	1	15	82	33
ERC	0	0	0	0	0
SSPE2	15,366	633	2,707	13,983	2,936

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

Rule 2201 Major Source Determination (lb/year)					
Category	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	14,676	632	2,692	13,901	2,903
SSPE2	15,366	633	2,707	13,983	2,936
Major Source Thresholds	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

From the above table, the facility is not an existing Major Source for any pollutant.

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, PSD Major Source thresholds shown in the table are applicable.

PSD Major Source Determination (tons/year)						
Category	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Estimated Facility PE before Project Increase	7.3	1.5	0.3	7.0	1.3	1.3
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ?	No	No	No	No	No	No

From the above table, the facility is not an existing major source for any pollutant under PSD.

6. Baseline Emissions (BE)

The BE calculation is performed on a pollutant-by-pollutant basis for each unit within the project to calculate the quarterly net emissions change, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE is equal to pre-project Potential to Emit (PE1) for:

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

Otherwise,

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

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The proposed emission unit is a new emission unit; therefore, its BE is equal to zero for each pollutant.

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."

Per section VII.C.5 of this document, this facility is not a Major Source for any pollutant. Thus, this project will not trigger an SB-288 major modification.

8. Federal Major Modification

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.

Per section VII.C.5 of this document, this facility is not a Major Source for any pollutant. Thus, this project will not trigger a Federal major modification.

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants related to this project which must be addressed in the PSD applicability determination for sources located in the SJV are: (See 52.21 (b) (23) definition of significant)

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM, PM₁₀

Step 1:

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not.

Per section VII.C.5 of this document, this facility is not an existing Major Source under PSD.

Step2:

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

I. 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 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.

Category	Potential to Emit (tons/year)					
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Total PE N-4447-16-0	0.35	0.02	0.00	0.04	0.01	0.01
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	No	No	No	No	No	No

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.

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. QNEC are shown in Appendix V of this document.

VIII. COMPLIANCE

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements shall be triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis.

Unless exempted pursuant to Section 4.2, BACT shall be required for the following actions¹:

- a. Any new emissions unit or relocation from one Stationary Source to another of an existing emissions unit with a Potential to Emit (PE2) exceeding 2.0 pounds in any one day;
- b. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding 2.0 pounds in any one day;

¹Except 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

- c. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined in this rule.

Detailed discussion on the above items is presented below:

- a. New emissions unit/Relocation of emission unit – PE2 > 2.0 lb/day

Per section VII.C.2 of this document, PE2 is greater than 2.0 lb/day for NO_x, PM₁₀, CO and VOC emissions. Facility's total CO emissions are less than 200,000 lb/yr. Thus, BACT is triggered for NO_x, PM₁₀ and VOC emissions.

- b. Modification of emission units – AIPE > 2.0 lb/day

AIPE is calculated using the equations mentioned in Section 4.3 and 4.4 of Rule 2201.

$$AIPE = PE2 - \left(\frac{EF2}{EF1} \right) (PE1)$$

The proposed unit is a new emission unit; therefore, AIPE calculations are not required.

- c. SB-288/Federal Major Modification

Per sections VII.C.7 and VII.C.8 above, this project is not an SB-288 and/or Federal Major Modification. Thus, BACT is not triggered under this section.

2. BACT Guideline

BACT guideline 3.1.1 – Emergency diesel IC engine is referenced to address the BACT requirements. This guideline requires:

NO_x, VOC:

Latest EPA Tier certification level for applicable horse power range, that is, Tier 2 for emergency engines rated at or above 750 bhp at this time.

PM₁₀:

0.15 g/bhp-hr or the latest EPA Tier certification level for applicable horsepower range that is, Tier 2 for emergency engines rated at or above 750 bhp at this time.

3. Top-Down BACT Analysis

The proposed engine is a Tier-2 certified engine. Therefore, BACT requirements are met for NO_x, PM₁₀ and VOC emissions. Please refer to Appendix II of this document for Top-Down BACT analysis for each pollutant.

