

# Best Available Control Technology (BACT) Requirements for Diesel-Fired Emergency IC Engines > 50 bhp Powering Electrical Generators

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**SJVAPCD Best Available Control Technology (BACT) Guideline 3.1.1\***  
 Last Update: April 29, 2022

**Emergency Diesel-Fired IC Engine > 50 bhp Powering an Electrical Generator**

<b>Pollutant</b>	<b>Achieved in Practice or contained in SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
NO <sub>x</sub>	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
SO <sub>x</sub>	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM <sub>10</sub>	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
CO	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
VOC	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		

\*\* The following emission levels are equivalent to the EPA Tier 4 Final certification levels:  
 50 - < 75 bhp: 3.5 g-(NO<sub>x</sub> + VOC)/bhp-hr, 0.02 g-PM/bhp-hr, 3.7 g-CO/bhp-hr  
 75 - < 175 bhp: 0.30 g-NO<sub>x</sub>/bhp-hr, 0.015 g-PM/bhp-hr, 3.7 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr  
 175 - ≤ 750 bhp: 0.30 g-NO<sub>x</sub>/bhp-hr, 0.015 g-PM/bhp-hr, 2.6 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr  
 > 750 bhp: 0.50 g-NO<sub>x</sub>/bhp-hr, 0.02 g-PM/bhp-hr, 2.6 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr

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**

## I. Introduction

The purpose of this document is to update the San Joaquin Valley Air Pollution Control District (District) Best Available Control Technology (BACT) Guideline 3.1.1 - Emergency Diesel-Fired IC Engine to clarify the BACT requirements that apply to new diesel-fired emergency internal combustion (IC) engines greater than 50 brake horsepower (bhp) powering electrical generators installed in the District. District BACT Guideline 3.1.1, as updated on June 13, 2019, requires the “*Latest EPA Tier Certification level for applicable horsepower range*” as BACT for emissions of oxides of nitrogen (NO<sub>x</sub>), particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), carbon monoxide (CO), and volatile organic compounds (VOC) from diesel-fired emergency IC engines (See Attachment A). The update to District BACT Guideline 3.1.1 will clarify that the latest EPA Tier certification levels for diesel-fired IC engines are the applicable EPA Tier 4 Final standards, and that BACT for new diesel-fired emergency engines powering electrical generators in the District will require the use of Tier 4 Final certified engines or engines with equivalent emission levels to Tier 4 Final. Therefore, BACT for Authority to Construct (ATC) applications for new diesel-fired emergency engines powering electrical generators deemed complete after April 29, 2022 will require compliance with emission limits that are equivalent to the EPA Tier 4 Final standards.

The clarification to District BACT Guideline 3.1.1 for diesel-fired emergency IC engines will ensure that the District BACT requirements for new installations will continue to satisfy the minimum requirement to be the most stringent emission limitation or control technique that has been achieved in practice for such category and class of source.

## II. Background

Because of the climate and geography of the San Joaquin Valley, the District faces some of the most difficult air quality challenges in the entire nation. The District is a public health agency whose mission is to improve the health and quality of life for all Valley residents through efficient, effective, and entrepreneurial air quality management strategies. The District is responsible for developing plans to continue to improve the air quality in the San Joaquin Valley in order to reach attainment with health-based ambient air quality standards, and these plans become part of state and federal law. As a critical part of these plans to attain the established ambient air quality standards to mitigate adverse health impacts, District Rule 2201 – New and Modified Stationary Source Review Rule requires the use of BACT to minimize potential emissions from new and modified equipment and processes.

District Rule 2201 defines BACT as the most stringent emission limitation or control technique of the following:

- Achieved in practice for such category and class of source;
- Contained in any State Implementation Plan approved by the Environmental Protection Agency for such category and class of source. A specific limitation

- or control technique shall not apply if the owner of the proposed emissions unit demonstrates to the satisfaction of the APCO that such a limitation or control technique is not presently achievable; or
- Contained in an applicable federal New Source Performance Standard; or
  - Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found by the Air Pollution Control Officer (APCO) to be cost effective and technologically feasible for such class or category of sources or for a specific source.

Federal and California regulations require that emissions of NO<sub>x</sub>, particulate matter (PM), CO, and hydrocarbons (including VOCs) from new stationary and transportable (non-road) diesel IC engines must not exceed certain emission standards dependent upon the rating of the engine and the year that the engine was manufactured. The Federal emission standards for new stationary and transportable diesel IC engines are included in 40 CFR Part 1039 and the California emission standards for these engines are included in the California Code of Regulations (CCR), Title 13 – Motor Vehicles, Section 2423 - Exhaust Emission Standards and Test Procedures - Off-Road Compression-Ignition Engines (13 CCR Section 2423). The emission standards for new stationary and transportable diesel IC engines are divided into different Tier certification levels that were phased in at different dates depending on the rating of the engine. These Tier certification levels required progressively more stringent emission limits for the pollutants regulated under the standards. The different Tier certification levels for diesel-fired IC engines are the Tier 1, Tier 2, Tier 3, Tier 4 Interim, and Tier 4 Final standards. The Federal Tier 1 certification standards for new non-road diesel engines rated over 50 bhp (37 kW) were adopted in 1994 and began being phased in 1996. Subsequently, more stringent Tier 2, Tier 3, and Tier 4 Interim and Final certification standards for diesel engines were adopted and phased in, with the phase-in of the Tier 4 certification levels beginning in 2008. The Tier 4 Final standards are the most stringent emission levels commonly achieved by diesel-fired IC engines of various ratings and generally require the use of add-on controls, such as diesel particulate filters (DPFs) and selective catalytic reduction (SCR). For most bhp ranges, the Tier 4 Final standards reduce NO<sub>x</sub> and PM emissions by at least 90% compared to the applicable Tier 2 and Tier 3 standards.

Federal and California regulations require that manufacturers of stationary and transportable diesel IC engines must certify that their engines meet the applicable Tier certification standards for the year in which the engine is manufactured. New non-emergency diesel IC engines must be certified to the applicable Tier 4 Final standards for the bhp rating of the engine while new emergency diesel IC engines generally are only required to be certified to the most recent Tier certification standards that do not require add-on emission controls, which are the Tier 3 standards for engines rated 37 to 560 kW (50 to 750 bhp) and the Tier 2 standards for engines rated greater than 560 kW (750 bhp). The Federal Tier 2 emission standards for stationary and transportable diesel IC engines rated greater than 560 kW (750 bhp), and the Federal Tier 3 and Tier 4 Final emission standards for stationary and transportable diesel IC engines are

shown below. The Federal Tier certification standards for new stationary and transportable diesel IC engines are also included in Attachment B.

<b>Table 2 to 40 CFR Part 1039, Appendix I – Tier 2 Emission Standards for Engines &gt; 560 kW (g/kW-hr)</b>				
<b>Rated power (kW)</b>	<b>Starting model year</b>	<b>NO<sub>x</sub>+NMHC*</b>	<b>CO</b>	<b>PM</b>
kW > 560	2006	6.4	3.5	0.20

\*NMHC = Non-methane Hydrocarbon

<b>Table 3 to 40 CFR Part 1039, Appendix I – Tier 3 Emission Standards (g/kW-hr)</b>				
<b>Rated power (kW)</b>	<b>Starting model year</b>	<b>NO<sub>x</sub>+NMHC</b>	<b>CO</b>	<b>PM</b>
37 ≤ kW < 75	2008	4.7	5.0	0.40
75 ≤ kW < 130	2007	4.0	5.0	0.30
130 ≤ kW < 560	2006	4.0	3.5	0.20

<b>Table 1 of 40 CFR Part 1039.101 – Tier 4 Exhaust Emission Standards After the 2014 Model Year, g/KW-hr<sup>a</sup></b>						
<b>Maximum Engine Power</b>	<b>Application</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>NO<sub>x</sub>+NMHC</b>	<b>CO</b>
kW < 19	All	0.40 <sup>b</sup>	-	-	7.5	6.6 <sup>c</sup>
19 ≤ kW < 56	All	0.03	-	-	4.7	5.0 <sup>d</sup>
56 ≤ kW < 130	All	0.02	0.40	0.19	-	5.0
130 ≤ kW ≤ 560	All	0.02	0.40	0.19	-	3.5
kW > 560	Generator Sets	0.03	0.67	0.19	-	3.5
kW > 560	All Except Generator Sets	0.04	3.5	0.19	-	3.5

a. Note that some of these standards also apply to 2014 and earlier model years. This table presents the full set of emission standards that apply after all the transition and phase-in provisions of 40 CFR 1039.102 expire.

b. See paragraph c of 40 CFR 1039.101fo provisions related to an optional PM standard for certain engines below 8 kW

c. The CO standard is 8.0 g/kW-hr for engines below 8 kW

d. The CO standard is 5.5 g/kW-hr for engines below 37 kW

The District had previously determined that the achieved in practice BACT requirement for diesel emergency IC engines was the latest Tier certification level that did not require add-on controls. At that time, this determination was consistent with the applicable Federal and California regulations, including the New Source Performance Standards (NSPS) for compression ignition IC engines in [40 CFR 60 Subpart IIII](#), the California [Airborne Toxic Control Measure \(ATCM\) for Stationary Compression Ignition \(CI\) Engines](#), and the requirements of other local air districts. However, the BACT requirements for a particular source must be periodically updated

to ensure that they continue to be the most stringent control technology for the source at the time that an air permit is issued for the equipment. As mentioned above, currently the latest EPA Tier certification level for diesel-fired IC engines are the Tier 4 Final standards.

In previous years, Tier 4 Final diesel IC engines were not readily available or in widespread use. However, the emission control technologies required to achieve the Tier 4 Final emission standards, such as SCR systems, DPFs, and diesel oxidation catalysts (DOCs), have been standard technology for new stationary and mobile diesel engines for several years now, to the extent that urea solution for SCR systems, known as diesel exhaust fluid (DEF), is found at most automotive stores, truck stops, many gas stations, and even other general retail stores. There are also numerous businesses that maintain and repair these emission control systems. In addition, within the last few years, a number of Tier 4 Final certified IC engines powering electrical generators and engines with add-on controls with equivalent emissions have been permitted and installed for emergency purposes.

### **III. Applicable Regulations and Achieved in Practice BACT Requirements for Diesel-Fired Emergency IC Engines Powering Electrical Generators**

In order to evaluate the most stringent emission limits that have been required for diesel-fired emergency IC engines powering electrical generators of various sizes, the requirements of the Federal and California regulations listed below were considered. In addition, BACT and Lowest Achievable Emission Rate (LAER) determinations from the US EPA RACT/BACT/LAER Clearinghouse (RBLC), the California Air Resources Board (ARB) statewide BACT Clearinghouse, and the BACT guidelines from the South Coast Air Quality Management District (SCAQMD), the Bay Area Air Quality Management District (BAAQMD), the Sacramento Metropolitan Air Quality Management District (SMAQMD), the Santa Barbara County Air Pollution Control District (SBCAPCD), and the Monterey Bay Air Resources District (MBARD) were also reviewed to evaluate the most stringent emission requirements and control technologies that are currently utilized for diesel-fired emergency IC engines powering electrical generators.

#### **A. Evaluation of Federal, State and Local Regulations**

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

40 CFR 60 Subpart IIII establishes New Source Performance Standards (NSPS) to reduce emissions of NO<sub>x</sub>, SO<sub>x</sub>, PM, CO, and VOC from new stationary compression-ignition (CI) IC engines. 40 CFR 60 Subpart IIII establishes emission certification requirements for manufacturers of stationary compression-ignition IC engines. 40 CFR 60 Subpart IIII also establishes emission requirements for owners and operators of compression-ignition IC engines for which construction commenced after July 11, 2005 and the engine was manufactured after April 1, 2006 for engines that are not fire

pump engines and for owners and operators of compression-ignition IC engines for which construction commenced after July 11, 2005 and the engine was manufactured after July 1, 2006 for engines that were manufactured as certified National Fire Protection Association (NFPA) fire pump engines after July 1, 2006. 40 CFR 60 Subpart IIII also requires that owners and operators of stationary diesel IC engines subject to the subpart with a displacement of less than 30 liters per cylinder must use nonroad diesel fuel with a maximum sulfur content of 15 parts per million by weight (ppmw) and that owners and operators of stationary diesel IC engines subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder must use diesel fuel with a maximum sulfur content of 1,000 ppmw.

The 40 CFR 60 Subpart IIII emission certification standards for engines rated 50 bhp or more are summarized in the tables below.

<b>Current 40 CFR 60 Subpart IIII Emission Certification Requirements for Non-Emergency Stationary CI ICE with a Displacement of Less than 10 Liters per Cylinder</b>						
<b>Maximum Engine Power</b>	<b>Application</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>NO<sub>x</sub> + NMHC</b>	<b>CO</b>
37 ≤ kW < 56	All	0.03	-	-	4.7	5.0
56 ≤ kW < 130	All	0.02	0.40	0.19	-	5.0
130 ≤ kW ≤ 560	All	0.02	0.40	0.19	-	3.5
kW > 560	Generator Sets	0.03	0.67	0.19	-	3.5
kW > 560	All Except Generator Sets	0.04	3.5	0.19	-	3.5

<b>Current 40 CFR 60 Subpart IIII Emission Certification Requirements for Emergency Stationary CI ICE with a Displacement of Less than 10 Liters per Cylinder that are Not Fire Pump Engines</b>				
<b>Rated power (kW)</b>	<b>Starting model year</b>	<b>NO<sub>x</sub> + NMHC</b>	<b>CO</b>	<b>PM</b>
37 ≤ kW < 75	2008 (Tier 3)	4.7	5.0	0.40
75 ≤ kW < 130	2007 (Tier 3)	4.0	5.0	0.30
130 ≤ kW < 560	2006 (Tier 3)	4.0	3.5	0.20
kW > 560	2006 (Tier 2)	6.4	3.5	0.20

<b>Current 40 CFR 60 Subpart IIII Emission Standards for Stationary Fire Pump Engines</b>				
<b>Maximum Engine Power</b>	<b>Model year(s)</b>	<b>NMHC + NO<sub>x</sub></b>	<b>CO</b>	<b>PM</b>
37≤kW<56 (50≤hp<75)	2011 +	4.7 (3.5)	5.0 (3.7)	0.40 (0.30)
56≤kW<75 (75≤hp<100)	2011 +	4.7 (3.5)	5.0 (3.7)	0.40 (0.30)
75≤kW<130 (100≤hp<175)	2010 +	4.0 (3.0)	5.0 (3.7)	0.30 (0.22)
130≤kW<225 (175≤hp<300)	2009 +	4.0 (3.0)	3.5 (2.6)	0.20 (0.15)
225≤kW<450 (300≤hp<600)	2009 +	4.0 (3.0)	3.5 (2.6)	0.20 (0.15)
450≤kW≤560 (600≤hp≤750)	2009 +	4.0 (3.0)	3.5 (2.6)	0.20 (0.15)
kW>560 (hp>750)	2008 +	6.4 (4.8)	3.5 (2.6)	0.20 (0.15)

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

The purpose of this California airborne toxic control measure (ATCM) is to reduce diesel PM and criteria pollutant emissions from stationary diesel-fueled compression-ignition (CI) engines. This California ATCM applies to any person who either sells a stationary compression-ignition engine, offers a stationary compression-ignition engine for sale, leases a stationary compression-ignition engine, or purchases a stationary compression-ignition engine for use in California, unless such engine is: (1) a portable compression-ignition engine, (2) a compression-ignition engine used to provide motive power, an auxiliary compression-ignition engine used on a marine vessel, or an agricultural wind machine. This ATCM also applies to any person who owns or operates a stationary CI engine in California with a rated brake horsepower greater than 50 (>50 bhp) except as specified in the regulation.

The ATCM requires that diesel IC engines must use CARB diesel fuel or an approved alternative with a maximum sulfur content of 15 ppmw or less and sets emission standards for new CI engines. The emission standards from this regulation that apply to new CI engines are summarized in the tables below.

<b>Current ATCM Emission Standards for New Stationary Emergency Standby CI Engines g/bhp-hr (g/kW-hr)*</b>				
<b>Maximum Engine Power</b>	<b>Model Year(s)</b>	<b>PM</b>	<b>NMHC + NO<sub>x</sub></b>	<b>CO</b>
50 ≤ hp < 75 (37 ≤ kW < 56)	2008+	0.15 (0.20)	3.5 (4.7)	3.7 (5.0)
75 ≤ hp < 100 (56 ≤ kW < 75)	2008+	0.15 (0.20)	3.5 (4.7)	3.7 (5.0)
100 ≤ hp < 175 (75 ≤ kW < 130)	2008+	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
175 ≤ hp < 300 (130 ≤ kW < 225)	2008+	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
300 ≤ hp < 600 (225 ≤ kW < 450)	2008+	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
600 ≤ hp < 750 (450 ≤ kW < 560)	2008+	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
hp > 750 (kW > 560)	2008+	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)

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



BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>Current ATCM Emission Standards for New Stationary Emergency Standby Direct-Drive Fire Pump CI Engines &gt; 50 bhp g/bhp-hr (g/kW-hr)</b>				
<b>Maximum Engine Power</b>	<b>Model Year(s)</b>	<b>PM</b>	<b>NMHC + NO<sub>x</sub></b>	<b>CO</b>
50 ≤ hp < 75 (37 ≤ kW < 56)	2011+	0.30 (0.40)	3.5 (4.7)	3.7 (5.0)
75 ≤ hp < 100 (56 ≤ kW < 75)	2011+	0.30 (0.40)	3.5 (4.7)	3.7 (5.0)
100 ≤ hp < 175 (75 ≤ kW < 130)	2010+	0.22 (0.30)	3.0 (4.0)	3.7 (5.0)
175 ≤ hp < 300 (130 ≤ kW < 225)	2009+	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
300 ≤ hp < 600 (225 ≤ kW < 450)	2009+	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
600 ≤ hp < 750 (450 ≤ kW < 560)	2009+	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
hp > 750 (kW > 560)	2008+	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)

<b>Current ATCM Emission Standards for New Stationary Prime CI Engines &gt; 50 bhp g/bhp-hr (g/kW-hr)*</b>						
<b>Maximum Engine Power</b>	<b>Model Year(s)</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC+NO<sub>x</sub></b>	<b>NMHC</b>	<b>CO</b>
50 ≤ hp < 75 (37 ≤ kW < 56)	2013+	0.02 (0.03)	--	3.5 (4.7)	--	3.7 (5.0)
75 ≤ hp < 100 (56 ≤ kW < 75)	2015+	0.01 (0.02)	0.30 (0.40)	--	0.14 (0.19)	3.7 (5.0)
100 ≤ hp < 175 (75 ≤ kW < 130)	2014+	0.01 (0.02)	0.30 (0.40)	--	0.14 (0.19)	3.7 (5.0)
175 ≤ hp < 750 (130 ≤ kW < 560)	2015+	0.02 (0.03)	0.50 (0.67)	--	0.14 (0.19)	2.6 (3.5)
750 < hp ≤ 1207 (560 < kW ≤ 900) Gen. Sets	2015+	0.02 (0.03)	0.50 (0.67)	--	0.14 (0.19)	2.6 (3.5)
hp > 1207 (kW > 900) Gen. Sets	2015+	0.02 (0.03)	0.50 (0.67)	--	0.14 (0.19)	2.6 (3.5)

\*May be subject to additional emission limitations as specified in current district rules, regulations, or policies governing distributed generation.

