

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.1*

Last Update: 4/29/2022

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

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
SOx	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
NOx	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**		

**The following emission levels are equivalent to the EPA Tier 4 Final certification levels:
 50 to < 75 bhp: 3.5 g-(NOx + VOC)/bhp-hr, 0.02 g-PM/bhp-hr, 3.7 g-CO/bhp-hr
 75 to < 175 bhp: 0.30 g-NOx/bhp-hr, 0.015 g-PM/bhp-hr, 3.7 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr
 175 to =< 750 bhp: 0.30 g-NOx/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-NOx/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.

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San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.4*

Last Update: 3/2/2020

Emergency Diesel-Fired IC Engine Powering a Fire Pump

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Latest EPA Tier Certification level for applicable horsepower range		
SOx	Diesel fuel with sulfur content no greater than 0.0015% by weight		
PM10	- 0.1 grams/bhp-hr** (if T-BACT*** is triggered) - 0.15 grams/bhp-hr (if T-BACT*** is not triggered)		
NOx	Latest EPA Tier Certification level for applicable horsepower range		
CO	Latest EPA Tier Certification level for applicable horsepower range		

**Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 g/bhph-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 g/bhp-hr requirement.

***A site-specific Health Risk Analysis is used to determine if T-BACT is triggered.

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San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.1.5*

Last Update: 7/16/2018

Emergency Gas-Fired IC Engine

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	1) LEAN BURN: 206 ppmv @ 15% O2 (1.0 g/bhp-hr) 2) RICH BURN: 60 ppmv @ 15% O2 (0.29 g/bhp-hr)		
SOx	Natural Gas, LPG, or Propane as fuel		
PM10	Natural Gas, LPG, or Propane as fuel		
NOx	1) LEAN BURN: < 500 BHP: 1.0 g/bhp-hr ≥ 500 BHP: 0.5 g/bhp-hr 2) RICH BURN: 25 ppmv @ 15% O2 (0.44 g/bhp-hr)		
CO	2.0 g/bhp-hr		

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San Joaquin Valley
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Best Available Control Technology (BACT) Guideline 3.2.11*

Last Update: 11/17/2025

Transportable Compression-Ignited IC Engines (Non-Agricultural and Non-Electrical Power Generation)**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	EPA Tier 4 Final certification level or equivalent for applicable horsepower range***		LPG/Propane Fired Engine
SOx	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	EPA Tier 4 Final certification level or equivalent for applicable horsepower range***		LPG/Propane Fired Engine
NOx	EPA Tier 4 Final certification level or equivalent for applicable horsepower range***		LPG/Propane Fired Engine
CO	EPA Tier 4 Final certification level or equivalent for applicable horsepower range***		LPG/Propane Fired Engine

**For the purposes of this BACT guideline, Transportable Compression-Ignited IC engines are IC engines that remain or will remain at a location (any single site at a building, structure, facility, or installation) for 12 months or less or a shorter period of time for an engine located at a seasonal source.

***The following emission levels are equivalent to the EPA Tier 4 Final certification levels:
 50 to < 75 bhp: 3.5 g-(NOx + VOC)/bhp-hr, 0.02 g-PM/bhp-hr, 3.7 g-CO/bhp-hr
 75 to < 175 bhp: 0.30 g-NOx/bhp-hr, 0.015 g-PM/bhp-hr, 3.7 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr
 175 to =< 750 bhp: 0.30 g-NOx/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-NOx/bhp-hr, 0.02 g-PM/bhp-hr, 2.6 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr

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Best Available Control Technology (BACT) Guideline 3.3.16*

Last Update: 3/20/2025

Ag Stationary Compression-Ignited IC Engine

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
SOx	Very low sulfur diesel fuel (15 ppmw sulfur or less)		
PM10	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		
NOx	EPA Tier 4 Final certification level or equivalent for applicable horsepower range**		1) Electrification 2) Natural Gas-fired IC Engine meeting Rule 4702 3) Propane/LPG-fired IC engine meeting Rule 4702
CO	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 to < 75 bhp: 3.5 g-(NOx + VOC)/bhp-hr, 0.02 g-PM/bhp-hr, 3.7 g-CO/bhp-hr
 75 to < 175 bhp: 0.30 g-NOx/bhp-hr, 0.015 g-PM/bhp-hr, 3.7 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr
 175 to =< 750 bhp: 0.30 g-NOx/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-NOx/bhp-hr, 0.02 g-PM/bhp-hr, 2.6 g-CO/bhp-hr, 0.14 g-VOC/bhp-hr

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Best Available Control Technology (BACT) Guideline 3.3.19*

Last Update: 3/4/2026

**Stationary Fossil Fuel/Digester Gas-Fired Distributed Power Generation
Equipment with Reciprocating Internal Combustion Engine (< 3 MW)**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	0.10 lb-VOC/MW-hr**		
SOx	<p>Comply with one of the following:</p> <ol style="list-style-type: none"> 1. Operate the power generation equipment exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas or a combination of such gases; 2. Limit gaseous fuel sulfur content to no more than 5 grains of total sulfur per 100 standard cubic feet; 3. Use California reformulated gasoline for gasoline-fired power generation equipment; 4. Use California reformulated diesel for compression ignited power generation equipment; 5. Operate the power generation equipment on liquid fuel that contains no more than 15 ppm sulfur; or 6. Install and properly operate an emission control system that reduces SO₂ emissions by at least 95% by weight. 		
PM10	<p>For diesel fuel-fired power generation equipment: 0.03 lb-PM10/MW-hr</p> <p>For gaseous fuel-fired power generation equipment: 0.20 lb-PM10/MW-hr</p>		
NOx	0.07 lb-NOx/MW-hr**		
CO	0.20 lb-CO/MW-hr**		

<p>**When determining compliance with the lb/MW-hr requirement, units with heat recovery may include one megawatt-hour (MW-hr) for each 3.4 million Btu of useful heat recovered in addition to each MW-hr of net electricity produced.</p>

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