B. Offsets

Per section 4.6.2 of Rule 2201, offsets are not required for emergency equipment that is used exclusively as emergency standby equipment for electric power generation or any other emergency equipment as approved by the APCO that does not operate more than 200 hours per year for non-emergency purposes and is not used pursuant to voluntary arrangements with a power supplier to curtail power. Equipment exempted by this section shall maintain a written record of hours of operation and shall have permit conditions limiting non-emergency operation.

The proposed engine will be used during emergency situations that are beyond the control of an operator. The non-emergency operation will be limited to 50 hours per year for maintenance and testing purposes. Further, the engine will not be used in an electric utility rate reduction program. The applicant will be required to keep records of all emergency and non-emergency hours of operation. Therefore, this unit is exempt from the offset requirements.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications; and/or
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant; and/or
- c. Modifications that increase SSPE1 from a level below the emission offset threshold to a level exceeding the emissions offset threshold for one or more pollutants; and/or
- d. New stationary sources with SSPE2 exceeding the emissions offset threshold level for one or more pollutants; and/or
- e. Any permitting action resulting in an SSIPE of greater than 20,000 lb/year for any one pollutant; and/or
- f. Any project which results in a Title V significant permit modification.

Detailed discussion on each of the above item is presented in the following section:

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

New Major Sources are new facilities, which are also Major Sources. Since this facility is not a new facility, public noticing is not required for this project.

As demonstrated in sections VII.C.7 and VII.C.8 of this document, this project is not an SB 288 or Federal Major Modification; therefore, public notice is not required.

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

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements.

The potential emissions from the proposed unit are greater than 100 lb/day for NOx emissions; therefore, public notice is required.

c. **Offset Threshold**

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold (lb/year)	Public Notice Required?
NOx	14,676	15,366	20,000	No
SOx	632	633	54,750	No
PM ₁₀	2,692	2,707	29,200	No
CO	13,901	13,983	200,000	No
VOC	2,903	2,936	20,000	No

As detailed above, the proposed project does not result in an increase in SSPE1 from a level below the emission offset threshold to a level exceeding the emissions offset threshold for any pollutant; therefore, public notice is not required under this section.

d. **New Stationary Source with SSPE2 exceeding Offset Threshold**

This facility is not a new stationary source. Therefore, public notice will not trigger under this section.

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

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. The District practice is to define SSIPE as the difference between SSPE2 and SSPE1.

The SSIPE is compared to the SSIPE Public Notice thresholds in the following table. Note that negative SSIPE values are equated to zero.

SSIPE Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold (lb/year)	Public Notice Required?
NOx	15,366	14,676	690	20,000	No
SOx	633	632	1	20,000	No
PM ₁₀	2,707	2,692	15	20,000	No
CO	13,983	13,901	82	20,000	No
VOC	2,936	2,903	33	20,000	No

As demonstrated above, SSIPE value for each pollutant is less than 20,000 lb/year; therefore, public notice is not required.

f. **Title V Significant Permit Modification**

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

2. Public Notice Action

Based on the discussion above, public notice is required for this project.

D. Daily Emission Limits (DELs)

The daily emissions limitations (DELs) and other enforceable conditions are required by Section 3.17 to restrict a unit's maximum daily emissions. The following DELs will be established in the permit:

- Emissions from this IC engine shall not exceed any of the following limits: 4.2 g-NOx/bhp-hr, 0.5 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
- PM₁₀ emission rate shall not exceed 0.09 g-PM10/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rule 2201 and 4102, and 17 CCR 93115]

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

E. Compliance Assurance

Source Testing

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

Monitoring

Monitoring is not required.

Recordkeeping

The permittee will be required to keep records of emergency and non-emergency hours of operation of this engine.

Reporting

Reporting is not required.