**SCAQMD Rule 1470 - Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines (amended May 4, 2012)**

The purpose of SCAQMD Rule 1470 is to implement the California ATCM for Stationary Compression-Ignition Engines in order to reduce diesel PM and other pollutant emissions from stationary diesel-fueled CI engines in the South Coast Air Quality Management District. SCAQMD Rule 1470 applies to any person who either sells a stationary compression-ignition engine, offers a stationary compression-ignition engine for sale, leases a stationary compression-ignition engine, or purchases a stationary compression-ignition engine for use in the South Coast Air Quality Management District, and to any person who owns or operates a stationary CI engine

in the South Coast Air Quality Management District with a rated brake horsepower greater than 50 bhp, except as provided in subdivision (h) of SCAQMD Rule 1470.

SCAQMD Rule 1470 generally includes requirements that are equivalent or more stringent than the California ATCM for Stationary CI Engines. Like the California ATCM for Stationary CI Engines, SCAQMD Rule 1470 requires that diesel IC engines must use CARB diesel fuel or an approved alternative with a maximum sulfur content of 15 ppmw or less and sets emission standards for new CI engines. Emission requirements that are more stringent than those contained in the California ATCM for Stationary CI Engines include lower PM emission limits for emergency standby engines located near schools and sensitive receptors<sup>1</sup> and lower NO<sub>x</sub>, CO, and VOC emission limits for prime engines. SCAQMD indicates that the primary methods for compliance with SCAQMD Rule 1470 are the use of clean fuels, limiting the hours for testing and maintenance, and the use of DPFs.<sup>2</sup> The emission standards included in SCAQMD Rule 1470 that apply to new diesel-fired emergency engines are summarized below.

Current SCAQMD Rule 1470 Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines > 50 bhp

<b>Current SCAQMD Rule 1470 Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines - g/bhp-hr (g/kW-hr)</b>					
<b>Maximum Engine Power</b>	<b>PM</b> Engines located > 50 meters from a sensitive Receptor and > 100 meters from a school	<b>PM</b> Engines located at or ≤ 100 meters from a school on and after 1/1/2005	<b>PM</b> Engines located at or ≤ 50 meters from a sensitive receptor on and after 1/1/2013*	<b>NMHC + NO<sub>x</sub></b>	<b>CO</b>
50 ≤ hp < 100 (37 ≤ kW < 75)	0.15	0.01	0.15	3.5 (4.7)	3.7 (5.0)
100 ≤ hp < 175 (75 ≤ kW < 130)	0.15	0.01	0.15	3.0 (4.0)	3.7 (5.0)
175 ≤ hp ≤ 750 (130 ≤ kW < 560)	0.15	0.01	0.01	3.0 (4.0)	2.6 (3.5)
hp > 750 (kW > 560)	0.15	0.01	1/1/2013- 6/30/2015: 0.075	4.8 (6.4)	2.6 (3.5)
			On and after 7/1/2015: 0.02		

\*Two or more new emergency standby engines that are individually rated < 175 bhp and located within 50 meters of the same sensitive receptor shall each emit diesel PM at a rate ≤ 0.01 g/bhp-hr if the cumulative maximum rated bhp of the engines is ≥ 175 bhp, the applications for such engines are deemed complete on or after January 1, 2013, and the applications for such engines are deemed complete within 18 months of each other

<sup>1</sup> SCAQMD Rule 1470 definition of a sensitive receptor includes: any residence, including private homes, condominiums, apartments, and living quarters; k-12 schools with more than 12 students; preschools; daycare centers; health facilities such as hospitals or retirement and nursing homes, long-term care hospitals; hospices; prisons; and dormitories or similar live-in housing.

<sup>2</sup> SCAQMD webpage - Rule 1470 - Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines. <https://www.aqmd.gov/home/rules-compliance/compliance/toxic-hot-spots-ab-2588/iws-facilities/dice/dice-b3> (accessed October 11, 2021)

Current SCAQMD Rule 1470 Emission Standards for New Stationary Emergency Standby Diesel-Fueled Direct-Drive Fire Pump Engines > 50 bhp

<b>Current SCAQMD Rule 1470 Emission Standards for New Stationary Emergency Standby Diesel-Fueled Direct-Drive Fire Pump Engines &gt; 50 bhp - g/bhp-hr (g/kW-hr)</b>				
<b>Maximum Engine Power</b>	<b>PM</b> Engines located > 100 meters from a school	<b>PM</b> Engines located at or ≤ 100 meters from a school on and after 1/1/2005	<b>NMHC + NO<sub>x</sub></b>	<b>CO</b>
50 ≤ hp < 100 (37 ≤ kW < 75)	0.30 (0.40)	0.01	3.5 (4.7)	3.7 (5.0)
100 ≤ hp < 175 (75 ≤ kW < 130)	0.22 (0.30)	0.01	3.0 (4.0)	3.7 (5.0)
175 ≤ hp ≤ 750 (130 ≤ kW < 560)	0.15 (0.20)	0.01	3.0 (4.0)	2.6 (3.5)
hp > 750 (kW > 560)	0.15 (0.20)	0.01	4.8 (6.4)	2.6 (3.5)

Current SCAQMD Rule 1470 Emission Standards for New Stationary Emergency Standby Diesel-Fueled Direct-Drive Flood Control Pump CI Engines > 50 bhp

<b>Current SCAQMD Rule 1470 Emission Standards for New Stationary Emergency Standby Direct-Drive Flood Control Pump CI Engines &gt; 50 bhp - g/bhp-hr (g/kW-hr)</b>				
<b>Maximum Engine Power</b>	<b>PM</b> Engines located > 100 meters from a school	<b>PM</b> Engines located at or ≤ 100 meters from a school on and after 1/1/2005	<b>NMHC + NO<sub>x</sub></b>	<b>CO</b>
50 ≤ hp < 100 (37 ≤ kW < 75)	0.15	0.01	3.5 (4.7)	3.7 (5.0)
100 ≤ hp < 175 (75 ≤ kW < 130)	0.15	0.01	3.0 (4.0)	3.7 (5.0)
175 ≤ hp ≤ 750 (130 ≤ kW < 560)	0.15	0.01	3.0 (4.0)	2.6 (3.5)
hp > 750 (kW > 560)	0.15	0.01	4.8 (6.4)	2.6 (3.5)

**B. Evaluation of Federal, State and Local BACT/LAER Guidelines**

The achieved in practice BACT requirements included in the BACT Guidelines of California air districts that the District reviewed to evaluate the most stringent achieved in practice emission limits that are currently required for diesel-fired emergency IC engines are listed below.

Current SJVAPCD BACT Guideline 3.1.1 for Diesel-Fired Emergency IC Engines

In the San Joaquin Valley APCD, pursuant to District Rule 2201, BACT is required for new and modified sources that result in an increase in the potential to emit of a regulated pollutant that exceeds 2.0 pounds in any day, except for CO for which the

total facility-wide stationary source potential to emit must also be at least 200,000 pounds per year for BACT for CO to be required.

The current District achieved in practice BACT requirements for diesel-fired emergency IC engines are shown in the table below.

<b>SJVAPCD BACT Guideline 3.1.1 - Emergency Diesel-Fired IC Engine<sup>3</sup></b>	
<b>Pollutant</b>	<b>Achieved in Practice</b>
NO <sub>x</sub>	Latest EPA Tier Certification level for applicable horsepower range
SO <sub>x</sub>	Very low sulfur diesel fuel (15 ppmw sulfur or less)
PM <sub>10</sub>	0.15 g/bhp-hr or the latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent (ATCM)
CO	Latest EPA Tier Certification level for applicable horsepower range
VOC	Latest EPA Tier Certification level for applicable horsepower range

**Current SCAQMD BACT Guidelines for Diesel-Fired Emergency IC Engines**

In the South Coast AQMD, BACT is required for new and modified sources that result in an increase in the potential to emit of any non-attainment pollutant, non-attainment pollutant precursors, ozone depleting compounds, and ammonia (NH<sub>3</sub>) that are greater than or equal to 1.0 pound per day.<sup>4</sup>

The current South Coast AQMD achieved in practice BACT requirements for diesel-fired emergency IC engines at facilities that are not major sources of emissions are shown in the table below.

<sup>3</sup> SJVAPCD BACT Guideline 3.1.1 - Emergency Diesel-Fired IC Engine – Standby (6/13/2019).

<http://www.valleyair.org/busind/pto/bact/chapter3.pdf>

<sup>4</sup> SCAQMD BACT Guidelines - Overview (2-5-2021) <http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2021-test/overview.pdf>

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>SCAQMD BACT Guideline for I.C. Engine, Stationary, Emergency, Compression-Ignition, Other<sup>5</sup></b>	
<b>Pollutant</b>	<b>Achieved in Practice</b>
NO <sub>x</sub> + NMHC	Compliance with Rule 1470 (12-02-2016) 50 - <750 bhp: Tier 3; ≥ 750 bhp Tier 2
SO <sub>x</sub>	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)
PM <sub>10</sub>	Compliance with Rule 1470 (12-02-2016) 0.15 g/bhp-hr (0.20 g/kW-hr) if not located near a school or sensitive receptor 0.01 g/bhp-hr if located within 100 m of a school; 0.01 g/bhp-hr if rated ≥ 175 bhp and located within 50 m within a sensitive receptor, except direct-drive fire-pump and flood pump engines
CO	Compliance with Rule 1470 (12-02-2016) 50 - <750 bhp: Tier 3; ≥ 750 bhp Tier 2

SCAQMD BACT Guidelines, Part B: LAER/BACT Determinations for Major Polluting Facilities, Section I - South Coast AQMD LAER/BACT Determinations – I.C. Engine - Emergency, Compression Ignition

Additional South Coast AQMD achieved in practice BACT/LAER determinations for diesel-fired emergency IC engines at facilities that are major sources of emissions are shown in the tables below.

Note that South Coast AQMD is currently going through a process to update their BACT/LAER requirements that are applicable to IC engines rated 1,000 bhp and greater at major sources of emissions and South Coast AQMD held meetings on November 3, 2021 and February 23, 2022 to present the Tier 4 Final emission levels as the proposed BACT/LAER requirements for these engines.<sup>6</sup>

<b>SCAQMD BACT/LAER Determination for Application No. 516409 – I.C. Engine - Emergency, Compression Ignition, 374 bhp, Startup Date: June 29, 2011</b>	
<a href="http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/part-b-an516409-12-2-2016.pdf">http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/part-b-an516409-12-2-2016.pdf</a>	
<b>Pollutant</b>	<b>Achieved in Practice BACT/T-BACT Requirement</b>
NO <sub>x</sub> + VOC	3 g/bhp-hr (Tier 3)
PM <sub>10</sub>	Tier 3 certified engine with CARB verified DPF
CO	2.6 g/bhp-hr (Tier 3)

<sup>5</sup> SCAQMD BACT Guidelines, Part D: BACT Guidelines for Non-Major Polluting Facilities, I.C. Engine, Stationary, Emergency, Compression-Ignition, Other (2/1/2019). <http://www.aqmd.gov/docs/default-source/bact/bact-guidelines/bact-guidelines-2021-test/part-d---bact-guidelines-for-non-major-polluting-facilities.pdf>

<sup>6</sup> SCAQMD BACT Scientific Review Committee Meeting, November 3, 2021 – Remote Meeting Scheduled to Present Proposed Lowest Achievable Emissions Rate for Stationary, Emergency IC Engines ≥ 1000 bhp, and SCAQMD BACT Scientific Review Committee Meeting, February 23, 2022. <http://www.aqmd.gov/home/permits/bact/public-notice-docket>

<b>SCAQMD BACT/LAER Determination for Application No. 558397 – I.C. Engine - Emergency, Compression Ignition, 755 bhp, Startup Date: March 21, 2014</b>	
<a href="http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/part-b-an558397-12-2-2016.pdf">http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/part-b-an558397-12-2-2016.pdf</a>	
<b>Pollutant</b>	<b>Achieved in Practice BACT/T-BACT Requirement</b>
NO <sub>x</sub> + VOC	4.8 g/bhp-hr (Tier 2)
PM <sub>10</sub>	0.01 g/bhp-hr, Tier 2 certified engine with CARB verified DPF
CO	2.6 g/bhp-hr (Tier 2)

<b>SCAQMD BACT/LAER Determination for Application No. 516708 – I.C. Engine - Emergency, Compression Ignition, 2,220 bhp, Startup Date: November 15, 2011</b>	
<a href="http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/part-b-an516708-12-2-2016.pdf">http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/aqmd-laer-bact/part-b-an516708-12-2-2016.pdf</a>	
<b>Pollutant</b>	<b>Achieved in Practice BACT/T-BACT Requirement</b>
NO <sub>x</sub> + VOC	4.8 g/bhp-hr (Tier 2)
PM <sub>10</sub>	Tier 2 certified engine with CARB verified DPF
CO	2.6 g/bhp-hr (Tier 2)

***Current BAAQMD BACT Guidelines for Diesel-Fired Emergency IC Engines***

In the Bay Area AQMD, BACT is required for new and modified sources that result in an increase in the potential to emit of precursor organic compounds (POC) (i.e. VOCs), non-precursor organic compounds (NPOC), NO<sub>x</sub>, sulfur dioxide (SO<sub>2</sub>), PM<sub>10</sub>, or CO in excess of 10 pounds in any day.<sup>7</sup>

The current Bay Area AQMD achieved in practice BACT requirements for diesel-fired emergency IC engines are shown in the tables below.

<b>BAAQMD BACT Guideline 96.1.3 – IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, &gt; 50 bhp and &lt; 1,000 Output*<sup>8</sup></b>	
<b>Pollutant</b>	<b>Achieved in Practice</b>
NO <sub>x</sub>	CARB ATCM standard for NO <sub>x</sub> at applicable horsepower rating
SO <sub>x</sub>	Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt)
PM <sub>10</sub>	0.15 g/bhp-hr
CO	CARB ATCM standard for CO at applicable horsepower rating
VOC/NMHC	CARB ATCM standard for NMHC at applicable horsepower rating

\* Applies to open permit applications with a complete date on or after 1/1/2020.

<sup>7</sup> BAAQMD BACT/TBACT Workbook, Section 1: BACT/TBACT Policy and Implementation – Introduction (2002) <https://www.baaqmd.gov/~media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/introduction.pdf?la=en>

<sup>8</sup> BAAQMD BACT Guideline 96.1.3 – IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, > 50 bhp and < 1,000 bhp output (last update 12/22/2020). <https://www.baaqmd.gov/~media/files/engineering/bact-tbact-workshop/combustion/96-1-3.pdf?la=en>

BACT for Diesel-Fired Emergency IC Engines  
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<b>BAAQMD BACT Guideline 96.1.5 – IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, ≥ 1,000 bhp Output**<sup>9</sup></b>	
<b>Pollutant</b>	<b>Achieved in Practice</b>
NO <sub>x</sub>	0.5 g/bhp-hr
SO <sub>x</sub>	Fuel sulfur content not to exceed 0.0015% (wt) or 15 ppm (wt)
PM <sub>10</sub>	0.02 g/bhp-hr
CO	2.6 g/bhp-hr
VOC/NMHC	0.14 g/bhp-hr

\* Applies to open permit applications with a complete date on or after 1/1/2020.

*Current SMAQMD BACT Guideline for Diesel-Fired Emergency IC Engines*

Sacramento Metropolitan AQMD Rule 202 – New Source Review requires BACT for new and modified sources that result in an increase in the daily potential to emit of VOCs, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> exceeding 0 pounds per day; CO exceeding 550 pounds per day; or lead exceeding 3.3 pounds per day.<sup>10</sup>

The current Sacramento Metropolitan AQMD achieved in practice BACT requirements for diesel-fired emergency IC engines are shown in the table below.

<b>SMAQMD BACT Determination 281 - I.C. Engine Compression – Standby<sup>11</sup></b>	
<b>Pollutant</b>	<b>Achieved in Practice</b>
NO <sub>x</sub>	≥ 1,000 bhp: 0.5 g/hp-hr, < 1,000 bhp: Applicable NMHC + NO <sub>x</sub> emission standard for horsepower range based on Table 1: New Emergency Standby Diesel-Fueled CI Engines and Table 2: New Emergency Standby Direct-Drive Fire Pump Engines of the ATCM for Stationary CI Engines.
SO <sub>x</sub>	Diesel fuel with a sulfur content no greater than 0.0015% by weight.
PM <sub>10</sub>	≥ 1,000 bhp: 0.02 g/hp-hr, < 1000 bhp: Applicable PM emission standard for horsepower range based on Table 1: New Emergency Standby Diesel-Fueled CI Engines and Table 2: New Emergency Standby Direct-Drive Fire Pump Engines of the ATCM for Stationary CI Engines.
CO	Applicable CO emission standard for horsepower range based on Table 1: New Emergency Standby Diesel-Fueled CI Engines and Table 2: New Emergency Standby
VOC	≥ 1000 bhp: 0.14 g/hp-hr, < 1000 bhp: Applicable NMHC + NO <sub>x</sub> emission standard for horsepower range based on Table 1: New Emergency Standby Diesel-Fueled CI Engines and Table 2: New Emergency Standby Direct-Drive Fire Pump Engines of the ATCM for Stationary CI Engines.

<sup>9</sup> BAAQMD BACT Guideline 96.1.5 – IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump, ≥ 1,000 bhp output (last update 12/22/2020).

<https://www.baaqmd.gov/~media/files/engineering/bact-tbact-workshop/combustion/96-1-5.pdf?la=en>

<sup>10</sup> Sacramento Metropolitan AQMD Rule 202 – New Source Review (Amended 8/23/2012)

<http://www.airquality.org/ProgramCoordination/Documents/rule202.pdf>

<sup>11</sup> SMAQMD BACT Determination 281 - I.C. Engine Compression – Standby (6/4/2021).

