CATEGORY: **IC ENGINE COMPRESSION-STANDBY**

BACT Size: Minor Source BACT **IC ENGINE STANDBY**

BACT Determination Number: 172	**BACT Determination Date:**

Equipment Information

Permit Number: N/A -- Generic BACT Determination
Equipment Description: IC ENGINE STANDBY
Unit Size/Rating/Capacity: IC Engine, Standby, Diesel-fueled ≥ 50 hp
Equipment Location:

BACT Determination Information

ROCs	**Standard:**	Applicable NMHC + NOx emission standard
	Technology Description:	Applicable NMHC + NOx 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.
	Basis:	Achieved in Practice
NOx	**Standard:**	Applicable NMHC + NOx emission standard
	Technology Description:	Applicable NMHC + NOx 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.
	Basis:	Achieved in Practice
SOx	**Standard:**	CARB Diesel
	Technology Description:	Diesel fuel with a sulfur content no greater than 0.0015% by weight.
	Basis:	Achieved in Practice
PM10	**Standard:**	Applicable PM emission standard
	Technology Description:	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.
	Basis:	Achieved in Practice
PM2.5	**Standard:**	Applicable PM emission standard
	Technology Description:	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.
	Basis:	Achieved in Practice
CO	**Standard:**	Applicable CO emission standard
	Technology Description:	Applicable CO 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.
	Basis:	Achieved in Practice
LEAD	**Standard:**	N/A
	Technology Description:	N/A
	Basis:	

Comments: For emergency engines 50 ≤ bhp < 75, Tier 4 Interim certification is the requirement; for emergency engines 75 ≤ bhp < 750, Tier 3 certification is the requirement; for emergency engines ≤ 750 bhp, Tier 2 certification is the requirement.

District Contact:

777 12th Street, Third Floor

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Sacramento, CA 95814

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NO.: 172

DATE: March 1, 2018

ENGINEER: Matt Baldwin

Category/General Equip Description: Internal Combustion (I.C.) Engine

Equipment Specific Description: I.C. Engine, Standby, Diesel-fueled

Equipment Size/Rating: Minor Source BACT

Previous BACT Det. No.: No. 116

This BACT determination will update the following determinations:

#116 which was made on January 14, 2016 for diesel standby I.C. engines BHP ≥ 50

This BACT determination is being updated in accordance with District Policy to review BACT determinations once every two (2) years.

BACT/T-BACT ANALYSIS

A. ACHIEVED IN PRACTICE (Rule 202, §205.1a):

The following control technologies are currently employed as BACT/T-BACT for diesel-fueled standby engines by the following agencies and air pollution control districts:

Note: Diesel PM is the primary driver for health risks associated with diesel engines. Diesel PM is emitted as PM10 and PM2.5, and the same control technologies that control PM10 and PM2.5 also control diesel PM.

US EPA

BACT

Source: EPA RACT/BACT/LAER Clearinghouse

For Standby Units With a Rating of 50 ≤ BHP < 175	
VOC	N/A – No BACT determinations found in the 50 ≤ BHP < 175 range
NOx	N/A – No BACT determinations found in the 50 ≤ BHP < 175 range
SOx	N/A – No BACT determinations found in the 50 ≤ BHP < 175 range

US EPA

PM10	N/A – No BACT determinations found in the 50 ≤ BHP < 175 range
PM2.5	N/A – No BACT determinations found in the 50 ≤ BHP < 175 range
CO	N/A – No BACT determinations found in the 50 ≤ BHP < 175 range

RBLC ID: See Attachment A

For Standby Units With a Rating of 175 ≤ BHP < 750	
VOC	4.0 g/KW-hr (3.0 g/hp-hr) NMHC + NOx; Emission Standards based on 40 CFR Part 60, Subpart IIII
NOx	4.0 g/KW-hr (3.0 g/hp-hr) NMHC + NOx; Emission Standards based on 40 CFR Part 60, Subpart IIII
SOx	Diesel fuel with a sulfur content no greater than 0.0015% by weight
PM10	0.20 g/KW-hr (0.15 g/hp-hr) PM10 (filterable); Emission Standards based on 40 CFR Part 60, Subpart IIII
PM2.5	0.20 g/KW-hr (0.15 g/hp-hr) PM2.5 (filterable); Emission Standards based on 40 CFR Part 60, Subpart IIII
CO	3.5 g/KW-hr (2.6 g/hp-hr) CO; Emission Standards based on 40 CFR Part 60, Subpart IIII