F. Ambient Air Quality Analysis (AAQA)

Pursuant to Section 4.14 of Rule 2201, 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. The following table shows the summary of AAQA in Appendix IV of this document:

Pollutant	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA ¹	X	NA ¹	X	X
NO _x	NA ¹	X	X	X	Pass
SO _x	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	X	X	X	NA ¹	Pass ²
PM _{2.5}	X	X	X	NA ¹	Pass ²

¹The 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.

²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165(b)(2).

The criteria modeling runs for the proposed new units indicate that the emissions will not cause or contribute significantly to a violation of the State and National Ambient Air Quality Standards.

G. Compliance Certification

Per Section 4.15 of Rule 2201, "Compliance Certification" and "Alternative Siting Analysis" is required for a project at a new Major Source or for a project that triggers Federal Major Modification.

This facility is not a Major Source for any pollutant; therefore, compliance certification and alternative siting analyses are not required.

Compliance is expected with this Rule.

Rule 4001 New Source Performance Standards

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

Pursuant to section 60.4200(a)(2) this engine is subject to the requirements of this subpart. However, the District has not been delegated authorization to enforce the requirements in this subpart for non-Part 70 sources. Therefore, no further discussion is necessary.

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 section 63.6585 of this subpart, this engine is subject to this federal regulation. However, the District has not been delegated authorization to enforce the requirements of this subpart for non-Part 70 sources. Therefore, no further discussion is necessary.

Rule 4101 Visible Emissions

Section 5.0, indicates 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 dark or darker than Ringelmann 1 or equivalent to 20% opacity. The following condition will be placed in the permit:

- 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]

Compliance is expected with this Rule.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. The following condition will be placed on each permit:

- 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. The Risk Management Review summary is as follows:

Risk Management Review Summary			
Categories	N-4447-16-0	Project Totals	Facility Totals
Prioritization Score	N/A ¹	N/A ¹	>1
Acute Hazard Index	N/A ²	N/A ²	0.01
Chronic Hazard Index	N/A ²	N/A ²	0.01
Maximum Individual Cancer Risk (10 ⁻⁶)	1.42E-06	1.42E-06	8.83E-06
T-BACT Required?	Yes		
Special Permit Conditions?	Yes		

¹Prioritization 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.

²Acute 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.

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.

T-BACT Guidance

Per District Policy APR 1905 (5/28/2015), in order to control emissions of hazardous air pollutants to the maximum level achievable, applicants must apply Toxic Best Available Control Technology (T-BACT) to each new and modified emissions units with a greater than de minimus increase in cancer risk² or a greater than de minimus increase in non-cancer risk³. T-BACT is the most stringent limitation or control technique for hazardous air pollutants of the following:

- a. Has been achieved in practice for such emissions unit and class of source; or
- b. Is contained in any State Implementation Plan approved by the Environmental Protection Agency for such emissions unit category and class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed emissions unit demonstrates to the satisfaction of the APCO that such limitation or control technique is not presently achievable; or

² A de minimus increase in cancer risk is an increase in risk of one per million, as determined in section VIII of District Policy 1905.

³ A de minimus increase in non-cancer risk is an increase in the hazard index of one, as determined in Section VII of District Policy 1905.

- c. Is contained in any Federal Standard promulgated pursuant to FCAA Section 111 (NSPS) or Section 112 (MACT) for such emissions unit category and class of source; or
- d. Is any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found by the APCO to be technologically feasible for such class or category of sources or for a specific source, and cost effective as determined by the District.

The District considers T-BACT to be equivalent to BACT. The proposed project triggered T-BACT due to PM₁₀ emissions.