<http://www.airquality.org/StationarySources/Documents/IC%20Engine%20Compression%20Standby%20Diesel%20Fired%20BACT%20281.pdf>



Current SBCAPCD BACT Guideline for Diesel-Fired Emergency IC Engines

In the Santa Barbara County APCD, pursuant to SBCAPCD Rule 802 – New Source Review, BACT is required for new and modified sources that result in an increase in the potential to emit of a nonattainment pollutant that meets or exceeds 25 pounds per day, except for CO for which there is a higher nonattainment pollutant threshold. SBCAPCD Rule 802 also includes higher thresholds for which BACT is required for attainment pollutants.<sup>12</sup>

The current Santa Barbara County APCD achieved in practice BACT requirements for diesel-fired emergency IC engines are shown in the table below.

<b>SBCAPCD BACT Guideline 3.1 - Emergency Compression Ignition Engines<sup>13</sup></b>		
<b>Pollutant</b>	<b>Achieved in Practice</b>	
	<b>BACT Technology</b>	<b>Performance Standard</b>
NO <sub>x</sub>	<750 hp engine: EPA Tier 3, turbocharger, aftercooled	Varies by engine rating
	≥750 hp engine: EPA Tier 2, turbocharger, aftercooled	
SO <sub>x</sub>	CARB ultra-low sulfur diesel	≤ 15 ppmw sulfur
PM, PM <sub>10</sub> , PM <sub>2.5</sub>	CARB ultra-low sulfur diesel, diesel particulate filter	85% control or 0.01 g/bhp-hr
CO	<750 hp engine: EPA Tier 3, turbocharger, aftercooled	Varies by engine rating
	≥750 hp engine: EPA Tier 2, turbocharger, aftercooled	
VOC/ROC	<750 hp engine: EPA Tier 3, turbocharger, aftercooled	Varies by engine rating
	≥750 hp engine: EPA Tier 2, turbocharger, aftercooled	

Current MBARD BACT Guidelines for Stationary Diesel-Fired Emergency IC Engines

Monterey Bay Air Resources District rules require BACT for new and modified units that result in an increase in the potential to emit that equal or exceed certain thresholds, for example 25 pounds per day of NO<sub>x</sub> or VOC, and also requires BACT for increases in the potential to emit from new stationary sources that equal or exceed the thresholds specified in MBARD Rule 207 – Review of New or Modified Sources.<sup>14</sup>

The current Monterey Bay Air Resources District achieved in practice BACT requirements for diesel-fired emergency IC engines are shown in the table below.

<sup>12</sup> Santa Barbara County APCD BACT Policy and Procedure – Cost Effectiveness Thresholds (8/8/2019) <https://www.ourair.org/wp-content/uploads/6100-064-1.pdf>

<sup>13</sup> Santa Barbara County APCD BACT Guideline 3.1 - Emergency Compression Ignition Engines, Revision 1.1 (6/14/2017). <https://www.ourair.org/wp-content/uploads/BACT-Guideline-3.1.pdf>

<sup>14</sup> Monterey Bay Air Resources District Clarification of Permit Requirements for Stationary Non-Agricultural Diesel Engines Serving Electrical Generators, Compressors, Water Pumps & Direct-Drive Fire Pumps (9/20/2019) [https://mbard.specialdistrict.org/files/1e0dda4c2/IC5+-+Clarification+of+Permit+Requirements+for+Diesel+Engines+Final\\_+09.20.2019.pdf](https://mbard.specialdistrict.org/files/1e0dda4c2/IC5+-+Clarification+of+Permit+Requirements+for+Diesel+Engines+Final_+09.20.2019.pdf)



<b>MBARD BACT Guidelines for Stationary Diesel-Fired Emergency IC Engines<sup>14</sup></b>	
<b>Pollutant</b>	<b>Achieved in Practice</b>
NO <sub>x</sub> + VOC	50 ≤ hp < 100: 3.5 g/bhp-hr, or 4.7 g/kW-hr 100 ≤ hp < 175: 3.0 g/bhp-hr, or 4.0 g/kW-hr 175 ≤ hp < 750: 3.0 g/bhp-hr, or 4.0 g/kW-hr ≥ 750 hp: 4.8 g/bhp-hr, or 6.4 g/kW-hr
SO <sub>x</sub>	Exclusive use of CARB diesel fuel
PM <sub>10</sub>	0.15 g/bhp-hr, or 0.20 g/kW-hr
CO	50 ≤ hp < 100: 3.7 g/bhp-hr, or 5.0 g/kW-hr 100 ≤ hp < 175: 3.7 g/bhp-hr, or 5.0 g/kW-hr 175 ≤ hp < 750: 2.6 g/bhp-hr, or 3.5 g/kW-hr ≥ 750 hp: 2.6 g/bhp-hr, or 3.5 g/kW-hr

*Most Stringent Emission Limits for Diesel-Fired Emergency IC Engine Located in the US EPA RACT/BACT/LAER Clearinghouse*

The District also reviewed projects entered in the US EPA RACT/BACT/LAER Clearinghouse (RBLC) over the last ten years, beginning in October 1, 2011 to identify the most stringent BACT requirements for diesel-fired emergency IC engines. The most stringent BACT requirements that were located in the US EPA RBLC for NO<sub>x</sub>, PM, and VOC emissions from diesel-fired emergency IC engines are summarized in the tables below.

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

RBLC ID: TX-0915	
<b>Corporate/Company:</b> NRG CEDAR BAYOU LLC	<b>Facility Name:</b> UNIT 5
<b>Permit Numbers:</b> 160538, PSDTX1528, GHGPSDTX204	<b>Permit Date:</b> March 17, 2021
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28805&amp;PROCESS_ID=113667">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28805&amp;PROCESS_ID=113667</a>	
<b>Process:</b> Diesel Generator	<b>Rating:</b> 2,000 bhp and 1,800 bhp
Pollutant	BACT/LAER Requirement*
NO <sub>x</sub> **	0.50 g/bhp-hr
PM <sub>10</sub>	0.0220 g/bhp-hr P2/Add-on Description: Limited 500 hr/yr operation
PM <sub>2.5</sub>	0.0220 g/bhp-hr P2/Add-on Description: Limited 500 hr/yr operation
CO	2.6100 g/bhp-hr P2/Add-on Description: Limited 500 hr/yr operation
VOC***	0.5000 g/bhp-hr P2/Add-on Description: Limited 500 hr/yr operation

\*The Revised Air Permit Application, NRG Cedar Bayou 5LLC, Cedar Bayou Electric Generating Station (Revised 6/29/2020) submitted to the Texas Commission on Environmental Quality (TCEQ) Air Permits Division (Permit Numbers: 160538, PSDTX1582, and GHGPSDTX204) states “*The exhaust emissions from the diesel fuel-fired equipment were calculated using the Tier 4 Exhaust Standards for Generator Sets after the 2014 Model Year, 40 CFR 1039.101(b) and vendor emission factors for VOC emissions.*” and “*BACT for the diesel-fired generator engine will be achieved through the installation of an engine that meets the Tier 4 Exhaust Standard for Generator Sets after the 2014 Model Year, 40 CFR 1039.101(b), through the proper operation and maintenance of the engines, and through the burning of diesel fuels meeting the sulfur requirements of 40 CFR 80.510(c).*” (<https://www.nrg.com/assets/documents/legal/cedar-bayou/Application-Updates.pdf>) The TCEQ Preliminary Decision for the project (November 5, 2020) listed maximum allowable emission rates for the diesel emergency generators that were calculated using the same emission factors as the Revised Air Permit Application. (<https://www.nrg.com/assets/documents/legal/cedar-bayou/tceq-preliminary-decision.pdf>)

\*\*No NO<sub>x</sub> requirement for these units was listed in the EPA RBLC. NO<sub>x</sub> requirement based on the Revised Air Permit Application for NRG Cedar Bayou 5LLC, Cedar Bayou Electric Generating Station (6/29/2020) (Permit Numbers: 160538, PSDTX1582, and GHGPSDTX204) and TCEQ Preliminary Decision for the project (November 5, 2020)

\*\*\*The VOC emission factor for these units listed in the EPA RBCL may be a mistake. The VOC emission factor is 0.04 g/bhp-hr based on the Revised Air Permit Application for NRG Cedar Bayou 5LLC, Cedar Bayou Electric Generating Station (6/29/2020) (Permit Numbers: 160538, PSDTX1582, and GHGPSDTX204) and TCEQ Preliminary Decision for the project (November 5, 2020)

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

RBLC ID: AR-0161	
<b>Corporate/Company:</b> SUN BIO MATERIAL COMPANY	<b>Facility Name:</b> SUN BIO MATERIAL COMPANY
<b>Permit Number:</b> 2384-AOP-R0	<b>Permit Date:</b> September 23, 2019
<b>Process:</b> Emergency Engines	
<b>Rating:</b> Two 74 kW (99 bhp), One 448 kW (601 bhp), and Three 600 kW (805 bhp)	
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28689&amp;PROCESS_ID=112942">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28689&amp;PROCESS_ID=112942</a>	
Pollutant	BACT/LAER Requirement*
NO <sub>x</sub>	0.4000 g/kW-hr (0.30 g/bhp-hr) P2/Add-on Description: Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII
PM <sub>10</sub>	0.0200 g/kW-hr (0.015 g/bhp-hr) P2/Add-on Description: Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII
PM <sub>2.5</sub>	0.0200 g/kW-hr (0.015 g/bhp-hr) P2/Add-on Description: Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII
CO	3.5000 g/kW-hr (2.61 g/bhp-hr) P2/Add-on Description: Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII
VOC**	0.19 g/kW-hr (0.14 g/bhp-hr) P2/Add-on Description: Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII

\* The Sun Bio Material (U.S.) Company PSD Permit Application (November 2018) prepared by Wood Environment & Infrastructure Solutions of Kennesaw, Georgia and submitted to the Arkansas Department of Environmental Quality (ADEQ) states “*Potential emissions from the Emergency Engine (SN10) operations are summarized in Table 13. EPA “Tier 4” emission standards were utilized for all engines which meet or exceed all applicable emissions limits under 40 CFR Part 60, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.*” and the emission calculations in the permit application and requirements in the EPA RBCL reflect Tier 4 Final standards (except for the VOC requirement in the EPA RBCL, as discussed below) (See: [https://arktimes.com/wp-content/uploads/2019/03/pdf-sun\\_bio\\_application\\_11-7-18.pdf](https://arktimes.com/wp-content/uploads/2019/03/pdf-sun_bio_application_11-7-18.pdf)) and ADEQ Operating Permit No 2384-AOP-R0 issued to Sun Bio Material (U.S.) Company, Arkadelphia, AR (ADEQ Facility ID Number 10-00498) on September 23, 2019 also lists BACT emission limits for NO<sub>x</sub>, PM, and CO for diesel-fired emergency IC engines that are equivalent to the Tier 4 certification standards (See: <https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/Air/2384-AOP-R0.pdf>)

\*\* The EPA RBCL and PSD application for the project list a VOC emission factor of 1.90 g/kW-hr; however, this appears to be a typo since engines certified to the Tier 4 Final standards must comply with a NMHC emission limit of 0.19 g/kW-hr, and 1.9 g/kW-hr would be higher than the Tier 1 certification standard for hydrocarbons for engines rated 130 kW (175 bhp) or more.

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

RBLC ID: OH-0379		
<b>Corporate/Company:</b> PETMIN USA INCORPORATED	<b>Facility Name:</b> PETMIN USA INCORPORATED	<b>Process:</b> Black Start Generator (P007)
<b>Permit Number:</b> P0125024	<b>Permit Date:</b> February 2, 2019	<b>Rating:</b> 158 bhp
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28619&amp;PROCESS_ID=112668">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28619&amp;PROCESS_ID=112668</a>		
Pollutant	BACT/LAER Requirement	
NO <sub>x</sub>	Standard Emission Limit: 0.3000 g/bhp-hr Emission Limit 1: 0.104 lb/hr; Emission Limit 2: 5.2000 X 10 <sup>-3</sup> ton/yr P2/Add-on Description: Tier IV engine, Tier IV NSPS standards certified by engine manufacturer.	
PM <sub>10</sub>	Standard Emission Limit: 0.0150 g/bhp-hr Emission Limit 1: 5.2200 x 10 <sup>-3</sup> lb/hr; Emission Limit 2: 2.6100 X 10 <sup>-4</sup> ton/yr P2/Add-on Description: Tier IV engine, Good combustion practices	
PM <sub>2.5</sub>	Standard Emission Limit: 0.0150 g/bhp-hr Emission Limit 1: 5.2200 x 10 <sup>-3</sup> lb/hr; Emission Limit 2: 2.6100 X 10 <sup>-4</sup> ton/yr P2/Add-on Description: Tier IV engine, Good combustion practices	

RBLC ID: TX-0846		
<b>Corporate/Company:</b> TOYOTA MOTORS	<b>Facility Name:</b> MOTOR VEHICLE ASSEMBLY PLANT	<b>Process:</b> Fire Pump Diesel Engine
<b>Permit Number:</b> 70661, PSDTX1036M1, GHGPSDTX18	<b>Permit Date:</b> September 23, 2018	<b>Rating:</b> 214 kW (287 bhp)
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28573&amp;PROCESS_ID=112364">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28573&amp;PROCESS_ID=112364</a>		
Pollutant	BACT/LAER Requirement	
NO <sub>x</sub>	0.4000 g/kW-hr (0.30 g/bhp-hr) P2/Add-on Description: Meets EPA Tier 4 requirements	
PM <sub>10</sub>	0.0200 g/kW-hr (0.015 g/bhp-hr) P2/Add-on Description: Meets EPA Tier 4 requirements	
PM <sub>2.5</sub>	0.0200 g/kW-hr (0.015 g/bhp-hr) P2/Add-on Description: Meets EPA Tier 4 requirements	
CO	3.5800 g/kW-hr (2.67 g/bhp-hr) P2/Add-on Description: Meets EPA Tier 4 requirements	
VOC	0.1900 g/kW-hr (0.14 g/bhp-hr) P2/Add-on Description: Meets EPA Tier 4 requirements	

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

RBLC ID: TX-0728		
<b>Corporate/Company:</b> BASF	<b>Facility Name:</b> PEONY CHEMICAL MANUFACTURING FACILITY	<b>Process:</b> Emergency Diesel Generator
<b>Permit Number:</b> 118239, N200	<b>Permit Date:</b> April 1, 2015	<b>Rating:</b> 1,500 bhp
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=27876&amp;PROCESS_ID=109940">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=27876&amp;PROCESS_ID=109940</a>		
Pollutant	BACT/LAER Requirement*	
NO <sub>x</sub>	0.0218 g/bhp-hr P2/Add-on Description: Minimized hours of operations Tier II engine	
PM <sub>10</sub>	0.1500 lb/hr (0.045 g/bhp-hr) P2/Add-on Description: Minimized hours of operations Tier II engine	
PM <sub>2.5</sub>	0.1500 lb/hr (0.045 g/bhp-hr) P2/Add-on Description: Minimized hours of operations Tier II engine	
CO	0.0126 g/bhp-hr P2/Add-on Description: Minimized hours of operations Tier II engine	
VOC	0.7000 lb/hr (0.2 g/bhp-hr) P2/Add-on Description: Minimized hours of operations Tier II engine	

\* **Process Notes:** The emergency generator (EPN 17-1-4) at the site is diesel fired and rated at 1500 horsepower (hp). Lowest Achievable Emission Rates (LAER) for nitrogen oxides (NO<sub>x</sub>) is the use of a 40 Code Federal Rules (CFR) Part 89 Tier 2 engine and limited hours of operation. Emissions from the engine shall not exceed 0.0218 grams per horsepower-hour (g/hp-hr) of nitrogen oxides (NO<sub>x</sub>). The engine is limited to 52 hours per year of non-emergency operation. Emissions from the engine shall not exceed 0.01256 g/hp hr of carbon monoxide (CO). The fuel for the engine is limited to 15 parts per million sulfur by weight (ultra-low sulfur diesel). The engine is limited to 52 hours per year of non-emergency operation. Also applicable: 40CFR60 IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engine and 40CFR63 ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

RBLC ID: IL-0114		
<b>Corporate/Company:</b> CRONUS CHEMICALS, LLC	<b>Facility Name:</b> CRONUS CHEMICALS, LLC	<b>Process:</b> Emergency Generator
<b>Permit Number:</b> 13060007	<b>Permit Date:</b> September 5, 2014	<b>Rating:</b> 3,755 bhp
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=27730&amp;PROCESS_ID=109623">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=27730&amp;PROCESS_ID=109623</a>		
Pollutant	BACT/LAER Requirement	
NO <sub>x</sub>	0.6700 g/kW-hr (0.50 g/bhp-hr) P2/Add-on Description: Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7. (Interim Tier 4 Exhaust Emission Standard for Generator Sets)	
PM <sub>10</sub>	0.1000 g/kW-hr (0.07 g/bhp-hr) P2/Add-on Description: Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7. (Interim Tier 4 Exhaust Emission Standard for Generator Sets)	
PM <sub>2.5</sub>	0.1000 g/kW-hr (0.07 g/bhp-hr) P2/Add-on Description: Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7. (Interim Tier 4 Exhaust Emission Standard for Generator Sets)	
CO	3.5000 g/kW-hr (2.61 g/bhp-hr) P2/Add-on Description: Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	
VOC	0.4000 g/kW-hr (0.30 g/bhp-hr) P2/Add-on Description: Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7. (Interim Tier 4 Exhaust Emission Standard for Generator Sets)	

RBLC ID: NY-0104		
<b>Corporate/Company:</b> CPV VALLEY LLC	<b>Facility Name:</b> CPV VALLEY ENERGY CENTER	<b>Process:</b> Emergency Generator
<b>Permit Number:</b> 3-335600136/00001*	<b>Permit Date:</b> August 1, 2013	<b>Rating:</b> 1,500 kWe (2,117 bhp)
<a href="https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28369&amp;PROCESS_ID=111735">https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&amp;facility_id=28369&amp;PROCESS_ID=111735</a>		
Pollutant	BACT/LAER Requirement	
PM <sub>10</sub>	0.0300 g/bhp-hr P2/Add-on Description: Ultra low sulfur diesel with maximum sulfur content 0.0015 percent	
CO	0.4500 g/bhp-hr P2/Add-on Description: Good combustion practice.	
VOC	0.0331 lb/MMBtu (0.11 g/bhp-hr) P2/Add-on Description: Good combustion practice	

\* For additional information, see CPV Valley Energy Center Wawayanda, New York PSD and Part 201 Air Permit Application (November 2008) and PV Valley Energy Center 630 MW Combined Cycle Facility PSD and Part 201 Air Permit Application Supplement (January 2012) at [https://www.cpv.com/assets/docs/valley-deis/Vol\\_II\\_Appendices/App%209-A%20Part%202\\_AirPermitApplication.pdf](https://www.cpv.com/assets/docs/valley-deis/Vol_II_Appendices/App%209-A%20Part%202_AirPermitApplication.pdf) and [http://www.cpv.com/assets/docs/valley-feis/Volume\\_II\\_FEIS\\_CPV\\_Valley\\_Energy/Appendix%203/Appendix\\_3B\\_Part1.pdf](http://www.cpv.com/assets/docs/valley-feis/Volume_II_FEIS_CPV_Valley_Energy/Appendix%203/Appendix_3B_Part1.pdf)

### **C. Summary of Findings**

Based on a review of the applicable regulations and BACT and LAER determinations for diesel-fired emergency IC engines, the District has determined that the most stringent NO<sub>x</sub>, PM, CO, and VOC emission limits that have been required for diesel-fired emergency IC engines of all sizes (> 50 bhp) are the latest EPA Tier certification levels, which are the Tier 4 Final certification standards.