RBLC ID: See Attachment A

For Standby Units With a Rating of BHP ≥ 750	
VOC	6.4 g/KW-hr (4.8 g/hp-hr) NMHC + NOx; Emission Standards based on 40 CFR Part 60, Subpart IIII
NOx	6.4 g/KW-hr (4.8 g/hp-hr) NMHC + NOx; Emission Standards based on 40 CFR Part 60, Subpart IIII
SOx	Diesel fuel with a sulfur content no greater than 0.0015% by weight
PM10	0.20 g/KW-hr (0.15 g/hp-hr) PM10 (filterable); Emission Standards based on 40 CFR Part 60, Subpart IIII
PM2.5	0.20 g/KW-hr (0.15 g/hp-hr) PM2.5 (filterable); Emission Standards based on 40 CFR Part 60, Subpart IIII
CO	3.5 g/KW-hr (2.6 g/hp-hr) CO; Emission Standards based on 40 CFR Part 60, Subpart IIII

RBLC ID: See Attachment A

T-BACT

There are no T-BACT standards published in the clearinghouse for this category, but the NESHAP standards (see 40 CFR, Part 63 standards below) represent Maximum Achievable Control Technology (MACT) or Generally Available Control Technology (GACT) for HAPs and can therefore be considered T-BACT.

RULE REQUIREMENTS:

40 CFR Part 60 Subpart IIII – Standards of Performance for Stationary Compression Internal Combustion Engines: This regulation applies to owners/operators of new stationary compression ignition engines that commenced construction after July 11, 2005. [40 CFR §60.4200]

40 CFR §60.4205(b)

Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards

US EPA

for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

40 CFR §60.4205(c)
Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in Table 4 to this subpart, for all pollutants.

Note: The emission standards listed in Table 4 of Subpart IIII are the same as those listed in the Table below, except that fire pumps were given an additional three years to comply with those standards. As the date of this determination, new emergency use fire pumps are subject to the same emissions standards as emergency use non-fire pumps.

40 CFR §60.4202(a)(2)
For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 (emission standards) and 40 CFR 89.113 (smoke standards) for all pollutants beginning in model year 2007.

40 CFR §89.112 Table 1: Emission Standards in g/kW-hr (g/hp-hr)					
Maximum engine power	Tier	Model year(s)	PM	NMHC + NOx	CO
37≤kW<75 (50≤hp<100)	3	2008+	0.40 (0.30)	4.7 (3.5)	5.0 (3.7)
75≤kW<130 (100≤hp<175)	3	2007+	0.30 (0.22)	4.0 (3.0)	5.0 (3.7)
130≤kW<225 (175≤hp<300)	3	2006+	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
225≤kW<450 (300≤hp<600)	3	2006+	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
450≤kW<560 (600≤hp<750)	3	2006+	0.20 (0.15)	4.0 (3.0)	3.5 (2.6)
kW>560 (hp>750)	2	2006+	0.20 (0.15)	6.4 (4.8)	3.5 (2.6)

40 CFR Part 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines: This regulation applies to new and existing stationary IC engines. New emergency engines that comply with 40 CFR 60 Subpart IIII already meet the requirements of this NESHAP, as noted below.

40 CFR §63.6590(c)
Stationary RICE subject to Regulations under 40 CFR Part 60. An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart IIII, for compression ignition engines or 40 CFR Part 60 Subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this subpart.

Air Resources Board (ARB)

BACT
Source: ARB BACT Clearinghouse

I.C. Engines; Emergency; Compression Ignition	
VOC	Certified to meet Exhaust Standards for Nonroad (EPA, 40 CFR §89.112) or Off-Road (ARB) Compression Ignition Engines (Title 13, Cal Code Regs, §2423, Table 1a) (A)
NOx	Certified to meet Exhaust Standards for Nonroad (EPA, 40 CFR §89.112) or Off-Road (ARB) Compression Ignition Engines (Title 13, Cal Code Regs, §2423, Table 1a) (A)
SOx	N/A – No standard
PM10	Certified to meet Exhaust Standards for Nonroad (EPA, 40 CFR §89.112) or Off-Road (ARB) Compression Ignition Engines (Title 13, Cal Code Regs, §2423, Table 1a) (A)
PM2.5	Certified to meet Exhaust Standards for Nonroad (EPA, 40 CFR §89.112) or Off-Road (ARB) Compression Ignition Engines (Title 13, Cal Code Regs, §2423, Table 1a) (A)
CO	Certified to meet Exhaust Standards for Nonroad (EPA, 40 CFR §89.112) or Off-Road (ARB) Compression Ignition Engines (Title 13, Cal Code Regs, §2423, Table 1a) (A)

(A) See Attachment B. Determinations are based on Engines that met Tier 1, 2, or 3 standards at the time of application.

T-BACT
There are no T-BACT standards published in the clearinghouse for this category, but the ATCM standards (see Rule Requirements Below) represent Best Available Control Technology for toxic air contaminants (TACs) and can therefore be considered T-BACT.

RULE REQUIREMENTS:
Title 17, Cal. Code Regs. Sections 93115 through 93115.15 – Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition (CI) Engines: This regulation applies to owners/operators of new and existing stationary compression ignition engines greater than 50 bhp.