BACT guideline 3.1.1 for emergency diesel IC engines is used to address T-BACT. This guideline lists:

Achieved-in-Practice:

- 0.15 g/bhp-hr or the latest EPA Tier certification level for applicable horsepower range that is, Tier 2 for emergency engines rated at or above 750 bhp at this time

Technologically Feasible:

- None

Alternate Basic Equipment:

- None

T-BACT Analysis

The proposed engine complies with the achieved-in-practice standards. Therefore, T-BACT requirements are satisfied for this unit. Please refer to Appendix III of this document for detailed T-BACT analysis.

The following conditions will be included in the permit:

- PM₁₀ emission rate 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]
- The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
- This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201, 4102 and 4702 and 17 CCR 93115]

- This engine is permitted to be solely used by Tesla Motors Inc., at 18260 Harlan Road, Lathrop (Lathrop Site). The engine shall be located 187 feet away from the East boundary line and 534 feet away from the South boundary line of the Lathrop Site. [District Rules 2201 and 4201]

Compliance is expected with this Rule.

Rule 4201 Particulate Matter Concentration

Section 3.0 of this Rule states that a person shall not release or discharge into the atmosphere from any single source operation, dust, fumes, or total suspended particulate matter emissions in excess of 0.1 grain per cubic foot of gas at dry standard conditions.

The particulate matter concentration in the engine's exhaust stream can be estimated as follows:

$$\text{PM} \left(\frac{\text{gr}}{\text{dscf}} \right) = \frac{\text{Emissions} \left(\frac{\text{gr} - \text{PM}}{\text{min}} \right)}{\text{Exhaust Flow (scfm)} \times \text{Moisture Correction}}$$

Per applicant, the exhaust flow rate at 1,490 bhp will be 7,540 acfm @ 890.6°F. As a conservative estimate, it is assumed the engine exhaust's moisture content is 10%. Therefore, the exhaust particulate matter emission concentration at 60°F would be:

$$\text{PM} \left(\frac{\text{gr}}{\text{dscf}} \right) = \frac{\left(0.3 \frac{\text{lb} - \text{PM}}{\text{hr}} \right) \left(7,000 \frac{\text{gr} - \text{PM}}{\text{lb} - \text{PM}} \right) \left(\frac{\text{hr}}{60 \text{ min}} \right)}{\left(7,540 \frac{\text{ft}^3}{\text{min}} \right) \left(\frac{460 + 60}{460 + 890.6} \right) (1 - 0.1)} = 0.01 \frac{\text{gr} - \text{PM}}{\text{dscf}}$$

Since 0.01 gr/dscf is less than 0.1 gr/dscf, compliance with this Rule is expected.

Rule 4701 Internal Combustion Engines – Phase 1

Since the applicable administrative requirements in Rule 4702 are equivalent or more stringent than that of the Rule 4701, compliance with Rule 4702 requirements will satisfy requirements of Rule 4701.

Rule 4702 Internal Combustion Engines

The purpose of this rule is to limit the emissions of nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOC), and sulfur oxides (SOx) from internal combustion engines.

This rule applies to any internal combustion engine rated at 25 brake horsepower or greater. The proposed engine is rated at 1,490 bhp; therefore, this engine is subject to the requirements of this rule.

Pursuant to Section 4.2, except for the requirements of Sections 5.9 and 6.2.3, the requirements of this rule shall not apply to an "emergency standby engine" (section 3.15) or a "low-use engine" (section 3.26), provided that the engine is operated with an operating non-resettable elapsed time meter or other APCO approved alternative. The following conditions will be included in the permit:

- 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, 4702 and 17 CCR 93115]
- 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]
- 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]

Section 5.9 requires complying with the following requirements:

- Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.
- Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.
- Install and operate a non-resettable elapsed time meter or other APCO approved alternative device.

The following conditions will be included in the permit:

- 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]
- 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]
- 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]

Section 6.2.3 requires that an owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and provided to the APCO upon request. The records shall include, but are not limited to, the following:

- Total hours of operation,
- The type of fuel used,
- The purpose for operating the engine,
- For emergency standby engines, all hours of non-emergency and emergency operation shall be reported, and
- Other support documentation necessary to demonstrate claim to the exemption.