### **IV. Determination that Tier 4 Final Emission Limits are Achieved in Practice BACT for Diesel-Fired Emergency IC Engines > 50 bhp Powering Electrical Generators**

As indicated above, at a minimum BACT requires utilization of the most stringent emission limitation or control technique that has been achieved in practice for such category and class of source. The term “achieved in practice” is not precisely defined in District rules. However, US EPA Region 9 (Pacific Southwest) has previously stated that the successful operation of a new control technology for six months constitutes achieved in practice BACT. This determination was established in an August 25, 1997 letter from David Howekamp of EPA Region 9 to Moshen Nazemi of the South Coast Air Quality Management District (SCAQMD). This guidance is reflected in the SCAQMD BACT Policy and was also included in the California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse Resource Manual. This guidance has also previously been accepted by the District in establishing achieved in practice BACT.

As discussed below, in the last few years there have been numerous installations of diesel emergency IC engines that have been certified to the Tier 4 Final standards or are equipped with the required add-on emission controls to achieve Tier 4 Final equivalent emissions. Therefore, considering the current availability of Tier 4 Final IC engines, the most stringent emission limits that have been included in permits for diesel-fired emergency IC engines, and the number of diesel IC engines that meet the Tier 4 Final emission levels that have been installed for emergency power generation applications, the District has determined that the emission limits for NO<sub>x</sub>, PM, CO, and VOC that are equivalent to the Tier 4 Certification levels are achieved in practice BACT for these types of IC engine installations.

The District permitting database indicates that the District has issued several ATC permits for Tier 4 Interim certified diesel emergency IC engines and, as of April 20, 2022, has issued ATC permits for 79 Tier 4 Final certified diesel emergency IC engines, excluding emergency engines powering firewater pumps and floodwater pumps, of which at least 61 have been installed and operated, as shown in Attachment D. In addition, the Bay Area Air Quality Management District has determined that emission limits that are equivalent to Tier 4 Final emission standards are achieved in practice BACT for diesel emergency IC engines rated 1,000 bhp and greater<sup>15</sup> and

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<sup>15</sup> BAAQMD Revised BACT Guideline for Diesel Backup Generators ≥ 1000 BHP, Frequently Asked Questions (FAQs) (March 17, 2021). [https://www.baaqmd.gov/~media/files/engineering/backup-diesel-generators/fag\\_bact\\_for\\_large\\_diesel-pdf.pdf?la=en](https://www.baaqmd.gov/~media/files/engineering/backup-diesel-generators/fag_bact_for_large_diesel-pdf.pdf?la=en)



has been requiring these emission limits as BACT for since January 1, 2020. The March 29, 2021 BAAQMD presentation for BACT for Large Standby Diesel Engines identifies numerous diesel emergency IC engines rated 1,000 bhp and greater that comply with Tier 4 Final emission standards, including over 100 diesel emergency IC engines with add-on emission controls at the Microsoft MWH Data Center in Quincy, Washington<sup>16</sup>, and one diesel emergency IC engine rated for 0.5 MWe (approximately 750 bhp) that complies with Tier 4 Final emission standards.<sup>17</sup> On June 4, 2021, SMAQMD also adopted the same requirements as the BAAQMD as achieved in practice BACT for diesel emergency IC engines rated 1,000 bhp and greater. In a comment letter submitted regarding the recent SMAQMD BACT determination, the California Air Resources Board stated that the ARB “strongly supports” the BACT determination to require newly permitted engines in this category to meet Tier 4 Final emission standards and also indicated that they had identified over 150 installations of diesel emergency IC engines rated 1,000 bhp or greater that were either certified to Tier 4 emission standards or had necessary control technology to achieve equivalent Tier 4 standards. In communications with the District, SCAQMD has indicated that they are considering similar requirements for large diesel-fired emergency IC engines and, as mentioned above, SCAQMD held meetings on November 3, 2021 and February 23, 2022 to present the Tier 4 Final emission levels as the proposed Lowest Achievable Emissions Rates (LAER) for stationary diesel emergency IC engines rated 1,000 bhp and greater.<sup>18</sup> In addition, information from the BAAQMD and SCAQMD indicates that these air districts have issued permits for several Tier 4 Final diesel emergency IC engines with various bhp ratings (See Attachments E and F). Furthermore, the SCAQMD maintains a list of SCAQMD-certified emergency IC engines<sup>19</sup> that includes 13 Tier 4 Final diesel IC engines rated from 314 bhp to 4,680 bhp (see Attachment G).

The BAAQMD and SMAQMD BACT determinations require Tier 4 Final emission limits only for diesel emergency engines rated 1,000 bhp or greater. However, as shown in Attachment D, 74 Tier 4 Final certified diesel emergency IC engines rated less than 1,000 bhp have been permitted in the San Joaquin Valley, of which at least 58 have been installed. In communications with the District, BAAQMD, SCAQMD, and SMAQMD have also indicated that a number of Tier 4 Final diesel-fired emergency IC engines rated less than 1,000 bhp have also been installed in these air districts (see Attachments E, F, and H). Other diesel emergency IC engines rated less than 1,000 bhp equipped with emission controls capable of meeting the Tier 4 Final emission

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<sup>16</sup> State of Washington, Department of Ecology Air Quality Program, Approval Order No. 20AQ-E005 for the Microsoft MWH Data Center (February 27, 2020) <https://ecology.wa.gov/DOE/files/32/324c76f2-7af7-495d-82dd-664b30089ca0.pdf>

<sup>17</sup> BAAQMD Best Available Control Technology for Large Standby Diesel Engines webinar presentation (March 29, 2021). [https://www.baaqmd.gov/~/\\_media/files/engineering/backup-diesel-generators/bact-webinar-presentation-pdf.pdf](https://www.baaqmd.gov/~/_media/files/engineering/backup-diesel-generators/bact-webinar-presentation-pdf.pdf)

<sup>18</sup> SCAQMD BACT Scientific Review Committee Meetings, November 3, 2021 and February 23, 2022. <http://www.aqmd.gov/home/permits/bact/public-notices-docket>

<sup>19</sup> SCAQMD Certified ICE Emergency Generators List (last updated 12-10-2021). <http://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment&parent=certified-products> (See Attachment G)



limits have also been identified, such as the 214 kW diesel-fired emergency engine at the Toyota Motors vehicle assembly plant in Texas and the diesel-fired emergency engines rated 74 kW – 600 kW at the Sun Bio Material Company facility in Arkansas that are listed in the EPA RACT/BACT/LAER Clearinghouse, the 779 bhp (500 kWe) Tier 4 Final certified diesel emergency IC engine at Cal Poly, San Luis Obispo, CA, the 500 kWe Tier 4 Final certified diesel emergency IC engine at the San Manuel Casino in Highland, CA, and the 0.5 MWe diesel emergency IC engine complying with Tier 4 Final emission standards at the Microsoft MWH Data Center in Quincy, Washington.

Based on these installations, the District has determined that the Tier 4 Final emission limits are considered achieved in practice BACT for diesel emergency IC engines in all bhp ranges greater than 50 bhp in the San Joaquin Valley. As mentioned above, the San Joaquin Valley faces some of the most difficult air quality challenges in the nation. The determination that the Tier 4 Final emission limits are achieved in practice BACT for all diesel emergency IC engines rated greater than 50 bhp will assure that emissions are minimized as much as possible from emergency engines to help the District continue to improve air quality in the San Joaquin Valley and to minimize any adverse impacts on individuals near these engines and disadvantaged communities in which these engines may be located.

A review of the available information shows that Tier 4 Final diesel emergency IC engines powering electrical generators have been installed at critical facilities that require reliable back-up power, such as data centers, wastewater treatment plants, telecommunication facilities, water pumping stations, and manufacturing facilities for a number of years, which further demonstrates that they are achieved in practice BACT for all new diesel-fired emergency IC engines powering electrical generators.

## **V. Emission Reductions from Diesel Emergency IC Engines with Add-on Controls**

The District has noted comments that add-on emission controls, particularly SCR, will not be effective for diesel emergency IC engines because they are generally operated for short periods of operation in maintenance and the catalysts will not have sufficient time to reach adequate temperatures to reduce NO<sub>x</sub>. The District acknowledges that an SCR system will not begin to effectively reduce NO<sub>x</sub> emissions until the catalyst has reached the required operating temperature and that the SCR system will generally not be fully functional when the engine is operating under very low loads for short periods of operation for maintenance and testing. However, it should be noted that the Tier 4 Final certification emission factors are not based on operation only at higher loads, but rather are a weighted average based on operation at different loads, including operation at low loads, as part of the certification testing. In addition, during these short periods of operation for maintenance purposes the total NO<sub>x</sub> emissions produced by the engines are expected to be lower as result of the lower loads and engine temperatures. However, operation of emergency IC engines is not limited to just periods of maintenance and testing; they are allowed unlimited operation during power outages and other unforeseen events, and during these times there is a

potential for significant NO<sub>x</sub> emission reductions. Furthermore, the use Tier 4 Final diesel IC emergency engines will result in significant reductions in emissions of diesel particulate during all periods of operation. Diesel particulate has been identified as a carcinogen and also contributes to increases in PM in the San Joaquin Valley, which is classified as nonattainment for the state and federal Ambient Air Quality Standards for PM<sub>2.5</sub>. Thus, the reduction in emissions of diesel particulate as a result of the use of Tier 4 Final IC engines provides an important benefit.

As mentioned above, emergency IC engines are generally allowed unlimited operation during power outages and other unforeseen events. Therefore, the use of diesel emergency IC engines that comply with the Tier 4 Final emission standards can significantly reduce emissions of both NO<sub>x</sub> and diesel PM during emergency operation. The District's most recent emission inventory indicates that there were a number of large diesel emergency IC engines that had significant NO<sub>x</sub> emissions that were comparable to full-time natural gas IC engines. Increased use of emergency IC engines is expected to continue as a result of Public Safety Power Shutoff (PSPS) events. ARB states that their analysis of back-up generator emissions caused by public safety power shutoff events in October 2019 resulted in eight excess tons of diesel PM and 125 excess tons of NO<sub>x</sub>, which was equivalent to 29,000 heavy duty diesel trucks driving on California roadways for the period of one month.<sup>20</sup> In addition, on July 30, 2021, the Governor of California issued a Proclamation of a State of Emergency concerning electricity reliability for the summer and fall of 2021 that suspended certain state and local permitting requirements and allowed operators of backup and emergency generators to produce more electricity on any day that a Grid Warning or Emergency Notice is issued by the California Independent System Operator (CAISO).<sup>21</sup> The proclamation stated that wildfire, drought, and extreme heat events were likely to persist through the summer of 2021 and recur in the summer of 2022 posing "*threats to California's energy supply*" and that an unforeseen shortfall in electrical production was projected for the summer of 2022 given the likelihood that trends of drought, wildfire, and heatwaves continue. The proclamation allowed backup generators to be used to generate additional power during peak demand hours through October 31, 2021 even if this was not allowed by the conditions of the unit's air permit.

The use of backup generators to generate additional power for the California grid has the potential to significantly increase the use and resulting emissions from diesel-fired emergency IC engines. Therefore, the cumulative emissions from emergency IC engines are not trivial, particularly in the San Joaquin Valley where even small reductions of NO<sub>x</sub> and PM emissions are critical to the District's efforts to improve air quality and reach attainment with the established ambient air quality standards.

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<sup>20</sup> California Air Resources Board (January 30, 2020) Potential Emissions Impact of Public Safety Power Shutoff (PSPS), Draft - Emission Impact: Additional Generator Usage Associated with Power Outage. [https://ww2.arb.ca.gov/sites/default/files/2020-01/Emissions\\_Inventory\\_Generator\\_Demand%20Usage\\_During\\_Power\\_Outage\\_01\\_30\\_20.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-01/Emissions_Inventory_Generator_Demand%20Usage_During_Power_Outage_01_30_20.pdf)

<sup>21</sup> Executive Department of California Proclamation of a State of Emergency (July 30, 2021) <https://www.gov.ca.gov/wp-content/uploads/2021/07/Energy-Emergency-Proc-7-30-21.pdf>

Requiring the Tier 4 Final emission limits as achieved in practice BACT for all new diesel emergency IC engines powering electrical generators will ensure that emissions from this large source category are minimized to the maximum extent feasible in order to continue to improve air quality in the San Joaquin Valley.

## V. Inducements for Tier 4 Final Certified Engines

As discussed above, most diesel IC engines that are certified to the Tier 4 Final emission standards are equipped with SCR systems to reduce NO<sub>x</sub> emissions. The SCR systems typically require the use of DEF as a reactant to reduce NO<sub>x</sub>. Diesel engines that are certified to the Tier 4 Final standards generally include controls that limit the function of the engines if they are operated without DEF, or if the engine's electronic control module cannot confirm that the SCR system is properly operating. Such controls are generally called "inducements" because they induce the operator to properly maintain the SCR emission control system.

In 2014, EPA adopted provisions in 40 CFR Part 1039 allowing manufacturers of certified non-road engines to give operators the means to temporarily override emission control inducements during qualified emergency situations, such as those where operation of the engine is needed to protect human life.<sup>22</sup> The provisions of 40 CFR allow engine manufacturers to include a dormant feature in the engine's control software that could be activated to override emission control inducements for up to 120 hours per use during a qualified emergency situation. After 120 hours of cumulative operation without emission control inducements, the specific permission of the manufacturer and input of a temporary code or reconfiguration of the engines electronic control module is required to allow another 120 hours of operation with emission control inducements overridden.

Some people have expressed concern that the emission control inducements required for engines that are certified to the Tier 4 Final emission standards could prevent proper operation of the engine in the event of extended emergencies that last more than 120 hours. Although typical use of an emergency IC engine is not expected to exceed 120 hours in most scenarios, to address this issue the District BACT guideline for emergency IC engines powering electrical generators will require that these engines comply with emission limits that are equivalent to Tier 4 Final emission levels, but will not require that these engines be certified to the Tier 4 Final standards. This is the same option that is allowed by the BAAQMD and SMAQMD BACT guidelines for diesel-fired emergency IC engines rated ≥ 1,000 bhp. This will give the operator the option to comply with the required emission standard through the use of add-on emission controls rather than using a Tier 4 Final certified IC engine. Because the engines are not required to be certified to the Tier 4 Final standards, the engines will

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<sup>22</sup> See 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines, Subpart G – Special Compliance Provisions, <https://www.ecfr.gov/cgi-bin/text-idx?node=pt40.36.1039&rgn=div5#sp40.36.1039.g> and Federal Register Vol. 81, No. 130, July 7, 2016 – Final Amendments to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, <https://www.govinfo.gov/content/pkg/FR-2016-07-07/pdf/2016-16045.pdf>

not include the emission control inducements (i.e. the 120 hour limitation) required for certified IC engines.

## **VI. Conclusion**

As discussed above, a review of the available information indicates that the emission limits for NO<sub>x</sub>, PM, CO, and VOC that are equivalent to the Tier 4 Final standards are achieved in practice BACT for all new diesel-fired emergency IC engines > 50 bhp powering electrical generators.

Based on the current availability of Tier 4 Final diesel IC engines powering electrical generators and the District's review of the available information regarding the most stringent limits that have been required and achieved in practice for diesel-fired emergency IC engines powering electrical generators; District BACT Guideline 3.1.1 will be clarified to indicate that the Tier 4 Final emission limits are the latest EPA Tier Certification levels required as BACT.

### Effective Date of Updated BACT Determination

Because the District has determined that the Tier 4 Final emission limits are achieved in practice BACT for diesel-fired emergency IC engines powering electrical generators in all bhp ranges, emission limits that are equivalent to the Tier 4 Final emission limits will be required as BACT for all ATC applications for diesel-fired emergency IC engines powering electrical generators deemed complete after April 29, 2022.