§93115.6(a): New Emergency Standby Diesel-Fueled CI Engine Emission Standards.

(1) At-School and Near-School Provisions. No owner or operator shall operate a new stationary emergency standby diesel-fueled CI engine for non-emergency use, including maintenance and testing, during the following periods:
(A) whenever there is a school sponsored activity, if the engine is located on school grounds, and
(B) between 7:30 a.m. and 3:30 p.m. on days when school is in session, if the engine is located within 500 feet of school grounds. Section 93115.6(a)(1) does not apply if the engine emits no more than 0.01 g/bhp-hr of diesel PM.

(3) New Engines: As of January 1, 2005, except as provided in section 93115.3, no person shall sell, offer for sale, purchase, or lease for use in California any new stationary emergency standby diesel-fueled CI engine that has a rated brake horsepower greater than 50 unless it meets the following applicable emission standards, and no person shall operate any new stationary emergency standby diesel-fueled CI engine that has a rated brake horsepower greater than 50, unless it meets all of the following applicable operating requirements and emission standards specified in 93115.6(a)(3).
(A) Emissions Standards and Hours of Operating Requirements.
1. New stationary emergency standby diesel-fueled engines (>50 bhp) shall:
a. meet the applicable emission standards for all pollutants for the same model year and maximum horsepower rating as specified in Table 1 Emission Standards for New

Air Resources Board (ARB)

Stationary Emergency Standby Diesel-Fueled CI Engines, in effect on the date of acquisition or submittal, as defined in section 93115.4, and

b. after December 31, 2008, be certified to the new nonroad compression-ignition (CI) engine emission standards for all pollutants for 2007 and later model year engines as specified in 40 CFR, Part 60, Subpart III-Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (2006);

Table 1: Emission Standards for New Stationary Emergency Standby Diesel-Fueled CI Engines – g/bhp-hr (g/kW-hr)

Maximum Engine Power	Tier	Model year(s)	PM	NMHC + NOx	CO
50≤HP<75 (37≤kW<56)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	4i	2008+		3.5 (4.7)	
75≤HP<100 (56≤kW<75)	2	2007	0.15 (0.20)	5.6 (7.5)	3.7 (5.0)
	3	2008+		3.5 (4.7)	
100≤HP<175 (130≤kW<225)	3	2007	0.15 (0.20)	3.0 (4.0)	3.7 (5.0)
		2008+			
175≤HP<300 (130≤kW<225)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
300≤HP<600 (225≤kW<450)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
600≤HP<750 (450≤kW<560)	3	2007	0.15 (0.20)	3.0 (4.0)	2.6 (3.5)
		2008+			
HP>750 (kW>560)	2	2007	0.15 (0.20)	4.8 (6.4)	2.6 (3.5)
		2008+			

(4) New Direct-Drive Emergency Standby Fire Pump Engines: Except as provided in section 93115.3, no person shall sell, offer for sale, purchase, or lease for use in California any new stationary emergency standby diesel-fueled direct-drive fire-pump CI engine that has a rated brake horsepower greater than 50 unless the fire-pump engine meets the applicable emission standards and certification requirements specified in section 93115.6(a)(4), and no person shall operate any new stationary emergency standby diesel-fueled direct-drive fire pump CI engine that has a rated brake horsepower greater than 50, unless it meets all of the applicable operating requirements and emission standards specified in 93115.6(a)(4).

(A) Standards and Hours of Operating Requirements.

1. New direct-drive emergency standby diesel-fueled fire-pump engines (>50 bhp) shall:

a. meet the applicable emissions standards for all pollutants as specified in Table 2 Emissions Standards for New Stationary Emergency Standby Direct-Drive Fire Pump Engines for the model year and NFPA nameplate power rating; and

b. meet the new fire pump engine certification requirements and emission standards required by 40 CFR § 60.4202(d.) Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (2006); and

c. not operate more than the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 2002

Air Resources Board (ARB)

edition, which is incorporated herein by reference. This subsection does not limit engine operation for emergency use and for emission testing to show compliance with 93115.6(a)(4)

Table 2: Emission Standards for New Stationary Emergency Standby Direct-Drive Fire Pump Engines > 50 BHP – g/bhp-hr (g/kW-hr)

Maximum Engine Power	Model year(s)	PM	NMHC + NOx	CO
50≤HP<100 (37≤kW<75)	2010 and earlier	0.60 (0.80)	7.8 (10.5)	3.7 (5.0)
	2011+	0.30 (0.40)	3.5 (4.7)	
100≤HP<175 (75≤kW<130)	2009 and earlier	0.60 (0.80)	7.8 (10.5)	3.7 (5.0)
	2010+	0.22 (0.30)	3.0 (4.0)	
175≤HP<300 (130≤kW<225)	2008 and earlier	0.40 (0.54)	7.8 (10.5)	2.6 (3.5)
	2009+	0.15 (0.20)	3.0 (4.0)	
300≤HP<600 (225≤kW<450)	2008 and earlier	0.40 (0.54)	7.8 (10.5)	2.6 (3.5)
	2009+	0.15 (0.20)	3.0 (4.0)	
600≤HP<750 (450≤kW<560)	2008 and earlier	0.40 (0.54)	7.8 (10.5)	2.6 (3.5)
	2009+	0.15 (0.20)	3.0 (4.0)	
HP>750 (kW>560)	2007 and earlier	0.40 (0.54)	7.8 (10.5)	2.6 (3.5)
	2008+	0.15 (0.20)	4.8 (6.4)	