The following conditions will be included in the permit:

- 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]
- The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702 and 17 CCR 93115]
- 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]

Compliance is expected with this Rule.

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) 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 SO₂

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

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

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

Since 1.0 ppmv is \leq 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:

- 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]

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

§93115.5 - Fuel and Fuel Additive Requirements for New and In-Use Stationary CI Engines That Have a Rated Brake Horsepower of Greater than 50 (>50 bhp)

This regulation also stipulates that as of January 1, 2006 an owner or operator of a new or in-use stationary diesel-fueled CI emergency standby engine shall fuel the engine with CARB Diesel Fuel.

Since the engine involved in this project is a new stationary diesel-fueled CI emergency standby engine, these fuel requirements are applicable. Therefore, the following condition(s) (previously proposed in this engineering evaluation) will be included in the permit:

- 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]

§93115.6 Emergency Standby Diesel-Fueled CI Engine (>50 bhp) Operating Requirements and Emission Standards

Section (a)(3)(A), Emissions Standards and Hours of Operating Requirements

1. New Stationary emergency standby diesel-fueled engines (>50 bhp) shall:
 - a. meet the applicable emissions standards for all pollutants as specified in Table 1 Emissions Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines, in effect on the date of acquisition or submittal, as defined in section 93115.4, and
 - b. after December 31, 2008, be certified to the new nonroad compression-ignition (CI) engine emission standards for all pollutants for 2007 and later model year engines as specified in 40 CFR, Part 60, Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engine; and

- c. not operate more than 50 hours per year for maintenance and testing purposes, except as provided in 93115.6(a)(3)(A)2. This subsection does not limit engine operation for emergency use and for emission testing to show compliance with 93115.6(a)(3).

Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines g/bhp-hr (g/kW-hr)				
Maximum Engine Power	Model year(s)	PM	NMHC+NOx	CO
50 ≤ HP < 75 (37 ≤ kW < 56)	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	2008+			
75 ≤ HP < 100 (56 ≤ kW < 75)	2007	0.15 (0.20)	5.6 (7.5) 3.5 (4.7)	3.7 (5.0)
	2008+			
100 ≤ HP < 175 (75 ≤ kW < 130)	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
	2008+			
175 ≤ HP < 300 (130 ≤ kW < 225)	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
	2008+			
300 ≤ HP < 600 (225 ≤ kW < 450)	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
	2008+			
600 ≤ HP < 750 (450 ≤ kW < 560)	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
	2008+			
HP > 750 (kW > 560)	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
	2008+			

1. May be subject to additional emission limitations as specified in current applicable district rules, regulations or policies.

The proposed 1,490 bhp engine is a 2008 year model engine. The emission rates are 4.4 g/bhp-hr of NOx and NMHC, 0.09 g/bhp-hr of PM emissions, and 0.5 g/bhp-hr of CO emissions. These emissions rates are less than the required emission standards. Therefore, compliance is expected with the emission standard in Table 1 shown in the above section and the item a of Section (a)(3)(A)(1).

40 CFR Part 60 Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engine, Section 60.4205(b), requires that 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new non-road CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE. Furthermore, section 60.4202(a) states Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

- (1) For engines with a maximum engine power less than 37 KW (50 HP):
 - (i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and
 - (ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.
- (2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

40 CFR 89.112 (a) Table 1 requires the following emission standards for engines greater than 560 kW (751 bhp): 6.4 g/kW-hr (4.77 g/bhp-hr) for NMHC + NO_x, 3.5 g/kW-hr (2.6 g/bhp-hr) for CO, and 0.2 g/kW-hr (0.15 g/bhp-hr) for PM. Furthermore, 40 CFR 89.113 lists smoke emission standards including exhaust opacity not to exceed 20% during acceleration mode, 15% during the lugging mode and 50% during the peaks in either the acceleration or lugging modes.