## **Attachments**

- A. Previous District BACT Guideline 3.1.1 Emergency Diesel-Fired IC Engine (updated June 13, 2019)
- B. Tier Certification Standards for Diesel Engines from 40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines
- C. CARB Off-Road Compression-Ignition Engine Standards
- D. District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines
- E. BAAQMD Permits for Tier 4 Diesel Emergency IC Engines and Diesel Emergency IC Engines Retrofit with SCR
- F. SCAQMD Permits for Tier 4 and Tier 4 Final Equivalent Diesel Emergency IC Engines
- G. Tier 4 IC Engines Included in SCAQMD Certified ICE Emergency Generators List
- H. SMAQMD Permits for Tier 4 Diesel Emergency IC Engines

**Attachment A**

**Previous District BACT Guideline 3.1.1  
Emergency Diesel-Fired IC Engine (Updated June 13, 2019)**

SJVAPCD Best Available Control Technology (BACT) Guideline 3.1.1\*  
 Last Update: 6/13/2019

Emergency Diesel-Fired IC Engine

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

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**

**Attachment B**

**Tier Certification Standards for Diesel Engines from 40 CFR Part 1039  
– Control of Emissions from New and In-Use Nonroad  
Compression-Ignition Engines**

**Tier 1 Emission Certification Standards for Compression-Ignition IC Engines**

<b>Table 1 to 40 CFR Part 1039, Appendix I – Tier 1 Emission Standards (g/kW-hr)</b>						
<b>Rated power (kW)</b>	<b>Starting model year</b>	<b>NO<sub>x</sub></b>	<b>HC</b>	<b>NO<sub>x</sub>+NMHC</b>	<b>CO</b>	<b>PM</b>
kW < 8	2000			10.5	8.0	1.0
8 ≤ kW < 19	2000			9.5	6.6	0.80
19 ≤ kW < 37	1999			9.5	5.5	0.80
37 ≤ kW < 75	1998	9.2				
75 ≤ kW < 130	1997	9.2				
130 ≤ kW ≤ 560	1996	9.2	1.3		11.4	0.54
kW > 560	2000	9.2	1.3		11.4	0.54

**Tier 2 Emission Certification Standards for Compression-Ignition IC Engines**

<b>Table 2 to 40 CFR Part 1039, Appendix I – Tier 2 Emission Standards (g/kW-hr)</b>				
<b>Rated power (kW)</b>	<b>Starting model year</b>	<b>NO<sub>x</sub>+NMHC</b>	<b>CO</b>	<b>PM</b>
kW < 8	2005	7.5	8.0	0.80
8 ≤ kW < 19	2005	7.5	6.6	0.80
19 ≤ kW < 37	2004	7.5	5.5	0.60
37 ≤ kW < 75	2004	7.5	5.0	0.40
75 ≤ kW < 130	2003	6.6	5.0	0.30
130 ≤ kW < 225	2003	6.6	3.5	0.20
225 ≤ kW < 450	2001	6.4	3.5	0.20
450 ≤ kW ≤ 560	2002	6.4	3.5	0.20
kW > 560	2006	6.4	3.5	0.20

**Tier 3 Emission Certification Standards for Compression-Ignition IC Engines**

<b>Table 3 to 40 CFR Part 1039, Appendix I – Tier 3 Emission Standards (g/kW-hr)</b>				
<b>Rated power (kW)</b>	<b>Starting model year</b>	<b>NO<sub>x</sub>+NMHC</b>	<b>CO</b>	<b>PM</b>
37 ≤ kW < 75	2008	4.7	5.0	0.40
75 ≤ kW < 130	2007	4.0	5.0	0.30
130 ≤ kW < 560	2006	4.0	3.5	0.20



**Interim Tier 4 Emission Certification Standards for Compression-Ignition IC  
Engines  $\geq 37$  kW (50 bhp)**

<b>Table 3 of 40 CFR Part 1039.102 – Interim Tier 4 Exhaust Emission Standards (g/kW-hr): <math>37 \leq \text{kW} &lt; 56</math></b>				
<b>Option<sup>a</sup></b>	<b>Model Years</b>	<b>PM</b>	<b>NO<sub>x</sub> + NMHC</b>	<b>CO</b>
#1	2008-2012	0.30	4.7	5.0
#2	2012	0.03	4.7	5.0
All	2013-2014	0.03	4.7	3.5

<sup>a</sup> You may certify engines to the Option #1 or Option #2 standards starting in the listed model year. Under Option #1, all engines at or above 37 kW and below 56 kW produced before the 2013 model year must meet the applicable Option #1 standards in this table. These engines are considered to be “Option #1 engines.” Under Option #2, all these engines produced before the 2012 model year must meet the applicable standards identified in Appendix I of 40 CFR Part 1039. Engines certified to the Option #2 standards in model year 2012 are considered to be “Option #2 engines.”

<b>Table 4 of 40 CFR Part 1039.102 – Interim Tier 4 Exhaust Emission Standards (g/kW-hr): <math>56 \leq \text{kW} &lt; 75</math></b>						
<b>Model years<sup>1</sup></b>	<b>Phase-in option</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>NO<sub>x</sub> + NMHC</b>	<b>CO</b>
2012-2013	Phase-in	0.02	0.40	0.19	-	5.0
	Phase-out	0.02	-	-	4.7	5.0
2014	All engines	0.02	0.40	0.19	-	5.0

<sup>1</sup> See paragraph (d)(2) of 40 CFR Part 1039.102 for provisions that allow for a different phase-in schedule than that specified in paragraph (c)(1) of 40 CFR Part 1039.102.

<b>Table 5 of 40 CFR Part 1039.102 – Interim Tier 4 Exhaust Emission Standards (g/kW-hr): <math>75 \leq \text{kW} &lt; 130</math></b>						
<b>Model years<sup>1</sup></b>	<b>Phase-in option</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>NO<sub>x</sub> + NMHC</b>	<b>CO</b>
2012-2013	Phase-in	0.02	0.40	0.19	-	5.0
	Phase-out	0.02	-	-	4.0	5.0
2014	All engines	0.02	0.40	0.19	-	5.0

<sup>1</sup> See paragraph (d)(2) of 40 CFR Part 1039.102 for provisions that allow for a different phase-in schedule than that specified in paragraph (c)(1) of 40 CFR Part 1039.102.

<b>Table 6 of 40 CFR Part 1039.102 – Interim Tier 4 Exhaust Emission Standards (g/kW-hr): 130 ≤ kW &lt; 560</b>						
<b>Model years</b>	<b>Phase-in option</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>NO<sub>x</sub> + NMHC</b>	<b>CO</b>
2011-2013	Phase-in	0.02	0.40	0.19	-	3.5
	Phase-out	0.02	-	-	4.0	3.5
2014	All engines	0.02	0.40	0.19	-	3.5

<b>Table 7 of 40 CFR Part 1039.102 – Interim Tier 4 Exhaust Emission Standards (g/kW-hr): kW &gt; 560</b>						
<b>Model years</b>	<b>Maximum Engine Power</b>	<b>Application</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>CO</b>
2011-2014	560 < kW ≤ 900	All	0.10	3.5	0.40	3.5
	kW > 900	Generator Sets	0.10	0.67	0.40	3.5
		All Except Generator Sets	0.10	3.5	0.40	3.5

**Final Tier 4 Emission Certification Standards for Compression-Ignition IC Engines**

<b>Table 1 of 40 CFR Part 1039.101 – Tier 4 Exhaust Emission Standards After the 2014 Model Year, g/KW-hr<sup>a</sup></b>						
<b>Maximum Engine Power</b>	<b>Application</b>	<b>PM</b>	<b>NO<sub>x</sub></b>	<b>NMHC</b>	<b>NO<sub>x</sub>+NMHC</b>	<b>CO</b>
kW < 19	All	0.40 <sup>b</sup>	-	-	7.5	6.6 <sup>c</sup>
19 ≤ kW < 56	All	0.03	-	-	4.7	5.0 <sup>d</sup>
56 ≤ kW < 130	All	0.02	0.40	0.19	-	5.0
130 ≤ kW ≤ 560	All	0.02	0.40	0.19	-	3.5
kW > 560	Generator Sets	0.03	0.67	0.19	-	3.5
kW > 560	All Except Generator Sets	0.04	3.5	0.19	-	3.5

a. Note that some of these standards also apply to 2014 and earlier model years. This table presents the full set of emission standards that apply after all the transition and phase-in provisions of 40 CFR 1039.102 expire.

b. See paragraph c of 40 CFR 1039.101 for provisions related to an optional PM standard for certain engines below 8 kW

c. The CO standard is 8.0 g/kW-hr for engines below 8 kW

d. The CO standard is 5.5 g/kW-hr for engines below 37 kW

**Attachment C**

**CARB Off-Road Compression-Ignition (Diesel) Engine Standards**

## Off-Road Compression-Ignition (Diesel) Engine Standards [NMHC+NO<sub>x</sub>/CO/PM in g/bhp-hr (g/kW-hr)]<sup>23</sup>

hp (kw)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015+
≥ 50 (37) < 75 (55.5)				N/A <sup>(b)</sup> 6.9 (9.2) N/A N/A						5.6 (7.5) 3.7 (5.0) 0.30 (0.40)				3.5 (4.7) 3.7 (5.0) 0.22 <sup>(c)</sup>					3.5 3.7 0.02 <sup>(c)</sup>		
≥ 75 (55.5) < 100 (75)				N/A <sup>(b)</sup> 6.9 (9.2) N/A N/A						5.6 (7.5) 3.7 (5.0) 0.30 (0.40)				3.5 (4.7) 3.7 (5.0) 0.3				0.14 2.5 3.7 0.01 <sup>(b,d)</sup>			0.14 0.29 3.7 0.01 <sup>(b)</sup>
≥ 100 (75) < 175 (130) <sup>(e)</sup>			N/A <sup>(b)</sup> 6.9 (9.2) N/A N/A						4.9 (6.6) 3.7 (5.0) 0.22 (0.30)				3.0(4.0) 3.7 (5.0) 0.22					0.14 2.5 3.7 0.01 <sup>(b,d)</sup>			0.14 0.29 3.7 0.01 <sup>(b)</sup>
≥ 175 (130) < 300 (225) <sup>(e)</sup>		1.0 (1.3) <sup>(b)</sup> 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)							4.9 (6.6) 2.6 (3.5) 0.15 (0.20)			3.0 (4.0) 2.6 (3.5) 0.15 <sup>(e)</sup>					0.14 1.5 2.6 0.015 <sup>(b,d)</sup>			0.14 0.3 2.6 0.01 <sup>(b)</sup>	
≥ 300 (225) < 600 (450) <sup>(e)</sup>		1.0 (1.3) <sup>(b)</sup> 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)				4.8 (6.4) 2.6 (3.5) 0.15 (0.20)						3.0 (4.0) 2.6 (3.5) 0.15 <sup>(e)</sup>					0.14 1.5 2.6 0.015 <sup>(b,d)</sup>			0.14 0.3 2.6 0.01 <sup>(b,d)</sup>	
≥ 600 (450) ≤ 750 (560) <sup>(e)</sup>		1.0 (1.3) <sup>(b)</sup> 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)					4.8 (6.4) 2.6 (3.5) 0.15 (0.20)					3.0 (4.0) 2.6 (3.5) 0.15 <sup>(b)</sup>					0.14 1.5 2.6 0.015 <sup>(b,d)</sup>			0.14 0.3 2.6 0.01 <sup>(b,d)</sup>	
> 750 (560) <sup>(e)</sup>						1.0 (1.3) <sup>(b)</sup> 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)					0.3 2.6 2.6 0.07 <sup>(b)</sup>				0.14 2.6 2.6 0.03 <sup>(b)</sup>
> 750 ≤ 1207	Generators					1.0 (1.3) <sup>(b)</sup> 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)					0.3 2.6 2.6 0.07 <sup>(b)</sup>				0.14 0.5 2.6 0.02 <sup>(b)</sup>
> 1207	Generators					1.0 (1.3) <sup>(b)</sup> 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)					0.3 0.5 2.6 0.07 <sup>(b)</sup>				0.14 0.5 2.6 0.02 <sup>(b)</sup>

- a. The PM standard for hand-start, air cooled, direct injection engines below 6 bhp may be delayed until 2010 and be set at 0.45 g/bhp-hr.
  - b. Standards given are NMHC/NO<sub>x</sub>/CO/PM in g/bhp-hr.
  - c. Engine families in the power category may alternately meet Tier 3 PM standards (0.3 g/bhp-hr) from 2008-2011 in exchange for introducing final PM standards in 2012.
  - d. The implementation schedule shown is the three-year alternate Nox approach. Other schedules are available.
  - e. Certain manufacturers have agreed to comply with these standards by 2005.
- Note: This chart was converted into bhp units based on the chart at <http://www.arb.ca.gov/msprog/offroad/offroad.htm> 2/7/06.

<table border="0"> <tr><td style="background-color: #ffffcc; width: 20px; height: 10px; display: inline-block;"></td> Tier 1</tr></table>			

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<sup>23</sup> CARB Off-Road Compression-Ignition (Diesel) Engine Standards in g/bhp-hr and g/kW-hr. Standards referenced from Title 13 CCR 2423 Internet links to CARB's Off Road Compression - Ignition Diesel Engine Standards: [https://ww2.arb.ca.gov/sites/default/files/2020-03/Tier\\_Color\\_Chart\\_Off\\_Road\\_Diesel\\_Stds\\_R.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-03/Tier_Color_Chart_Off_Road_Diesel_Stds_R.pdf) and <https://ww3.arb.ca.gov/diesel/documents/off-road-stds.xls>

**Attachment D**

**District ATC Permits for Issued for  
Tier 4 Final Diesel Emergency IC Engines**

Summary of District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Firewater Pumps and Floodwater Pumps)		
Engine bhp	ATCs Issued	Engines Installed
>50 - <75 bhp	7	4
75 - <750 bhp	42	36
≥750 bhp	30	21

Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
N-9060-3-0	NEW CINGULAR WIRELESS PCS LLC DBA AT&T	CELLULAR PHONE SERVICE	65.7 BHP ISUZU BD-4LE2X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY ENGINE POWERING AN ELECTRICAL GENERATOR	65.7	TIER 4F	11/9/2020	-
N-9073-3-0	NEW CINGULAR WIRELESS PCS LLC DBA AT&T	TELECOMMUNICATION	65.7 BHP ISUZU MODEL BD-4LE2X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY ENGINE POWERING AN ELECTRICAL GENERATOR	65.7	TIER 4F	10/1/2020	-
N-9254-1-0	CITY OF MERCED	WASTEWATER TREATMENT FACILITY	TRANSPORTABLE 65.7 BHP (INTERMITTENT) ISUZU MODEL BP-4LE2X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRIC GENERATOR.	65.7	TIER 4F	10/20/2016	10/27/2016
S-512-32-0	SETTON PISTACHIO OF TERRA BELLA	AGRICULTURAL PRODUCTS PROCESSING	TRANSPORTABLE 66 BHP (INTERMITTENT) ISUZU MODEL BP-4LE2X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	66	TIER 4F	12/7/2020	5/1/2020

Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
N-2338-11-0	CITY OF MODESTO, PUBLIC WORKS	GOVERNMENT SERVICES	PORTABLE 74 BHP CUMMINS MODEL QSF2.8 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION ENGINE POWERING A WATER PUMP (VARIOUS LOCATIONS)	74	TIER 4F	1/13/2021	1/27/2021
S-9018-1-0	CITY OF WOODLAKE	WATER SUPPLY	74 BHP (INTERMITTENT) CUMMINS MODEL QSF2.8 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A PUMP FOR A MUNICIPAL WATER WELL SYSTEM	74	TIER 4F	7/19/2017	8/11/2017
N-8104-3-0	SANTA NELLA COUNTY WATER DISTRICT	GOVERNMENT SERVICES	PORTABLE 74.3 BHP KOHLER DIESEL MODEL KDI3404TCR/G18 TIER-4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR	74.3	TIER 4F	12/15/2021	-
C-787-12-0	LOS GATOS TOMATO PRODUCTS	AGRICULTURAL PRODUCTS PROCESSING - FRUITS/VEGETABLE	115 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HFG04 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN AIR COMPRESSOR (ROUTINE REPLACEMENT OF UNIT C-787-11-0)	115	TIER 4F	10/5/2021	10/5/2021
C-9248-16-0	FARADAY&FUTURE, INC.	ELECTRIC VEHICLE MANUFACTURING	125 BHP (INTERMITTENT) CUMMINS MODEL QSB-G50 TIER 4F CERTIFIED, OR EQUIVALENT, DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	125	TIER 4F	8/2/2018	9/1/2018

Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
C-9985-1-0	CITY OF PARLIER	MUNICIPAL WATER AND WASTEWATER SERVICE SUPPLIER	133 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HFG04_B TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	133	TIER 4F	10/7/2021	-
N-4946-3-0	UNIVERSITY OF CALIFORNIA, MERCED	COLLEGES AND UNIVERSITIES	TRANSPORTABLE 133 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HFG-04 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	133	TIER 4F	2/8/2019	9/24/2019
N-9806-1-0	PLYMOUTH PLACE	ASSISTED LIVING FACILITY	133 BHP JOHN DEERE MODEL 4045HFG04 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY ENGINE POWERING AN 80 KW ELECTRICAL GENERATOR	133	TIER 4F	5/27/2020	7/20/2020
C-261-33-0	CERTAINTEED LLC	FIBERGLASS MANUFACTURING OPERATION	147.6 BHP (INTERMITTENT) CATERPILLAR MODEL C4.4 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A WATER WELL PUMP FOR EMERGENCY COOLING	147.6	TIER 4F	3/8/2018	6/25/2019
C-9945-1-0	PACIFIC GAS AND ELECTRIC CO	PUBLIC UTILITIES	147.9 BHP (INTERMITTENT) ISUZU MODEL BR-4HK1X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	147.9	TIER 4F	11/16/2021	5/19/2021



Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
C-9951-1-0	PACIFIC GAS AND ELECTRIC CO	PUBLIC UTILITIES	147.9 BHP (INTERMITTENT) ISUZU MODEL BR-4HK1X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	147.9	TIER 4F	10/21/2021	5/19/2021
C-9585-1-0	CALIFORNIA AMERICAN WATER	WATER WELL SERVICING	166 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HFG09 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (VARIOUS SPECIFIED LOCATIONS)	166	TIER 4F	11/27/2019	11/27/2019
N-9996-1-0	KEYES COMMUNITY SERVICES DISTRICT	SEWER SYSTEMS	166 BHP (INTERMITTENT) JOHN DEERE MODEL 4045HFG09 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	166	TIER 4F	7/19/2021	March 2021
C-902-5-0	PACIFIC GAS & ELECTRIC CO	PUBLIC UTILITIES	169 BHP (INTERMITTENT) CUMMINS MODEL QSB5-G11 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (REPLACEMENT FOR UNIT C-902-2-1)	169	TIER 4F	7/8/2021	5/4/2021
N-9242-1-0	PLANADA COMMUNITY SERVICE DISTRICT	PUBLIC WORKS	170.8 BHP ISUZU MODEL BR-4HK1X TIER 4F CERTIFIED DIESEL EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	170.8	TIER 4F	6/14/2016	7/1/2016

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
S-9835-1-0	PACIFIC GAS AND ELECTRIC CO	PUBLIC UTILITIES	170.8 BHP (INTERMITTENT) ISUZU MODEL BR-4HK1X TIER 4 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR (OR EQUIVALENT)	170.8	TIER 4F	4/12/2022	5/20/2021
S-9836-1-0	PACIFIC GAS AND ELECTRIC CO	PUBLIC UTILITIES	170.8 BHP (INTERMITTENT) ISUZU MODEL BR-4HK1X TIER 4 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	170.8	TIER 4F	4/12/2022	5/21/2021
N-800-4-0	CITY OF STOCKTON	GOVERNMENT SERVICES	173 BHP (INTERMITTENT) CATERPILLAR MODEL XQ125 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR REPLACING UNIT 3-0	173	TIER 4F	12/10/2021	12/1/2020
N-9822-1-0	LINDY FARMS C/O SHANNON PABOOJIAN	RESIDENCE	173.1 BHP (INTERMITTENT) CATERPILLAR MODEL C4.4 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	173.1	TIER 4F	6/17/2020	7/30/2021
N-9994-1-0	SECOND HARVEST OF THE GREATER VALLEY	FOOD BANK	174 BHP (INTERMITTENT) PERKINS MODEL C4.4 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	174	TIER 4F	6/10/2021	11/3/2021

Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
S-9132-1-0	CITY OF WOODLAKE	WATER SERVICES	174 BHP (INTERMITTENT) CATERPILLAR MODEL C4.4 TIER 4 CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A MUNICIPAL WATER WELL	174	TIER 4F	2/8/2018	2/8/2018
N-571-34-0	STOCKTON PORT DISTRICT	MARINE CARGO HANDLING	196 BHP (INTERMITTENT) JOHN DEERE MODEL 6068HFG05 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	196	TIER 4F	9/21/2021	August 2021
N-5505-7-0	VAN EXEL DAIRY #1	DAIRY FARMS	218 BHP (INTERMITTENT) VOLVO PENTA MODEL TAD572VE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRIC GENERATOR. REPLACEMENT UNIT FOR PERMIT N-5505-5-0.	218	TIER 4F	11/1/2021	-
N-5933-7-0	COUCHMAN FARMS	DAIRY FARM	218 BHP (INTERMITTENT) VOLVO PENTA MODEL QSB5-G13 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION (IC) ENGINE POWERING AN ELECTRICAL GENERATOR	218	TIER 4F	11/24/2021	-
N-9871-1-0	LIVING SPACES FURNITURE	WOOD HOUSEHOLD PRODUCTS	218 BHP (INTERMITTENT) VOLVO MODEL TAD572VE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	218	TIER 4F	10/28/2020	-

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
C-9948-1-0	PACIFIC GAS AND ELECTRIC CO	PUBLIC UTILITIES	235 BHP (INTERMITTENT) JOHN DEERE MODEL 6068HFG05 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	235	TIER 4F	11/16/2021	5/19/2021
C-8999-1-0	MADERA COUNTY SPECIAL DISTRICTS	WATER SUPPLY	241 BHP (INTERMITTENT) JOHN DEERE MODEL 6068HFG08 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	241	TIER 4F	5/24/2016	6/15/2017
N-9228-2-0	RIPON FIRE DISTRICT	FIRE STATION	241 BHP JOHN DEERE MODEL 6068HFG08 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY ENGINE POWERING AN ELECTRICAL GENERATOR	241	TIER 4F	6/29/2020	9/30/2020
C-3751-2-0	CITY OF PARLIER	GOVERNMENT SERVICES	257 BHP (INTERMITTENT) JOHN DEERE MODEL 6068HFG05 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	257	TIER 4F	8/18/2021	-
S-1478-2-0	CALIFORNIA WATER SERVICE CO	WATER SUPPLY	314 BHP CUMMINS MODEL QSB7-G9 TIER 4F CERTIFIED TRANSPORTABLE DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	314	TIER 4F	3/30/2020	Approximately December 2019
S-8122-3-0	CALIFORNIA WATER SERVICE CO	WATER SERVICES	314 BHP CUMMINS MODEL QSB7-G9 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR FOR A DRINKING WATER SYSTEM	314	TIER 4F	9/23/2019	10/29/2019

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
S-8122-4-0	CALIFORNIA WATER SERVICE CO	WATER SERVICES	314 BHP (INTERMITTENT) CUMMINS MODEL QSB7-G9 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR FOR A DRINKING WATER SYSTEM SERVING AS A TEMPORARY REPLACEMENT FOR PERMIT UNIT -3-0	314	TIER 4F	12/7/2021	1/24/2021
S-9418-1-0	TULARE COUNTY RESOURCE MANAGEMENT AGENCY	COUNTY GOVERNMENT	314 BHP (INTERMITTENT) CUMMINS MODEL QSB7-G9 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	314	TIER 4F	5/8/2019	12/10/2019
N-645-33-6	DTE STOCKTON, LLC	POWER GENERATION FACILITY	320 BHP CATERPILLAR MODEL C7.1 TIER-4F DIESEL-FIRED EMERGENCY STANDBY INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR	320	TIER 4F	4/12/2022	4/12/2022
N-8942-5-0	WORLD CLASS DISTRIBUTION, INC.	DISTRIBUTION WAREHOUSE	320 BHP VOLVO MODEL TAD873VE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	320	TIER 4F	4/22/2021	6/1/2021
C-9947-1-0	PACIFIC GAS AND ELECTRIC CO	PUBLIC UTILITIES	323 BHP (INTERMITTENT) JOHN DEERE MODEL 6068HFG06 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	323	TIER 4F	11/29/2021	4/21/2021

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
N-1013-58-0	PORT OF STOCKTON	MARINE CARGO HANDLING	323 BHP (INTERMITTENT) JOHN DEERE MODEL G068HFG06 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	323	TIER 4F	9/21/2021	-
N-9843-1-0	CITY OF LATHROP	CITY GOVERNMENT	475 BHP CUMMINS MODEL QSG12 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY ENGINE POWERING AN ELECTRICAL GENERATOR	475	TIER 4F	3/23/2021	4/21/2021
N-1680-17-0	STANISLAUS FOOD PRODUCTS	AGRICULTURAL PRODUCTS PROCESSING	480 BHP CATERPILLAR MODEL C13 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	480	TIER 4F	5/11/2021	7/22/2021
N-1680-18-0	STANISLAUS FOOD PRODUCTS	AGRICULTURAL PRODUCTS PROCESSING	515 BHP CATERPILLAR MODEL C13 TIER 4F CERTIFIED DIESEL-FIRED RENTAL EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	515	TIER 4F	5/11/2021	7/22/2021
C-948-37-0	VITRO FLAT GLASS LLC	GLASS MANUFACTURING	525 BHP (INTERMITTENT) JOHN DEERE MODEL 6135HFC09 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN AIR COMPRESSOR	525	TIER 4F	1/13/2021	4/26/2021
S-3550-23-0	J.G BOSWELL COMPANY	TOMATO PROCESSING	536 BHP (INTERMITTENT) ISUZU MODEL BQ-6WG1X TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	536	TIER 4F	9/29/2020	7/6/2020

Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
S-5290-10-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	543 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1375VE (405 KW), S/N 2013939163, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	543	TIER 4F	10/1/2020	4/21/2020
N-9776-1-0	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	WATER DISTRICT	643 BHP (INTERMITTENT) JOHN DEERE MODEL 6135HFG06 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	643	TIER 4F	3/25/2020	4/2/2019
N-9776-2-0	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	WATER DISTRICT	700 BHP VOLVO PENTA MODEL TAD1672VE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	700	TIER 4F	10/16/2020	6/26/2020
N-4156-4-0	UNFI GROCERS DISTRIBUTION, INC.	GROCERIES, WHOLESALE	779 BHP (INTERMITTENT) CATERPILLAR MODEL C18 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	779	TIER 4F	4/1/2022	-
N-4156-5-0	UNFI GROCERS DISTRIBUTION, INC.	GROCERIES, WHOLESALE	779 BHP (INTERMITTENT) CATERPILLAR MODEL C18 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	779	TIER 4F	4/1/2022	-
N-9888-1-0	DR NIRMAL RAI	SKILLED NURSING/REHABILITATION CENTER	779 BHP CATERPILLAR ENGINE MODEL C18 TIER 4F CERTIFIED DIESEL-FUELED EMERGENCY INTERNAL COMBUSTION ENGINE POWERING AN ELECTRICAL GENERATOR	779	TIER 4F	2/17/2021	-

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
C-2344-25-0	CHINA PEAK MOUNTAIN RESORT LLC	AMUSEMENT AND RECREATION SERVICES	825 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1672 GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	825	TIER 4F	12/30/2019	12/30/2019
N-9742-16-0	AEMETIS ADVANCED PRODUCTS RIVERBANK INC	ETHANOL PRODUCTION	TIER 4F VOLVO PENTA 825 BHP DIESEL FIRED EMERGENCY IC ENGINE (OR EQUIVALENT)	825	TIER 4F	4/22/2021	-
N-9742-17-0	AEMETIS ADVANCED PRODUCTS RIVERBANK INC	ETHANOL PRODUCTION	TIER 4F VOLVO PENTA 825 BHP DIESEL FIRED EMERGENCY ENGINE (OR EQUIVALENT)	825	TIER 4F	4/22/2021	-
N-9742-18-0	AEMETIS ADVANCED PRODUCTS RIVERBANK INC	ETHANOL PRODUCTION	TIER 4F VOLVO PENTA 825 BHP DIESEL FIRED EMERGENCY ENGINE (OR EQUIVALENT)	825	TIER 4F	4/22/2021	-
N-9742-19-0	AEMETIS ADVANCED PRODUCTS RIVERBANK INC	ETHANOL PRODUCTION	TIER 4F VOLVO PENTA 825 BHP DIESEL FIRED EMERGENCY ENGINE (OR EQUIVALENT)	825	TIER 4F	4/22/2021	-
S-5290-4-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	919 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1673GE (685 KW), S/N 2016108162, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	10/1/2020	4/21/2020



Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
S-5290-5-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	919 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1673GE (685 KW), S/N 2016110524, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	10/1/2020	4/21/2020
S-5290-6-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	919 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1673GE (685 KW), S/N 2016111156, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	10/1/2020	4/21/2020
S-5290-7-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	919 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1673GE (685 KW), S/N 2016115123, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	10/1/2020	4/21/2020
S-5290-8-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	919 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1673GE (685 KW), S/N 2016117084, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	10/1/2020	4/21/2020
S-5290-9-0	WAL-MART STORES EAST LP	DISTRIBUTION CENTER	919 BHP (INTERMITTENT) VOLVO PENTA MODEL TWD1673GE (685 KW), S/N 2016118350, TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	10/1/2020	4/21/2020

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
S-8529-4-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-5-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-6-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-7-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
S-8529-8-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-9-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-10-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-11-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021

<b>Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)</b>							
<b>ATC Permit Number</b>	<b>Facility Name</b>	<b>Facility Description</b>	<b>Equipment Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>	<b>Date ATC Final</b>	<b>Date Installed</b>
S-8529-12-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
S-8529-13-1	ROSS STORES INC	DISTRIBUTION CENTER	685 KW (919 BHP) INTERMITTENT VOLVO PENTA TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	919	TIER 4F	11/15/2021	6/9/2021
N-9872-1-0	CITY OF NEWMAN	WATER SUPPLY SYSTEM	932 BHP AB VOLVO PENTA MODEL TWD1673GE TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING A 695 KW ELECTRICAL GENERATOR	932	TIER 4F	11/13/2020	5/3/2021
S-9794-1-0	AMAZON.COM SERVICES LLC - BFL2	WAREHOUSING	1112 BHP (INTERMITTENT) PERKINS MODEL 2806C- E18TTAG7 TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	1,112	TIER 4F	6/14/2021	7/1/2021
N-9630-3-0	JAMES L CONNAUGHTON, POSEIDON ONE, LLC	DATA STORAGE FACILITY	3,627 BHP (INTERMITTENT) CATERPILLAR MODEL 3516C TIER 4F CERTIFIED DIESEL- FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	3,627	TIER 4F	11/9/2021	1/17/2022

Detailed List of Current District ATC Permits Issued for Tier 4 Final Diesel Emergency IC Engines (Excluding Emergency Engines Powering Firewater Pumps and Floodwater Pumps)							
ATC Permit Number	Facility Name	Facility Description	Equipment Description	bhp Rating	Tier Certification Level	Date ATC Final	Date Installed
N-9630-4-0	JAMES L CONNAUGHTON, POSEIDON ONE, LLC	DATA STORAGE FACILITY	3,627 BHP (INTERMITTENT) CATERPILLAR MODEL 3516C TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	3,627	TIER 4F	11/9/2021	1/17/2022
N-9630-5-0	JAMES L CONNAUGHTON, POSEIDON ONE, LLC	DATA STORAGE FACILITY	3,627 BHP (INTERMITTENT) CATERPILLAR MODEL 3516C TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	3,627	TIER 4F	11/9/2021	-
N-9630-6-0	JAMES L CONNAUGHTON, POSEIDON ONE, LLC	DATA STORAGE FACILITY	3,627 BHP (INTERMITTENT) CATERPILLAR MODEL 3516C TIER 4F CERTIFIED DIESEL-FIRED EMERGENCY STANDBY IC ENGINE POWERING AN ELECTRICAL GENERATOR	3,627	TIER 4F	11/9/2021	-

**Attachment E**

**BAAQMD Permits for Tier 4 Diesel Emergency IC Engines and  
Diesel Emergency IC Engines Retrofit with SCR**

The District submitted a public records request to the BAAQMD inquiring about the number of Tier 4 diesel-fired emergency IC engines permitted in the BAAQMD. On October 13, 2021, the BAAQMD provided records for the emergency engines that were permitted in the BAAQMD. The records provided included the EPA engine family numbers for the IC engines and if the engines were equipped with add-on control equipment (e.g. selective catalytic reduction (SCR)). The BAAQMD permits for Tier 4 Final certified or diesel-fired emergency IC engines retrofit with SCR identified from the data provided by the BAAQMD are summarized in the tables below. In addition, the information provided by the BAAQMD also indicated that the BAAQMD has approximately 380 permits for diesel-fired emergency IC engines that are equipped with diesel particulate filters (DPFs).

<b>List of BAAQMD Permits Provided for Tier 4 Final Diesel Emergency IC Engines</b>								
<b>Facility #</b>	<b>Facility Name</b>	<b>Source #</b>	<b>bhp Rating</b>	<b>Model Year</b>	<b>EPA Engine Family</b>	<b>Tier Cert Level</b>	<b>SCR</b>	<b>DPF</b>
12517	The Presidio Trust	18	74.3	2019	GKHL3.36TCR	Tier 4 (Final or Phase In)	No	No
568	San Francisco South East Treatment Plant	28	152	2015	FSZXL05.2RXB	Tier 4 (Final or Phase In)	Yes	No
568	San Francisco South East Treatment Plant	29	152	2015	FSZXL05.2RXB	Tier 4 (Final or Phase In)	Yes	No
1791	City of Benicia	10	170.8	2020	LSZXL05.2RXB	Tier 4 (Final or Phase In)	Yes	No
20248	CIM Group Properties	2	175	2015	FJDXL06.8210	Tier 4 (Final or Phase In)	No	Yes
20791	City of Morgan Hill (Jackson Reservoir)	3	237	2016	GJDXL06.8210	Tier 4 (Final or Phase In)	No	Yes
201221	California Tank and Pump Station	1	246	2015	FCPXL7.01HPF	Tier 4 (Final or Phase In)	No	Yes
200362	City of Berkeley Public Library	2	252	2016	GVPXL07.7CJA	Tier 4 (Final or Phase In)	Yes	No
581	ST Shore Terminals LLC	51	281.6	2018	JMBXL07.7RJA	Tier 4 (Final or Phase In)	Yes	No
23517	85 Bluxome Property Owner LLC	1	382	2016	GVPXL12.8CJA	Tier 4 (Final or Phase In)	Yes	No

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>List of BAAQMD Permits Provided for Tier 4 Final Diesel Emergency IC Engines</b>								
<b>Facility #</b>	<b>Facility Name</b>	<b>Source #</b>	<b>bhp Rating</b>	<b>Model Year</b>	<b>EPA Engine Family</b>	<b>Tier Cert Level</b>	<b>SCR</b>	<b>DPF</b>
723	Lawrence Berkeley National Laboratory	238	433	2020	LCEXL08.9AAL	Tier 4 (Final or Phase In)	Yes	No
723	Lawrence Berkeley National Laboratory	239	433	2020	LCEXL08.9AAL	Tier 4 (Final or Phase In)	Yes	No
16833	Santa Rosa Silvercrest Residences	3	497	2015	FFPXL12.9TSS	Tier 4 (Final or Phase In)	Yes	No
208	Schnitzer Steel Products Company	16	779	2017	HCPXL18.1HTH	Tier 4 (Final or Phase In)	Yes	Yes
290	DOE-KAO Sandia National Laboratories	128	779	2019	KCPXL18.1HTH	Tier 4 (Final or Phase In)	Yes	Yes
778	San Jose-Santa Clara Regional Wastewater Facility	222	4,376	2015	FCPXL84.7NSF	Tier 4 (Final or Phase In)	Yes	No
778	San Jose-Santa Clara Regional Wastewater Facility	223	4,376	2015	FCPXL84.7NSF	Tier 4 (Final or Phase In)	Yes	No
778	San Jose-Santa Clara Regional Wastewater Facility	224	4,376	2015	FCPXL84.7NSF	Tier 4 (Final or Phase In)	Yes	No
778	San Jose-Santa Clara Regional Wastewater Facility	225	4,376	2015	FCPXL84.7NSF	Tier 4 (Final or Phase In)	Yes	No

<b>List of BAAQMD Permits Provided for Diesel Emergency IC Engines Retrofit with SCR Systems</b>							
<b>Facility #</b>	<b>Facility Name</b>	<b>Source #</b>	<b>bhp Rating</b>	<b>Model Year</b>	<b>EPA Engine Family</b>	<b>Tier Cert Level</b>	<b>Aftertreatment Device</b>
8875	Sutro Tower, Inc	2	1,881	2012	CMVXL49.0BBA	Tier 2	Tier 4 Final Compliant Controls
18801	Xeres Ventures, LP (SC1)	1	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit



BACT for Diesel-Fired Emergency IC Engines  
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<b>List of BAAQMD Permits Provided for Diesel Emergency IC Engines Retrofit with SCR Systems</b>							
<b>Facility #</b>	<b>Facility Name</b>	<b>Source #</b>	<b>bhp Rating</b>	<b>Model Year</b>	<b>EPA Engine Family</b>	<b>Tier Cert Level</b>	<b>Aftertreatment Device</b>
18801	Xeres Ventures, LP (SC1)	2	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	3	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	4	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	5	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	6	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	7	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	8	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	9	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	10	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	11	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	12	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	13	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	14	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>List of BAAQMD Permits Provided for Diesel Emergency IC Engines Retrofit with SCR Systems</b>							
<b>Facility #</b>	<b>Facility Name</b>	<b>Source #</b>	<b>bhp Rating</b>	<b>Model Year</b>	<b>EPA Engine Family</b>	<b>Tier Cert Level</b>	<b>Aftertreatment Device</b>
18801	Xeres Ventures, LP (SC1)	15	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	16	3,353	2010	AMDDL95.4XTR	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	17	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	18	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	19	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	20	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	21	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	22	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	23	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	24	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	25	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	26	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	27	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit

BACT for Diesel-Fired Emergency IC Engines  
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<b>List of BAAQMD Permits Provided for Diesel Emergency IC Engines Retrofit with SCR Systems</b>							
<b>Facility #</b>	<b>Facility Name</b>	<b>Source #</b>	<b>bhp Rating</b>	<b>Model Year</b>	<b>EPA Engine Family</b>	<b>Tier Cert Level</b>	<b>Aftertreatment Device</b>
18801	Xeres Ventures, LP (SC1)	28	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	29	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	30	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	31	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
18801	Xeres Ventures, LP (SC1)	32	3,273	2010	ACPXL78.1T2E	Tier 2	SCR Retrofit
20616	Second Harvest of Silicon Valley	2	380	2000	YGNXL13.3HTA	Tier 1	SCR Retrofit

**Attachment F**

**SCAQMD Permits for Tier 4 Final and Tier 4 Final Equivalent Diesel  
Emergency IC Engines**

The District submitted a public records request to the SCAQMD inquiring about the number of Tier 4 diesel-fired emergency IC engines permitted in the SCAQMD. On November 12, 2021, the SCAQMD provided records for the emergency engines that were permitted in the SCAQMD. The information provided often did not list the Tier certification level of the engines; however, the information provided about the engine manufacturer, model, and add-on control equipment (i.e. SCR) was used to determine if an engine was a Tier 4 Final certified or Tier 4 Final compliant IC engine. Tier 4 Final compliant IC engines are not certified to the Tier 4 Final emission standards but are equipped with the same controls necessary to comply with the Tier 4 Final certification emission levels.<sup>24</sup> The SCAQMD permits for Tier 4 Final certified or Tier 4 Final compliant diesel-fired emergency IC engines identified from the data provided by the SCAQMD are summarized in the table below. In addition, the information provided by the SCAQMD also indicated that the SCAQMD has approximately 1,580 permits for diesel-fired emergency IC engines that are equipped with diesel particulate filters (DPFs).