Sacramento Metropolitan AQMD

BACT
Source: SMAQMD BACT Clearinghouse, BACT Determination Number 116

For Standby Units With a Rating of ≥ 50 HP	
VOC	Applicable NMHC + NOx 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.
NOx	Applicable NMHC + NOx 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.
SOx	Diesel fuel with a sulfur content no greater than 0.0015% by weight.
PM10	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.
PM2.5	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 Direct-Drive Fire Pump Engines of the ATCM for Stationary CI Engines.

T-BACT

I.C. Engines, Standby, Diesel-Fueled	
Diesel PM	Applicable PM emission standard for horsepower range based on the ATCM for Stationary CI Engines

RULE REQUIREMENTS:
None

South Coast AQMD

RULE REQUIREMENTS:

Reg XI, Rule 1110.2 – Emissions From Gaseous- and Liquid-Fueled Engines

Standby Engines are exempt from the emission limitations of this rule.

Reg XVI, Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

This rule regulates criteria pollutants as well as diesel PM from stationary diesel engines. Rule 1470 is not a SIP-approved rule so the standards below will only be considered for purposes of establishing "achieved in practice" T-BACT control levels or techniques.

SCAQMD Rule 1470 Emission Standards – g/kW-hr (g/bhp-hr)
Rule 1470 §(c)(2)(C)(vi) for PM
Rule 1470 §(c)(2)(C)(vii), Table 2 for NMHC + NOx, and CO

Maximum Engine Power	NMHC + NOx	CO	PM
50 < HP < 100 (37 < kW < 75)	4.7 (3.5)	5.0 (3.7)	(0.15)
100 < HP < 175 (75 < kW < 130)	4.0 (3.0)	5.0 (3.7)	(0.15)
175 < HP ≤ 750 (130 < kW ≤ 560)	4.0 (3.0)	3.5 (2.6)	(0.15)
HP > 750 (kW > 560)	6.4 (4.8)	3.5 (2.6)	(0.15)

For standby diesel fueled direct drive fire pump engines, SCAQMD Rule 1470 requires the engine to meet the same emission standards as Table 2 of the Stationary Diesel ATCM (Title 17, Cal. Code Regs., §93116(a)(4)).

Rule 1470, §§(c)(2)(A), (c)(2)(C)(iv), and (c)(2)(C)(v) place additional restrictions on engines located on school grounds, within 100 meters of a school, within 500 feet of a school, and within 50 meters of a sensitive receptor. For engines located within 100 meters of a school or on school grounds, the engine must emit diesel PM at a rate less than or equal to 0.01 g/hp-hr, unless the owner/operator accepts restrictions on non-emergency operation (7:30 a.m. to 4:30 p.m. when school is in session or during school activities) in most cases. New engines located within 500 feet of as school must meet an emission standard of 0.15 g/hp-hr and not operate for non-emergency use between the hours of 7:30 a.m. and 3:30 p.m. when school is in session. Except for replacement engines, new stationary emergency engines located within 50 meters of a sensitive receptor are required to meet Tier 4 PM standards for nonroad engines.

San Joaquin Valley Unified APCD

BACT
Source: SJVUAPCD BACT Guideline 3.1.1

Emergency Diesel IC Engine	
VOC	Latest EPA Tier Certification level for applicable horsepower range*
NOx	Latest EPA Tier Certification level for applicable horsepower range*
SOx	Very low sulfur diesel fuel (15 ppmw sulfur or less)
PM10	0.15 g/bhp-hr or the Latest EPA Tier Certification level for applicable horsepower range, whichever is more stringent. (ATCM)
PM2.5	No standard
CO	Latest EPA Tier Certification level for applicable horsepower range*

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

BACT
Source: SJVUAPCD BACT Guideline 3.1.4

Emergency Diesel I.C. Engine Driving a Fire Pump	
VOC	Positive crankcase ventilation [unless it voids the Underwriters Laboratories (UL) certification]
NOx	Certified NOx emissions of 6.9 g/bhp-hr or less
SOx	Low-sulfur diesel fuel (500 ppmw sulfur or less) or Very Low-sulfur diesel fuel (15 ppmw sulfur or less), where available.
PM10	0.1 grams/bhp-hr (if TBACT is triggered) (corrected 7/16/01) (A) (B) 0.4 grams/bhp-hr (if TBACT is not triggered)
PM2.5	No standard
CO	No standard