The emission rates from the proposed engine are less than the standards stated in the above paragraph. Therefore, compliance is expected with item b of (a)(3)(A)(1).

The proposed engine will be permitted to operate up to 50 hours per year for non-emergency (i.e., primarily maintenance and testing) operation. Therefore, compliance is expected with item c of (a)(3)(A)(1).

The following condition(s) will be included in the permit:

- Emissions from this IC engine shall not exceed any of the following limits: 4.2 g-NO_x/bhp-hr, 0.5 g-CO/bhp-hr, or 0.2 g-VOC/bhp-hr. [District Rule 2201 and 17 CCR 93115]
 - PM₁₀ emission rate shall not exceed 0.09 g-PM₁₀/bhp-hr based on USEPA certification using ISO 8178 test procedure. [District Rule 2201 and 4102 and 17 CCR 93115]
2. The District may allow a new stationary emergency standby diesel-fueled CI engine (>50 bhp) to operate up to 100 hours per year for maintenance and testing purposes on a site-specific basis, provided the diesel PM emission rate is less than or equal to 0.01 g/bhp-hr.

The proposed PM emission rate is above the 0.01 g/bhp-hr; therefore, the engine will not be allowed to operate 100 hours per year for maintenance and testing purpose.

Section (a)(3) (B), the District:

1. May establish more stringent diesel PM, NMHC+NO_x, HC, NO_x, and CO emission rate standards; and
2. May establish more stringent limits on hours of maintenance and testing on a site-specific basis; and
3. Shall determine an appropriate limit on the number of hours of operation for demonstrating compliance with other District rules and initial start-up testing.

The emission rates for the proposed engine are established based on the information provided in the application package, and are equal to or stringent than the current District requirements. Note that the PM emissions from the engine are greater than 0.01 g/bhp-hr; therefore, the engine cannot be permitted to operate up to 100 hours per year for maintenance and testing purposes.

§93115.10 – Recordkeeping, Reporting, and Monitoring Requirements

Pursuant to section (f), starting January 1, 2005, each owner or operator of an emergency standby diesel-fueled CI engine shall keep records and prepare a monthly summary that shall list and document the nature of use for each of the following:

- a. Emergency use hours of operation;
- b. Maintenance and testing hours of operation;
- c. Hours of operation for emission testing;
- d. Initial start-up hours; and
- e. If applicable, hours of operation to comply with the testing requirements of NFPA 25
- f. Hours of operation for all uses other than those specified in sections 'a' through 'd' above; and
- g. If applicable, DRP (Demand Response Program) engine hours of operation, and
- h. The fuel used.

The following condition(s) will be included in the permit:

- 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, and the purpose of the operation (for example: load testing, emergency usage, etc.). 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 Rules 4701 4702, and 17 CCR 93115]

- All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 4701 and 4702, and 17 CCR 93115]

Compliance is expected with this regulation.

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.

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

Compliance with all applicable regulations is expected. Therefore, issuance of ATC N-4447-16-0 is recommended after addressing comments from the CARB and the public.

X. BILLING INFORMATION

Permit #	Fee Schedule	Fee Description	Previous Fee Schedule
N-4447-16-0	3020-01 G	1,490 bhp, IC engine	None

APPENDICES

- Appendix I: Draft Authority to Construct
- Appendix II: Top-Down BACT Analysis
- Appendix III: T-BACT Analysis
- Appendix IV: Risk Management Review and Ambient Air Quality Analysis
- Appendix V: Quarterly Net Emissions Change

Appendix I
Draft Authority to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-4447-16-0

LEGAL OWNER OR OPERATOR: TESLA MOTORS, INC.
MAILING ADDRESS: 45500 FREMONT BLVD
FREMONT, CA 94538-6326

LOCATION: 18260 HARLAN RD
LATHROP, CA 95330

EQUIPMENT DESCRIPTION:
1,490 BHP CUMMINS MODEL QST30-G5 TIER 2 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR

CONDITIONS

1. This engine is permitted to be solely used by Tesla Motors Inc., at 18260 Harlan Road, Lathrop (Lathrop Site). The engine shall be located 187 feet away from the East boundary line and 534 feet away from the South boundary line of the Lathrop Site. [District Rules 2201 and 4201]
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. 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]
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: 4.2 g-NOx/bhp-hr, 0.5 g-CO/bhp-hr, or 0.2 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.