<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
<b>SCAQMD Facility ID Number</b>	<b>Facility Name</b>	<b>SCAQMD Application Number</b>	<b>Permit Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>
15507	California State University, Fullerton	617138	Internal Combustion Engine, On-Site Portable, Tier 4F, Isuzu, Model No. BP-4LE2X, Diesel-Fueled, Lean Burn, Turbocharged, Aftercooled, Four Cylinder, Four Cycle, Rated at 65.7 BHP, with an Oxidation Catalyst and Diagnostic Module, Driving an Emergency Electrical Generator.	65.7	Tier 4 Final
103965	Moulton Niguel Valley Water District	569728	Internal Combustion Engine, Caterpillar-(Perkins), Model No. 1206F-E70TTA, 202 BHP, Diesel Fueled, 6-Cylinders, 4-Cycle, Turbocharged, Charged Air Cooler, Exhaust Gas Recirculation (EGR), with an Integrated Emissions Control System, Caterpillar, Consisting of an Integral a Diesel Particulate Filter (DPF) with Diesel Oxidation Catalyst (DOC), and Selective Catalytic Reduction (SCR), and an Electronic Control Module, driving an Emergency Water Pump.	202	Tier 4 Final

<sup>24</sup> An example of a Tier 4 equivalent diesel emergency IC engine (Tier 2 certified IC engine equipped with controls to meet Tier 4 certification levels) is given in the SCAQMD BACT Guidelines, Part B: LAER/BACT Determinations for Major Polluting Facilities, Section III – Other Technologies, Application 567735, Equipment Category: I.C. Engine, Stationary, Emergency, Electrical Generators (December 11, 2016) [http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/other-technologies/2-2-18\\_emerginglaer\\_praxair\\_567735\\_emerg\\_ice\\_controls.pdf](http://www.aqmd.gov/docs/default-source/bact/laer-bact-determinations/other-technologies/2-2-18_emerginglaer_praxair_567735_emerg_ice_controls.pdf)

BACT for Diesel-Fired Emergency IC Engines  
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<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
103965	Moulton Niguel Valley Water District	584749	Internal Combustion Engine, Caterpillar-(Perkins), Model No. C 7.1, 202 BHP, Diesel Fueled, 6-Cylinders, 4-Cycle, Turbocharged, Charged Air Cooler, Exhaust Gas Recirculation (EGR), with an Integrated Emissions Control System, Caterpillar, Consisting of an Integral Diesel Oxidation Catalyst (DOC), an Integral Selective Catalytic Reduction (SCR), an Diesel Particulate Filter (DPF) and an Electronic Control Module, driving an Emergency Water Pump.	202	Tier 4 Final
124062	City of LA, Bureau of Sanitation (BOS)(Murdock Ave & East I St)	583221	Internal Combustion Engine, Caterpillar Perkins, Model No. C-7.1, 229 BHP, 4-Cycle, 6-Cylinders, Turbocharged, Aftercooled, Diesel Fueled, with an Integrated Diesel Aftertreatment System, Nett Technologies, Model No. BlueMAX Volt 300 ADPF & SCR, consisting of 1-Diesel Particulate Filter, 1-Electrical Heater, a Selective Catalytic Reduction (SCR) Catalyst, Integrated Load Bank, and a data logging and alarm system, driving an Emergency Electrical Generator.	229	Tier 4 Final
188745	Walnut Valley Water District	625940	Internal Combustion Engine, John Deere, Model No. 6068HFG05, 235 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged, exhaust gas recirculation, equipped with a Diesel oxidation catalyst, Selective Catalytic Reduction and Ammonia oxidation catalysts with Urea injection, driving an Emergency Electrical Generator.	235	Tier 4 Final
188752	Walnut Valley Water District	625941	Internal Combustion Engine, John Deere, Model No. 6068HFG05, 235 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged, exhaust gas recirculation, equipped with a Diesel oxidation catalyst, Selective Catalytic Reduction and Ammonia oxidation catalysts with Urea injection, driving an Emergency Electrical Generator.	235	Tier 4 Final

BACT for Diesel-Fired Emergency IC Engines  
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<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
96302	Walnut Valley Water District	625942	Internal Combustion Engine, John Deere, Model No. 6068HFG05, 235 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged, exhaust gas recirculation, equipped with a Diesel oxidation catalyst, Selective Catalytic Reduction and Ammonia oxidation catalysts with Urea injection, driving an Emergency Electrical Generator.	235	Tier 4 Final
124064	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	604354	Internal combustion engine, Cummins, Model QSB7-G9 , diesel-fueled, 6 cylinders, 4-cycle, turbocharged, aftercooled, rated at 235.5 BHP, driving an emergency electrical generator, equipped with Tier 4 aftertreatment.	235.5	Tier 4 Final
64905	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	604355	Internal combustion engine, Cummins, Model QSB7-G9 , diesel-fueled, 6 cylinders, 4-cycle, turbocharged, aftercooled, rated at 235.5 BHP, driving an emergency electrical generator, equipped with Tier 4 aftertreatment.	235.5	Tier 4 Final
50645	LA County Metropolitan Transportation Authority	610601	Internal Combustion Engine, John Deere, Model No. 6068HFG08A,B, 240 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged/Aftercooled, equipped with a Selective Catalytic Reduction catalyst with Urea injection, Diesel & Ammonia oxidation catalyst driving an Emergency Electrical Generator.	240	Tier 4 Final
184656	Glendora Surgery Center	608308	Internal Combustion Engine, John Deere, Model No. 6068HFG05, Diesel-Fueled, Six Cylinders, Four Cycle, Turbocharged and Aftercooled, Rated at 257 BHP, with an Aftertreatment System Consisting of a Diesel Oxidation Catalyst, Selective Catalytic Reduction and Diesel Exhaust Fluid Dosing Module, and an Engine Control Module, Driving an Emergency Electrical Generator.	257	Tier 4 Final

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
64908	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	583230	Internal Combustion Engine, Caterpillar Perkins, Model No. C-7.1, 280 BHP, 4-Cycle, 6-Cylinders, Turbocharged, Aftercooled, Diesel Fueled, with an Integrated Diesel Aftertreatment System, Nett Technologies, Model No. BlueMAX Volt 300 ADPF & SCR, consisting of 1-Diesel Particulate Filter, 1-Electrical Heater, a Selective Catalytic Reduction (SCR) Catalyst, Integrated Load Bank, and a data logging and alarm system, driving an Emergency Electrical Generator.	280	Tier 4 Final
68695	LA County, ISD/Network Services Division	591110	Internal Combustion Engine, Caterpillar, Model No. C-9.3 ACERT, Serial No. CS901457, 300 bhp, 4-cycle, 6-cylinders, turbocharged, aftercooled, diesel-fueled, with an integrated diesel particulate filter, diesel oxidation catalyst, and selective catalytic reduction-urea, driving an Emergency Pump.	300	Tier 4 Final
177800	City of San Bernardino Municipal Water Department	566296	INTERNAL COMBUSTION ENGINE, CUMMINS, MODEL NO. QSB7-G9, 314 BHP, DIESEL FUELED, 6-CYLINDERS, 4-CYCLE, TURBOCHARGED, CHARGED AIR COOLER, EXHAUST GAS RECIRCULATION (EGR), WITH AN INTEGRATED EMISSIONS CONTROL SYSTEM, CUMMINS, MODEL CM2350, CONSISTING OF AN INTEGRAL DIESEL OXIDATION CATALYST (DOC), AN INTEGRAL SELECTIVE CATALYTIC REDUCTION (SCR), AND AN ELECTRONIC CONTROL MODULE, DRIVING AN EMERGENCY GENERATOR.	314	Tier 4 Final
64912	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	592450	Internal Combustion Engine, Volvo, Model TAD1170-72VE, EPA Family No. JVPXL10.8CJA, Tier 4 final, four stroke, 6 cylinder, 320 BHP, diesel fueled, turbocharged, aftercooled, with a selective catalytic reduction (SCR)-urea system and a temperature monitoring system, driving an emergency electrical generator.	320	Tier 4 Final



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List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
150282	Hemet West	621729	Internal Combustion Engine, Volvo Penta, Model No. TAD1371VE, 385 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, equipped with a Selective Catalytic Reduction and Ammonia Slip Catalyst, driving an Emergency Electrical Generator.	385	Tier 4 Final
152574	City of Industry City Hall	605079	Internal Combustion Engine, Volvo Penta, Model No. TAD1371VE, 388 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged/Aftercooled, equipped with a Selective Catalytic Reduction catalyst with Urea injection, driving an Emergency Electrical Generator.	388	Tier 4 Final
188751	Walnut Valley Water District	625943	Internal Combustion Engine, John Deere, Model No. 6090HFG06, 399 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged, exhaust gas recirculation, equipped with a Diesel oxidation catalyst, Selective Catalytic Reduction and Ammonia oxidation catalysts with Urea injection, driving an Emergency Electrical Generator.	399	Tier 4 Final
188748	Walnut Valley Water District	625944	Internal Combustion Engine, John Deere, Model No. 6090HFG06, 399 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged, exhaust gas recirculation, equipped with a Diesel oxidation catalyst, Selective Catalytic Reduction and Ammonia oxidation catalysts with Urea injection, driving an Emergency Electrical Generator.	399	Tier 4 Final
183325	Temescal Valley Water District	589332	Internal combustion engine, Cummins, Model No. QSL9-G9, 433 BHP, diesel fueled, six cylinders, four-cycle, turbocharged/aftercooled, equipped with a diesel particulate filter and selective catalytic reducer, driving an emergency electrical generator.	433	Tier 4 Final

BACT for Diesel-Fired Emergency IC Engines  
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<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
800189	Disneyland Resort	577615	INTERNAL COMBUSTION ENGINE, EMERGENCY POWER, DIESEL FUEL, JOHN DEERE, MODEL 6090HFG09, WITH AFTERCOOLER, TURBOCHARGER, 437 BHP WITH A/N: 577615 CO OXIDATION CATALYST, INTEGRATED DIESEL PARTICULATE FILTER, INTEGRATED PARTICULATE FILTER SELECTIVE CATALYTIC REDUCTION, INTEGRATED, UREA BASED REAGENT	437	Tier 4 Final
177107	Archlight, Parking Concepts, Inc.	581800	Internal Combustion Engine, John Deere, Model No. 6090HFG09, 457 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged/Aftercooled, equipped with a built-In DPF and SCR driving an Emergency Electrical Generator	457	Tier 4 Final
188140	Riverside County Transportation Commission	606550	Internal Combustion Engine, Volvo Penta, Model No. TAD1373VE, 469 BHP, Diesel Fueled, 6 Cylinders, Four-Cycle, Turbocharged/Aftercooled, equipped with a Selective Catalytic Reduction catalyst with Urea injection, driving an Emergency Electrical Generator.	469	Tier 4 Final
94216	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	583225	Internal Combustion Engine, Caterpillar, Model No. C-9, 480 BHP, 4-Cycle, 6-Cylinders, Turbocharged, Aftercooled, Diesel Fueled, with an Integrated Diesel Aftertreatment System, Nett Technologies, Model No. BlueMAX Volt 300 ADPF & SCR, consisting of 3-Diesel Particulate Filters, 3-Electrical Heaters, a Selective Catalytic Reduction (SCR) Catalyst, Integrated Load Bank, and a data logging and alarm system, driving an Emergency Electrical Generator.	480	Tier 4 Final
14479	Skanska USA Civil West CA District Inc	615770	Internal combustion engine, Isuzu Motors, Model BQ-6WG1X , diesel-fueled, 6 cylinders, 4-cycle, turbocharged, aftercooled, rated at 512.3 BHP, driving an emergency electrical generator, equipped with an OEM diesel oxidation catalyst and selective catalytic reduction.	512.3	Tier 4 Final

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
183105	RCC - Regional Connector Constructors	588489	Internal Combustion Engine, Isuzu, Compression Ignition, Turbocharged, 6 Cylinder, Model: 6WG1X, Diesel Fuel, Rated 532 BHP at 1800 RPM, Tier IV Interim, Driving an Emergency Electrical Generator	532	Tier 4 Interim
183106	RCC - Regional Connector Constructors	588490	Internal Combustion Engine, Isuzu, Compression Ignition, Turbocharged, 6 Cylinder, Model: 6WG1X, Diesel Fuel, Rated 532 BHP at 1800 RPM, Tier IV Interim, Driving an Emergency Electrical Generator	532	Tier 4 Interim
183107	RCC - Regional Connector Constructors	588491	Internal Combustion Engine, Isuzu, Compression Ignition, Turbocharged, 6 Cylinder, Model: 6WG1X, Diesel Fuel, Rated 532 BHP at 1800 RPM, Tier IV Interim, Driving an Emergency Electrical Generator	532	Tier 4 Interim
42633	LA County Sanitation Districts (SPADRA)	594498	Internal Combustion Engine, Volvo Penta, Model No. VD350-02FT4, diesel fueled, four cycles, six cylinders, turbocharged and aftercooled. 551 BHP, with ammonia slip catalyst and selective catalytic reduction after treatment devices, driving an emergency electrical generator, with a vertical stack at least 9.4 feet above ground with rain cap.	551	Tier 4 Final
120801	STAAR Surgical CO	596251	Internal Combustion Engine, Volvo Penta, Model VD550-02FT4, Turbocharged, Diesel fired, 6 Cylinders, 738 HP, with Selective Catalytic Reduction and a Diesel Particulate Filter, Miratech, Model No. LRT15-08, Driving an Emergency Electrical Generator.	738	Tier 4 Final

BACT for Diesel-Fired Emergency IC Engines  
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<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
61980	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	583220	Internal Combustion Engine, Caterpillar, Model No. C-15, 762 BHP (568 kWm), 4-Cycle, 6-Cylinders, Turbocharged, Aftercooled, Diesel Fueled, with an Integrated Diesel Aftertreatment System, Nett Technologies, Model No. BlueMAX Volt 300 BXC 122-0V06, consisting of 4-Diesel Particulate Filters, 4-Electrical Heaters, a Selective Catalytic Reduction (SCR) Catalyst, an Integrated Load Bank, and a data logging and alarm system, driving an Emergency Electrical Generator.	762	Tier 4 Final
133967	Ross Stores, Inc.	627223	Internal Combustion Engine No. 1, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
133967	Ross Stores, Inc.	627224	Internal Combustion Engine No. 2, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
133967	Ross Stores, Inc.	627225	Internal Combustion Engine No. 3, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
133967	Ross Stores, Inc.	627226	Internal Combustion Engine No. 4, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final

<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
<b>SCAQMD Facility ID Number</b>	<b>Facility Name</b>	<b>SCAQMD Application Number</b>	<b>Permit Description</b>	<b>bhp Rating</b>	<b>Tier Certification Level</b>
133967	Ross Stores, Inc.	627227	Internal Combustion Engine No. 5, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
145416	Ross Dress for Less Inc.	627345	Internal Combustion Engine No. 1, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
145416	Ross Dress for Less Inc.	627346	Internal Combustion Engine No. 2, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
145416	Ross Dress for Less Inc.	627347	Internal Combustion Engine No. 3, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
145416	Ross Dress for Less Inc.	627348	Internal Combustion Engine No. 4, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
145416	Ross Dress for Less Inc.	627349	Internal Combustion Engine No. 5, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final

BACT for Diesel-Fired Emergency IC Engines  
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<b>List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines</b>					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
145416	Ross Dress for Less Inc.	627350	Internal Combustion Engine No. 6, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
145416	Ross Dress for Less Inc.	627351	Internal Combustion Engine No. 7, Tier 4 Final, Volvo Penta, Model No. TWD1673GE, 850 BHP, Diesel Fueled, Four-cycle, 6 Cylinders, Turbocharged/Aftercooled, Equipped with an Ammonia Slip Catalyst, Selective Catalytic Reduction, Driving an Emergency Electrical Generator.	850	Tier 4 Final
6044	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	583219	Internal Combustion Engine, Caterpillar, Model No. C-27, 1141 BHP, 4-Cycle, 12-Cylinders, Turbocharged, Aftercooled, Diesel Fueled, with an Integrated Diesel Aftertreatment System, Nett Technologies, Model No. BlueMAX Volt 300 BXC 123-1V12, consisting of 5-Diesel Particulate Filters, 5-Electrical Heaters, a Selective Catalytic Reduction (SCR) Catalyst, an Integrated Load Bank, and a data logging and alarm system, driving an Emergency Electrical Generator.	1,141	Tier 4 Final
61976	City of LA, Bureau of Sanitation (BOS), Wastewater Collection Systems Division	583970	Internal combustion engine, Cummins QST30-G5 or equivalent, diesel fueled, four cycle, 12 cylinders, turbocharged and aftercooled, rated at up to 1490 bhp (800kW), with a Tier 4 final aftertreatment system or equivalent, driving an emergency electrical generator.	1,490	Tier 4 Final
93728	City of LA, Bureau of Sanitation (BOS)	604542	Internal Combustion Engine, Cummins, Model No. QST30-G5, Diesel-fueled, Twelve Cylinders, Turbocharged/Aftercooled, Rated at 1490 BHP (1111 kWm) @ 1800 RPM, and Equipped with a Cummins Aftertreatment System, Model S4F-H, Consisting of Selective Catalyst Reduction, Integrated Load Bank, and Diesel Particulate Filter, Driving an Emergency Electrical Generator.	1,490	Tier 4 Compliant (Tier 2 certified with Tier 4 add-on controls)