(A) Any engine model included in the ARB or EPA diesel engine certification lists and identified as having a PM10 emission rate of 0.149 grams/bhp-hr or less, based on ISO 8178 test procedure, shall be deemed to meet the 0.1 grams/bhp-hr requirement.
(B) A site-specific Health Risk Analysis is used to determine if TBACT is triggered. (Clarification added 05/07/01)

T-BACT
Source: SJVUAPCD BACT Guideline 3.1.4

Emergency Diesel I.C. Engine Driving a Fire Pump	
Diesel PM	0.149 g/hp-hr, if T-BACT is triggered based on a site-specific health risk analysis

There are no T-BACT standards published in the clearinghouse for non-fire pump emergency diesel I.C. engines.

San Joaquin Valley Unified APCD

RULE REQUIREMENTS:
Rule 4702 – INTERNAL COMBUSTION ENGINES

Standby Engines are exempt from the emission limitations of this rule.

San Diego County APCD

BACT
Source: NSR Requirements for BACT
The engine BACT determinations listed in the SDAPCD Clearinghouse do not apply to standby engines.

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS:
Regulation 4, Rule 69.4 – Stationary Reciprocating Internal Combustion Engines – Reasonably Available Control Technology
This rule applies to stationary I.C. Engines ≥ 50 BHP located at a stationary source which emits or has a potential to emit 50 tons per year or more of NOx.

Standby Engines are exempt from the emission limitations of this rule.

New or Replacement Low-Use Engines Using Diesel or Kerosene Fuel	
VOC	No standard
NOx	6.9 g/bhp-hr or 535 ppmv
SOx	California Diesel Fuel
PM10	No standard
PM2.5	No standard
CO	No standard

Bay Area AQMD

BACT
Source: BAAQMD BACT Guideline 96.1.3

IC Engine-Compression Ignition: Stationary Emergency, Non-agricultural, Non-direct Drive Fire Pump ≥ 50 BHP	
VOC	ARB ATCM standard for NMHC at applicable horsepower rating
NOx	ARB ATCM standard for NOx at applicable horsepower rating
SOx	Fuel sulfur content not to exceed 0.0015% (wt.) or 15 ppm (wt.)
PM10	0.15 g/bhp-hr
PM2.5	No standard
CO	ARB ATCM standard for CO at applicable horsepower rating

T-BACT
Source: BAAQMD BACT Guideline 96.1.3

IC Engine-Compression Ignition: Stationary Emergency, Non-agricultural, Non-direct Drive Fire Pump ≥ 50 BHP	
Diesel PM	0.15 g/bhp-hr

RULE REQUIREMENTS:
Reg 9, Rule 8 – Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

Standby Engines are exempt from the emission limitations of this rule.

The following control technologies have been identified and are ranked based on stringency:

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
VOC	1. Applicable NMHC + NOx emission standard for horsepower range (A),(B) based on the ATCM for Stationary CI Engines. [ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD] 2. Applicable NMHC + NOx emission standard for horsepower range based on 40 CFR 60 Subpart IIII [EPA]. 3. No Standard [SDAPCD]
NOx	1. Applicable NMHC + NOx emission standard for horsepower range (A),(B) based on the ATCM for Stationary CI Engines. [ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD] 2. Applicable NMHC + NOx emission standard for horsepower range based on 40 CFR 60 Subpart IIII [EPA]. 3. 6.9 g/bhp-hr or 535 ppmv [SDAPCD]
SOx	1. Diesel fuel with a sulfur content no greater than 0.0015% by weight [EPA, ARB, SMAQMD, SCAQMD, SJVUAPCD, SDAPCD, BAAQMD]
PM10	1. Applicable PM emission standard for horsepower range (A),(B) based on the ATCM for Stationary CI Engines. [ARB, SMAQMD, SJVUAPCD, BAAQMD] 2. Applicable PM emission standard for horsepower range based on 40 CFR 60 Subpart IIII or 40 CFR 63 Subpart ZZZZ, whichever is more stringent. [EPA] 3. No Standard [SDAPCD]
PM2.5	1. Applicable PM emission standard for horsepower range (A),(B) based on the ATCM for Stationary CI Engines. [SMAQMD] 2. Applicable PM emission standard for horsepower range based on 40 CFR 60 Subpart IIII or 40 CFR 63 Subpart ZZZZ, whichever is more stringent [EPA] 3. No Standard [ARB, SCAQMD, SJVUAPCD, SDAPCD, BAAQMD]
CO	1. Applicable CO emission standard for horsepower range (A),(B) based on the ATCM for Stationary CI Engines. [ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD] 2. Applicable CO emission standard for horsepower range based on 40 CFR 60 Subpart IIII. [EPA] 3. No Standard [SDAPCD]
Diesel PM (T-BACT)	1. Compliance with SCAQMD Rule 1470(C) [SCAQMD] 2. 0.149 g/hp-hr if T-BACT is triggered for a direct-drive fire pump [SJVUAPCD] 3. 0.15 g/bhp-hr for stationary emergency, non-agricultural, non-direct drive fire pump ≥ 50 BHP 4. Applicable PM emission standard for horsepower range (A),(B) based on the ATCM for Stationary CI Engines. [ARB, BAAQMD, SJVUAPCD] 5. Applicable PM emission standard for horsepower range based on 40 CFR 60 subpart IIII, 40 CFR 63 Subpart ZZZZ. [EPA]