Seyed Sadredin, Executive Director, APCO

DRAFT

Arnaud Marjolle, Director of Permit Services

N-4447-16-0 Mar 30 2016 @ 10:44AM - KAH/LOHJ Joint Inspection NOT Required

9. PM10 emission rate 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. 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]
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. {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]
18. U.S. EPA administers the requirements of 40 CFR Part 60 Subpart IIII and 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 these subparts. 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 II
Top-Down BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1*

Last Update: 9/10/2013

Emergency Diesel IC engine

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Latest EPA Tier Certification level for applicable horsepower range*		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
NOX	Latest EPA Tier Certification level for applicable horsepower range*		
CO	Latest EPA Tier Certification level for applicable horsepower range*		

*Note: for emergency engines 50 <= bhp < 75, Tier 4 Interim certification is the requirement; for emergency engines 75 <= bhp < 750, Tier 3 certification is the requirement; for emergency engines >= 750 bhp, Tier 2 certification is the requirement.

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**

Top-Down BACT Analysis for NO_x

Step 1: Identify All Possible Control Technologies

BACT Guideline 3.1.1 lists the following control technologies to reduce NO_x emissions:

Achieved-in-Practice:

Latest EPA Tier Certification Level for applicable horsepower range

For the proposed engine Tier 2 Certification

Technologically Feasible:

None

Alternate Basic Equipment:

None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Tier 2 Certified engine (achieved-in-practice)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible or alternative basic equipment listed in the guideline for which a cost-effectiveness analysis is required.

Step 5: Select BACT

BACT is Tier 2 certified engine. The applicant has proposed to install a Tier 2 certified engine. Thus, BACT requirements are satisfied.

Top-Down BACT Analysis for PM₁₀

Step 1: Identify All Possible Control Technologies

BACT Guideline 3.1.1 lists the following control technologies to reduce PM₁₀ emissions:

Achieved-in-Practice:

Latest EPA Tier Certification Level for applicable horsepower range

For the proposed engine Tier 2 Certification

Technologically Feasible:

None

Alternate Basic Equipment:

None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Tier 2 Certified engine (achieved-in-practice)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible or alternative basic equipment listed in the guideline for which a cost-effectiveness analysis is required.

Step 5: Select BACT

BACT is Tier 2 certified engine. The applicant has proposed to install a Tier 2 certified engine. Thus, BACT requirements are satisfied.

Top-Down BACT Analysis for VOC

Step 1: Identify All Possible Control Technologies

BACT Guideline 3.1.1 lists the following control technologies to reduce VOC emissions:

Achieved-in-Practice:

Latest EPA Tier Certification Level for applicable horsepower range

For the proposed engine Tier 2 Certification

Technologically Feasible:

None

Alternate Basic Equipment:

None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Tier 2 Certified engine (achieved-in-practice)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible or alternative basic equipment listed in the guideline for which a cost-effectiveness analysis is required.

Step 5: Select BACT

BACT is Tier 2 certified engine. The applicant has proposed to install a Tier 2 certified engine. Thus, BACT requirements are satisfied.