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List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
93728	City of LA, Bureau of Sanitation (BOS)	604543	Internal Combustion Engine, Cummins, Model No. QST30-G5, Diesel-fueled, Twelve Cylinders, Turbocharged/Aftercooled, Rated at 1490 BHP (1111 kWm) @ 1800 RPM, and Equipped with a Cummins Aftertreatment System, Model S4F-H, Consisting of Selective Catalyst Reduction, Integrated Load Bank, and Diesel Particulate Filter, Driving an Emergency Electrical Generator.	1,490	Tier 4 Compliant (Tier 2 certified with Tier 4 add-on controls)
186723	Worldpac Inc.	600694	Internal Combustion Engine, Mitsubishi, Model No. S12H-Y2PTAW-1, 1528 BHP, Diesel Fueled, 12 Cylinders, Four-Cycle, Turbocharged, equipped with Diesel Particulate Filter, Oxidation Catalyst, and Selective Catalytic Reduction, Catalytic Combustion Corp, Model NO. SCR-1.5MW-DOC-DPF-SIL/WO 101943, driving an emergency generator.	1,528	Tier 4 Compliant (Tier 2 certified with Tier 4 add-on controls)
24546	St Jude Medical Center	534366	INTERNAL COMBUSTION ENGINE, CUMMINS, 16 CYLINDER, TURBCHARGED / AFTERCOOLED, MODEL NO. QSK50-G4, 2,220 BHP @ 1,800 RPM, DIESEL FUELED, EQUIPPED WITH A CUMMINS INTEGRAL COMBINATION SELECTIVE CATALYTIC REDUCTION AND DIESEL PARTICULATE FILTER SYSTEM, MODEL NO. D4F-H, DRIVING AN EMERGENCY ELECTRICAL GENERATOR	2,220	Tier 4 Compliant (Tier 2 certified with Tier 4 add-on controls)
24546	St Jude Medical Center	534367	INTERNAL COMBUSTION ENGINE, CUMMINS, 16 CYLINDER, TURBCHARGED / AFTERCOOLED, MODEL NO. QSK50-G4, 2,220 BHP @ 1,800 RPM, DIESEL FUELED, EQUIPPED WITH A CUMMINS INTEGRAL COMBINATION SELECTIVE CATALYTIC REDUCTION AND DIESEL PARTICULATE FILTER SYSTEM, MODEL NO. D4F-H, DRIVING AN EMERGENCY ELECTRICAL GENERATOR	2,220	Tier 4 Compliant (Tier 2 certified with Tier 4 add-on controls)

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List of SCAQMD Permits Provided for Tier 4 Final and Tier 4 Final Equivalent Diesel Emergency IC Engines					
SCAQMD Facility ID Number	Facility Name	SCAQMD Application Number	Permit Description	bhp Rating	Tier Certification Level
190253	East Valley Water District	613715	Internal Combustion Engine, Kohler, Model No. KD62V12, Diesel Fueled, 3352 BHP, Twelve Cylinders, Four Cycles, Direct Diesel Injection, Engine Control Module, Turbocharged, Charge Air Cooler, equipped with a Diesel Particulate Filter (DPF), Diesel Oxidation Catalyst (DOC), Miratech, SP-LTR64-TVD-XR2, Selective Catalytic Reduction (SCR) system, Miratech, Model CBL64-30, Driving an Emergency Electrical Generator.	3,352	Tier 4 Compliant (Tier 2 certified with Tier 4 add-on controls)



**Attachment G**

**Tier 4 IC Engines Included in SCAQMD Certified ICE Emergency  
Generators List**

BACT for Diesel-Fired Emergency IC Engines  
Powering Electrical Generators (April 29, 2022)

<b>Tier 4 IC Engines Included in SCAQMD Certified ICE Emergency Generators List (12-10-2021)<sup>25</sup></b>						
Manufacturer/ Distributor	Engine Mfg.	Model	Engine Rating	CEP # (Appl. #)	Exp. Date	Comments
<b>Cummins Cal Pacific, Inc.</b> 1939 Deere Avenue Tom Golnick (619) 219-5044 <a href="mailto:tom.s.golnick@cummins.com">tom.s.golnick@cummins.com</a>	Cummins	QSB7-G6 with Integ'd. DPF and Oxidation Catalyst	314 BHP	529762	12/31/2022	TIER 4 INTERIM
	Cummins	QSK50-G5 W/ D4F-H Tier 4f Aftertreatment	2220 BHP	546507	12/31/2022	TIER 4 FINAL
	Cummins	QSK60-G6 with D4F-H Tier 4f Aftertreatment	2922 BHP	544894	12/31/2022	TIER 4 FINAL
	Cummins	QSK78-G11 W/ D5F-H Tier 4f Aftertreatment	3705 BHP	544895	12/31/2022	TIER 4 FINAL
	Cummins	QST30-G5 W/ S4F-H Tier 4f Aftertreatment	1490 BHP	545101	12/31/2022	TIER 4 FINAL
	Cummins	QSL9-G9 Tier 4F (w/ DOC & SCR)	433 BHP	582925	12/31/2022	TIER 4 FINAL
	Cummins	QSB7-G9 Tier 4F (w/ DOC & SCR)	314 BHP	582926	12/31/2022	TIER 4 FINAL
<b>Deere and Company</b> <b>John Deere Power Systems</b> P.O. Box 5100 Waterloo, IA 50701-5100 Brandon Lingle (319) 292-4382 <a href="mailto:LingleBrandon@JohnDeere.com">LingleBrandon@JohnDeere.com</a>	Deere	6135HFG06A w/ Integrated Aftertreatment	634 BHP	627157	12/31/2022	TIER 4 FINAL
	Deere	6090HFG06A w/ Integrated Aftertreatment	463 BHP	627158	12/31/2022	TIER 4 FINAL
<b>Kohler Company</b> 444 Highland Drive, Mail Stop 072 Kohler, Wisconsin 53044 Mark McCurdy, Manager – Regulatory, Power Systems (920) 457-4441 x33263 <a href="mailto:Mark.McCurdy@kohler.com">Mark.McCurdy@kohler.com</a> Nishant Sharma, Regulatory Engineering Manager (920) 457-4441 x72690 <a href="mailto:nishant.sharma@kohler.com">nishant.sharma@kohler.com</a>	Kohler	KD27V12 (1114 KW) w/ Integrated Aftertreatment	1494 BHP	627958	12/31/2022	TIER 4 FINAL
	Kohler	KD36V16 (1391 KW) w/ Integrated Aftertreatment	1865 BHP	626477	12/31/2022	TIER 4 FINAL
	Kohler	KD45V20 (1654 KW) w/ Integrated Aftertreatment	2218 BHP	626478	12/31/2022	TIER 4 FINAL
	Kohler	KD83V16 (3490 KW) w/ Integrated Aftertreatment	4680 BHP	627956	12/31/2022	TIER 4 FINAL
	Kohler	KD62V12 (2700 KW) w/ Integrated Aftertreatment	3621 BHP	627957	12/31/2022	TIER 4 FINAL

<sup>25</sup> SCAQMD Certified ICE Emergency Generators List (last updated 12-10-2021).  
<http://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment&parent=certified-products>

**Attachment H**

**SMAQMD Permits for Tier 4 Diesel Emergency IC Engines**

The District submitted a public records request to the SMAQMD inquiring about the number of Tier 4 diesel-fired emergency IC engines permitted in the SMAQMD. On November 1, 2021, the SMAQMD provided records for the emergency engines that were permitted in the SMAQMD. The information provided by SMAQMD on the number of Tier 4 diesel-fired emergency IC engines permitted in the SMAQMD is summarized in the table below.

<b>List of SMAQMD Permits Provided for Tier 4 Diesel Emergency IC Engines</b>						
<b>Company Name</b>	<b>Permit to Operate (PO) #</b>	<b>Permit to Operate (PO) Status</b>	<b>Description</b>	<b>Bhp Rating</b>	<b>Date Authority to Construct (AC) Issued</b>	<b>Tier Cert Level</b>
CITY OF ELK GROVE- PUBLIC WORKS DRAINAGE	26290	ACTIVE	IC ENGINE COMPRESSION-STANDBY	63.7	11/15/2019	Tier 4
QUANTUM CARE PLACE CH, LLC	26201	ACTIVE	IC ENGINE COMPRESSION-STANDBY	69	5/10/2019	Tier 4
MERCY SAN JUAN HOSPITAL	26203	ACTIVE	IC ENGINE COMPRESSION-STANDBY	173.1	5/2/2019	Tier 4
EHEALTHINSURANCE SERVICES, INC	26634	ACTIVE	IC ENGINE COMPRESSION-STANDBY	513	9/11/2020	Tier 4

## **Attachment I**

### **Summary of Comments and Responses to Proposed Update to BACT Requirements for Diesel-Fired Emergency IC Engines > 50 bhp Powering Electrical Generators**

## **Summary of Comments and Responses to Proposed Update to BACT Requirements for Diesel-Fired Emergency IC Engines > 50 bhp Powering Electrical Generators**

The District published the proposed update to the District Best Available Control Technology (BACT) requirements for diesel-fired emergency IC engines powering electrical generators on the District's website on December 27, 2021 for a 30-day public review and comment period and also sent out notification of the availability of the document for review and comment via District email lists. Summaries of the comments received during the associated comment period and the District's responses to these comments are given below.

### **Comments were received from the following:**

#### **Kathleen Beresh, Energy Systems**

- 1. Comment:** If an engine will meet Tier 4 Final emission standards through the use of add on-emissions controls (DPFs, SCR, or both), will the engine potentially be subject to performance testing requirements prior to the issuance of the Permit to Operate?

**Response:** Non-certified engines that utilize add-on emission controls to comply with the Tier 4 Final emission standards may be subject to additional testing to ensure that these engines comply with the required emission standards. However, there may be instances in which additional testing may not be required for non-certified engines that utilize add-on emission controls to comply with the emission standards, such as when diesel particulate filters (DPFs) certified by ARB are used to comply with an applicable limit. The District will work with engine suppliers and stakeholders to identify ways to reduce testing requirements for non-certified emergency IC engines that must comply with the Tier 4 Final emission standards to satisfy BACT.

#### **Wes Younger, Trinity Consultants**

- 1. Comment:** Diesel engines are somewhat sensitive to load and do not run very well or last as long when they are oversized for the available load. Diesel exhaust temperatures also vary greatly from light load to heavy load and oversized engines may not reach the temperatures for SCR and DPFs to operate properly. As a result, some engines that were source tested in other Districts did not demonstrate compliance with the applicable limits for NO<sub>x</sub> and PM during operation. Engine manufacturers provide sizing guidance about "wet stacking" to those that ask. It is suggested that a strongly-worded recommendation to seek and observe the engine manufacturer's guidance about appropriate engine sizing be added as a footnote to the BACT guideline. This is important because there are relatively few Tier 4 Final

diesel generators available and applicants may be pushed by market forces to buy an oversized unit.

**Response:** As mentioned in the comment, manufacturers of emergency IC engines generally provide guidance about engine sizing and operating load to reduce the potential for decreased engine performance and possible engine damage as a result of the accumulation of unburnt fuel in the engine exhaust system. The District agrees that the guidance provided by engine manufacturers should be followed to reduce the potential for damage to the engine and emissions control systems. District regulations and permits generally require that IC engines, including emergency IC engines used for electrical power generation, must be operated and maintained as recommended by the engine manufacturer or emissions control system supplier. Because the primary purpose of the BACT guideline is to identify the required emission standards and District regulations and permits already require engines to be operated and maintained as recommended by the engine manufacturer or emissions control system supplier, a footnote about recommended engine sizing will not be added to the BACT guideline at this time.

- 2. Comment:** Studies of the Tier 4 Final on-road fleet are finding the real-world emissions are averaging approximately five times the NO<sub>x</sub> certification limits. The same issues are expected to apply to the stationary Tier 4 Final fleet, but this issue has not been studied enough to reach major conclusions.

**Response:** Because the Tier 4 Final certification emission levels are calculated as a weighted average based on operation at different loads, testing of engines that comply with the Tier 4 Final certification standards at different loads may result in different emission factors than the certified emission factors based on a weighted average at different loads. However, for most bhp ranges, the Tier 4 Final standards reduce NO<sub>x</sub> and PM emissions by at least 90% compared to the applicable Tier 2 and Tier 3 standards. Therefore, even if some studies indicate that some on-road engines may have emissions that are higher than the certification standards at different operating loads and speeds, these engines remain the cleanest diesel engines available and still have the potential to significantly reduce emissions compared to engines that do not comply with the Tier 4 Final standards.

- 3. Comment:** There is a problem with using the certification limits for purposes outside of the Federal certification program. The natural tendency of applicants, permit writers, and attainment planners is to assume that certified engines will meet the certification limits as constructed and operated in the real world, but the certification limits for that program are based on a complex 5-load test cycle with a specific test procedure. An engine that meets the certification limit using the 5-load test procedure will not necessarily comply with the certification limit at every particular load, and stationary emergency engines are run at different loads based on electrical demand. In practice, Tier 4 Final engines are the cleanest available, but the certification standards don't really relate to real-world operation of stationary engines. It is becoming clear that the numeric certification limits shouldn't be used

for most of the purposes for which they have been used in the air pollution control field. Some recent permits in the Bay Area Air Quality Management District (BAAQMD) have attempted to address the issue of demonstrating compliance with the certification standards by requiring stationary diesel engines to be tested using the 5-load test procedure. But this test procedure is more appropriate for an engine manufacturer's dynamometer lab than a stack test in the field and would in most cases yield test results not representative of normal source operation. However, if the permittee tested the engine under representative operating conditions rather than effectively replicating the certification test, there is a significant likelihood of failing to meet the certification limits because the operating conditions may be too different. It is a misuse of the certification standards to assume that engines will never exceed a certification limit under any operating condition. That was not the intent of the certification program. It is suggested that BACT should be purchasing an engine that is manufacturer-certified to meet the Tier 4 Final limits and operating it according to the manufacturer's emission-related written instructions, including following the manufacturer's recommendations for sizing the engine to the load.

**Response:** As mentioned above, because the certified emission factors are based on a weighted average at different loads, the emission factor at particular load may not be the same as the certified emission factor. However, air pollution regulatory agencies have typically used the certified emission factors with the maximum rated engine load as a way to estimate the maximum emissions from an engine. This is the current accepted method to calculate emissions from certified engines; however, this method can potentially be changed if a better method is developed and approved.

The District agrees with the commenter that Tier 4 Final diesel engines are the cleanest diesel engines currently available. Purchasing an engine that is certified to meet the Tier 4 Final limits and operating it according to the manufacturer's instructions would satisfy the proposed BACT requirements. The District is not currently proposing to require testing of engines that have been certified to the applicable Tier 4 Final emission standards and will work with engine suppliers and stakeholders to identify ways to reduce testing requirements for non-certified emergency IC engines that must comply with the Tier 4 Final emission standards to satisfy BACT.

### **Nathan Heeringa, Innovative Ag Services**

- 1. Comment:** The summary of Tier 4 Final emergency IC engines did not include any Tier 4 Final emergency IC engines operated at dairies, identified as SIC code 0241001. These family operated facilities are predominantly remote and house animals that are highly susceptible to summer heat conditions, and require reliable equipment to operate during an unforeseen power outage. The animal health and product storage requirements have no room for error. Engine failure can potentially result in animal deaths, which is unacceptable. An analysis of the dairy sector is requested prior to applying the updated BACT requirements to dairy operations.



**Response:** The District understands your concerns regarding the importance of reliable backup power to protect animal health and prevent the loss of perishable products. To address concerns that Tier 4 Final certified engines could stop operating properly in the event of an extended emergency, the District BACT guideline for emergency IC engines powering electrical generators will include the flexibility to use IC engines that are not certified to the Tier 4 Final standards p they comply with the Tier 4 Final emission levels. These engines will not be required to have the emission control inducements that Tier 4 Final certified engines must have that could affect engine operation in the event of extended emergencies. This flexibility will provide an option to those that have concerns about reliable power during extended emergencies. In addition, it must be noted that the establishment of BACT does not require that a particular technology identified as BACT must necessarily have been used at every type of business or SIC code that could potentially use the technology. The District has identified a number of facilities for which reliable backup power is critical that have installed Tier 4 Final emergency diesel IC engines, including water districts, hospitals, fire stations, food processing plants, and data centers. These facilities include operations that are necessary for the protection and preservation of life. Based on the number and various types of facilities that have installed Tier 4 Final emergency IC engines or emergency IC engines that are equipped with emissions controls to comply with the Tier 4 emission standards, the District has determined that the Tier 4 Final emission standards are achieved in practice BACT for new diesel-fired emergency IC engines used for generation of electrical power generation

- 2. Comment:** Service providers note that the inherent complexity of Tier 4 Final engines combined with intermittent use can create problems within the after-treatment systems. Tier 2 engines are better suited for use as standby emergency situations due to their simplicity, reliability, and effectiveness.

**Response:** Although Tier 4 Final engines do include more complex controls in order to more effectively reduce emissions, as noted above, a number of different types of facilities have installed Tier 4 Final diesel-fired emergency IC engines and demonstrated that they can be successfully used to provide emergency backup power. Operating and maintaining the equipment as recommended by the engine manufacturer or emissions control system supplier will reduce the risk of problems with the engines and add-on control systems. In addition, because these systems have been required for non-emergency applications for several years, there are many business that are capable of providing regular maintenance for the engines.

- 3. Comment:** The average cost of a Tier 4 Final engine is \$100,000 more than a Tier 2 engine. This additional cost is not justifiable because emergency generators at dairies are typically operated for emergencies less than 15 hours per year.

**Response:** The District understands your concerns regarding the additional cost of Tier 4 Final IC engines. However, once a technology has been installed and

operated for a sufficient time to be considered achieved in practice, cost may no longer be considered for BACT purposes. Tier 4 Final diesel emergency IC engines have been installed at a number of different facilities for several years; therefore, the Tier 4 Final emission standards are achieved in practice BACT for emergency IC engines powering electrical generators and the cost of the technology may no longer be considered. It should also be noted that Tier 4 Final engines have much lower emissions than non-Tier 4 Final engines, which is an important benefit in the San Joaquin Valley where emission reductions are critical to reaching attainment with Ambient Air Quality Standards.