(A) for non-direct drive fire pump emergency engines 50 ≤ bhp < 75, Tier 4 Interim certification is the requirement; for emergency engines 75 <= bhp < 750, Tier 3 certification is the requirement; for emergency engines => 750 bhp, Tier 2 certification is the requirement.

(B) for direct-drive fire pump emergency engines, the applicable standards are those listed in Table 2 of the Stationary Diesel ATCM (Title 17, Cal. Code Regs., §93116(a)(4))

(C) SCAQMD Rule 1470 requires new engines (as of January 1, 2013) located within 50 meters of a sensitive receptor that are not replacement engines to meet Tier 4 emission standards for PM.

The following control technologies have been identified as the most stringent, achieved in practice control technologies:

BEST CONTROL TECHNOLOGIES ACHIEVED IN PRACTICE		
Pollutant	**Standard**	**Source**
VOC	Applicable NMHC + NOx 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.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
NOx	Applicable NMHC + NOx 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.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
SOx	Diesel fuel with a sulfur content no greater than 0.0015% by weight.	EPA, ARB, SMAQMD, SCAQMD, SJVUAPCD, SDAPCD, BAAQMD
PM10	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.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
PM2.5	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.	SMAQMD; EPA
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 Direct-Drive Fire Pump Engines of the ATCM for Stationary CI Engines.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
Diesel PM (T-BACT)	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.	EPA, ARB, SMAQMD, SCAQMD [B], SJVUAPCD [A], SDAPCD, BAAQMD

- On 6/30/2001, SJVUAPCD last updated their T-BACT standard for diesel PM. This standard requires direct-drive fire pump engines to meet a PM standard of 0.1 g/hp-hr (later clarified to be 0.149 g/bhp-hr). Subsequent to this (September 27, 2004), the Air Resources Board adopted the ATCM for stationary diesel engines. During the rulemaking process, ARB initially proposed 0.1 g/hp-hr as the standard, but eventually established the PM standards to be 0.15 g/hp-hr, which was discussed during a public workshop on April 4, 2002. Also subsequent to this, South Coast AQMD determined in their analysis on Rule 1470 (May 4, 2012) that, except in certain cases, due to NFPA requirements, requiring PM standards more stringent than the NSPS is cost prohibitive because manufacturers cannot justify different PM standards on fire pumps for such a small market. As a result Rule 1470 allows direct-drive fire pump engines to meet the NSPS standards, except when installed within 100 meters of a school. For these reasons, the District has determined that the PM standard of SJVUAPCD T-BACT Guideline 3.4.1 is not achieved in practice and therefore is not listed in the above table.
- SCAQMD Rule 1470 requires a more stringent PM emission standard for engines greater or equal to

175 HP if the engine is going to be located within 50 meters from a sensitive receptor. The rule analysis states that cancer risk from emergency diesel engines could be as high as 11 per million for receptors within 50 meters of the release point. This is greater than the 10 in a million significance level for the SCAQMD. Therefore, SCAQMD justified the requirement that most new emergency-use diesel engines meet more stringent standards for PM when installed within 50 meters of a sensitive receptor. Rule 1470 is not considered achieved in practice for SMAQMD for the following reasons:

- It requires more stringent PM standards for engines ≥ 175 HP when installed within 50 meters from sensitive receptors because the cancer risk may exceed 10 in one million. SMAQMD does not allow a cancer risk in excess of 10 in one million.
- It allows operation of the engine for emergency purposes if the electrical operating reserves fall below 5% (Stage II). SMAQMD allows emergency operation only during unforeseeable power outages.
- It allows the use of the engine in Demand Response Programs (DRP). SMAQMD allows emergency operation only during unforeseeable power outages.

B. TECHNOLOGICALLY FEASIBLE AND COST EFFECTIVE (Rule 202, §205.1.b.):

Discussion

During the most recent rulemaking for updates to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (Title 17, Cal. Code. Regs., §93115 to §93115.15), ARB conducted a cost effectiveness analysis to determine if selective catalytic reduction (SCR) and/or diesel particulate filters (DPF) were technologically feasible and cost effective for emergency use applications (Initial Statement of Reasons for Proposed Rulemaking: Proposed Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines, Appendix B, September 2010).