**Appendix III
T-BACT Analysis**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1*

Last Update: 9/10/2013

Emergency Diesel IC engine

Pollutant	Achieved In Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Latest EPA Tier Certification level for applicable horsepower range*		
SOX	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)		
NOX	Latest EPA Tier Certification level for applicable horsepower range*		
CO	Latest EPA Tier Certification level for applicable horsepower range*		

***Note: for emergency engines 50 <= bhp < 75, Tier 4 Interim certification is the requirement; for emergency engines 75 <= bhp < 750, Tier 3 certification is the requirement; for emergency engines >= 750 bhp, Tier 2 certification is the requirement.**

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**

T-BACT Analysis for PM₁₀

Step 1: Identify All Possible Control Technologies

BACT Guideline 3.1.1 lists the following control technologies to reduce PM₁₀ emissions:

Achieved-in-Practice:

Latest EPA Tier Certification Level for applicable horsepower range

For the proposed engine Tier 2 Certification

Technologically Feasible:

None

Alternate Basic Equipment:

None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Tier 2 Certified engine (achieved-in-practice)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible or alternative basic equipment listed in the guideline for which a cost-effectiveness analysis is required.

Step 5: Select BACT

BACT is Tier 2 certified engine. The applicant has proposed to install a Tier 2 certified engine. Thus, BACT requirements are satisfied.

Appendix IV
Risk Management Review and Ambient Air Quality Analysis

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Jag Kahlon - Permit Services
 From: Cheryl Lawler - Permit Services
 Date: March 14, 2016
 Facility Name: Tesla Motors, Inc.
 Location: 18260 Harlan Road, Lathrop
 Application #(s): N-4447-16-0
 Project #: N-1160588

A. RMR SUMMARY

RMR Summary			
Categories	Diesel-Fired IC Engine (Unit 16-0)	Project Totals	Facility Totals
Prioritization Score	N/A ¹	N/A ¹	>1
Acute Hazard Index	N/A ²	N/A ²	0.01
Chronic Hazard Index	N/A ²	N/A ²	0.01
Maximum Individual Cancer Risk	1.42E-06	1.42E-06	8.83E-06
T-BACT Required?	Yes		
Special Permit Requirements?	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 Requirements

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

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

T-BACT is required for this unit because of emissions of Diesel Exhaust 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 March 8, 2016, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for the installation of a 1490 bhp emergency Diesel ICE powering an electric 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:

Analysis Parameters Unit 16-0			
Source Type	Point	Location Type	Urban
BHP	1490	PM₁₀ g/hp-hr	0.09
Closest Receptor (m)	90	Quad	2
Max Hours per Year	50	Type of Receptor	Business

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, and PM10 with the emission rates below:

Analysis Parameters (Unit 16-0)			
Source Type	Point	Nearest Receptor (m)	90
Stack Height (m)	4.11	Closest Receptor Type	Business
Stack Diameter (m)	0.46	Project Location	Urban
Stack Exit Velocity (m/s)	21.68	Stack Exit Temperature (K)	750

Unit #	NO_x (Lbs.)		SO_x (Lbs.)		CO (Lbs.)		PM₁₀ (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
16-0	0	690	0	1	0	82	0	15

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 ¹	X	NA ¹	X	X
NO _x	NA ¹	X	X	X	Pass
SO _x	NA ¹	NA ¹	X	NA ¹	Pass
PM ₁₀	X	X	X	NA ¹	Pass ²
PM _{2.5}	X	X	X	NA ¹	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The 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.

²The 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 requirements listed on Page 1 of this report must be included for this proposed unit .

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

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

IV. Attachments

- A. RMR Request Form & Facility Layout
- B. DICE Screening Risk Tool
- C. Facility Summary
- D. AAQA Summary
- E. AERMOD Non-Default Option Checklist

Appendix V
Quarterly Net Emissions Change

Quarterly Net Emissions Change (QNEC)

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

$QNEC = PE2 - PE1$, where:

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

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

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

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

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

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

N-4447-16-0:

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	172.50	0	172.50
SO _x	0.25	0	0.25
PM ₁₀	3.75	0	3.75
CO	20.50	0	20.50
VOC	8.25	0	8.25