The analysis concluded that DPFs were technologically feasible with some additional operational and monitoring conditions. These conditions would include either operating the engine for additional hours to allow the filter to regenerate (Passive DPF) or regenerating the filter during scheduled down-time (Active DPF), and monitoring for backpressure, cold starts, and 30-minute idle sessions.

The analysis also concluded that SCR was technologically feasible, but had some additional challenges. Because standby engines routinely operate only for scheduled maintenance and testing, the engines do not operate more than 15-30 minutes, and do operate at no or low load. Because of this the exhaust would not likely reach the temperature (260 °C to 540 °C) required for the catalyst to function properly. To circumvent this problem, the engine would need to be operated with higher loads and in many cases for longer periods of time. This could be a challenge for most emergency standby applications as most businesses do not have load banks in house and would have to create a larger load on the engine to get the catalyst up to operational temperature.

Urea handling and maintenance is also an important consideration. Urea crystallization in the lines can cause damage to the SCR system and to the engine itself. Crystallization in the lines is more likely in emergency standby engines due to their periodic and low hours of usage. Urea also has a shelf life of approximately two years. This could increase the cost of operating a SCR for emergency standby engines since the low number of annual hours of operation experienced by most emergency standby engines could lead to urea expiration. The urea would then have to be drained and replaced, creating an extra maintenance step and an increased cost to the end user.

ARB staff determined that while, SCR systems may be technically feasible, there are significant

operational hurdles to overcome before routine use of SCR on emergency standby engines is practical. This is because the majority of operating hours for emergency standby engines occur during short 15 to 30 minute maintenance and testing checks are at low engine loads. In most cases, the temperature needed for the SCR catalyst to function will not be reached during this operation and the SCR will not provide the expected NOx reductions.

ARB staff also reviewed the feasibility of requiring Tier 4 final engines in lieu of aftermarket treatment. ARB concluded that Tier 4 engines that rely on after-treatment technology for emergency standby applications will not be available from the original equipment manufacturers. Representatives from the Engine Manufacturer's Association (EMA) have indicated that it will not be economically viable for engine manufacturers to develop and maintain a Tier 4 emergency standby engine platform for California. At the time, ARB staff concluded that Tier 4 engines for emergency standby applications will not be available "off-the-shelf." Rather, each owner or operator will need to purchase a new Tier 2 or Tier 3 engines and then work with suppliers to retrofit the engine with a DPF and/or SCR to meet the Tier 4 emission standards for all pollutants. Subsequent to this "off-the-shelf" Tier 4 final engines have become available for emergency purposes, and the District determined that Tier 4 final engines are technologically feasible. The District reviewed some engine list prices and determined that these prices were generally in line with the prices listed in Appendix B.

Technologically Feasible Alternatives:

Any alternative basic equipment, fuel, process, emission control device or technique, singly or in combination, determined to be technologically feasible by the Air Pollution Control Officer.

The table below shows the technologically feasible alternatives identified as capable of reducing emissions beyond the levels determined to be "Achieved in Practice" as per Rule 202, §205.1.a.

VOC	Tier 4 standard
NOx	Selective Catalytic Reduction (SCR) Tier 4 standard
SOx	No other technologically feasible option identified
PM10	Diesel Particulate Filter (DPF) Tier 4 standard
PM2.5	Diesel Particulate Filter (DPF) Tier 4 standard
CO	Tier 4 standard

Cost Effective Determination:

After identifying the technologically feasible control options, a cost analysis is performed to take into consideration economic impacts for all technologically feasible controls identified.

The District reviewed cost information from the September 2010 amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines and adjusted the assumptions to reflect permitted emissions for maintenance and testing (50 hr/year) and a 15-year life for the control equipment. The District concluded that conducting the cost analysis using 200 hours per year for total operation (maintenance, testing, and emergency use) was not representative of actual engine operation, since emergency use is not predictable or routine. Cost

effectiveness for PM reductions from a Tier 4 interim or Tier 4 final are not presented below, since the cost increases due to controls were consistently higher than those for retrofitting. The results are presented in the below tables.

Cost-Effectiveness Associated with the Application of DPF and SCR on Emergency Standby Engines (50 hours/year)							
Regulatory Scenario			HP Range				
			50-174	175-749	750-1,206	1,207-1,999	>2,000
	Average Horsepower:		112	462	978	1604	2630
Scenario 1: DPF Retrofit of Tier 2/3 engine	Cost Increase Due to Controls (A)	PM	$4,300	$17,600	$37,200	$60,900	$99,900
		NOx	N/A	N/A	N/A	N/A	N/A
	Emission Reductions (lb) (B)	PM	13	53	113	186	305
		NOx	N/A	N/A	N/A	N/A	N/A
	Cost Effectiveness ($/lb)	PM	$333	$331	$329	$328	$328
		NOx	N/A	N/A	N/A	N/A	N/A
Scenario 2: DPF/SCR Retrofit of Tier 2/3 engine	Cost Increase Due to Controls (A)	PM	$4,400	$18,200	$38,500	$63,100	$103,400
		NOx	$8,800	$36,300	$76,900	$126,100	$206,900
	Emission Reductions (lb) (B)	PM	13	53	113	186	305
		NOx	161	666	2348	3677	6032
	Cost Effectiveness ($/lb)	PM	$341	$342	$341	$340	$339
		NOx	$55	$54	$33	$34	$34

(A) Cost increases due to controls are from Table B-7 of the Initial Statement of Reasons for Proposed Rulemaking: Proposed Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines, Appendix B, September 2010.

(B) Emission reductions have been adjusted from 31 hours/year of operation to 50 hours/year of operation.

Cost-Effectiveness Associated with Installing Tier 4 Final Emergency Standby Engines (50 hours/year)							
Regulatory Scenario			HP Range				
			50-174	175-749	750-1,206	1207-1,999	>2,000
	Average Horsepower:		112	462	978	1604	2630
Tier 4 Final Engine	Cost Increase (A)	NOx	$28,000	$85,008	$156,480	$248,465	$328,750
	Emission Reductions (lb) (B)	NOx	161	666	2,348	3,677	6,032
	Cost Effectiveness ($/lb)	NOx	$170	$130	$70	$70	$50

(A) Cost increases due to controls are from Table B-7 of the Initial Statement of Reasons for Proposed Rulemaking: Proposed Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines, Appendix B, September 2010.

(B) Emission reductions have been adjusted from 31 hours/year of operation to 50 hours/year of operation.

The above cost effectiveness numbers were converted from cost per pound to cost per ton for comparison to the District's cost effectiveness thresholds.

Cost-Effectiveness Associated with the Application of DPF and SCR on Emergency Standby Engines (50 hours/year)							
Regulatory Scenario			HP Range				
			50-174	175-749	750-1,206	1,207-1,999	>2,000
	Average Horsepower:		112	462	978	1604	2630
Scenario 1: DPF Retrofit of Tier 2/3 engine	Cost Effectiveness ($/ton)	PM	$660,000	$662,000	$658,000	$656,000	$656,000
		NOx	N/A	N/A	N/A	N/A	N/A
Scenario 2: DPF/SCR Retrofit of Tier 2/3 engine	Cost Effectiveness ($/ton)	PM	$682,000	$684,000	$682,000	$680,000	$678,000
		NOx	$110,000	$108,000	$66,000	$68,000	$68,000
Scenario 3: Tier 4 Final engine	Cost Effectiveness ($/ton)	NOx	$340,000	$260,000	$140,000	$140,000	$100,000

As demonstrated above, SCR and DPF after treatment is not considered cost effective since both the cost effectiveness for reducing the pollutants exceeds the District's threshold of $24,500 for NOx and $11,400 for PM10.

C. SELECTION OF BACT:

Based on the above analysis, BACT for VOC, NOx, SOx, PM10, and CO will remain at what is currently achieved in practice and BACT for PM2.5 will be set to be the same as for PM10.

BACT FOR I.C. ENGINES, STANDBY, DIESEL-FUELED		
Pollutant	**Standard**	**Source**
VOC	Applicable NMHC + NOx 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.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
NOx	Applicable NMHC + NOx 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.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
SOx	Diesel fuel with a sulfur content no greater than 0.0015% by weight.	EPA, ARB, SMAQMD, SCAQMD, SJVUAPCD, SDAPCD, BAAQMD
PM10	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.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD
PM2.5	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.	SMAQMD; EPA
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 Direct-Drive Fire Pump Engines of the ATCM for Stationary CI Engines.	ARB, SMAQMD, SCAQMD, SJVUAPCD, BAAQMD

T-BACT FOR I.C. ENGINES, STANDBY, DIESEL-FUELED		
Pollutant	**Standard**	**Source**
Diesel PM	Applicable PM emission standard for horsepower range based on the ATCM for Stationary CI Engines	EPA, ARB, SMAQMD, SCAQMD, SJVUAPCD, SDAPCD, BAAQMD

REVIEWED BY: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

Attachment A

Review of BACT Determinations published by EPA

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
CA-1191	12/14/2017	17.110	2000 KW	PM2.5	0.2 G/KW-HR	BACT-PSD
CA-1191	12/14/2017	17.110	2000 KW	PM	0.2 G/KW-HR	BACT-PSD
CA-1191	12/14/2017	17.110	2000 KW	NOx	6 G/KW-HR	BACT-PSD
CA-1191	12/14/2017	17.110	2000 KW	CO	3.5 G/KW-HR	BACT-PSD
MI-0425	11/15/2017	17.110	1500 KW	PM2.5	0.66 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	PM2.5	0.22 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	PM10	0.66 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	PM10	0.22 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	PM	0.66 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	PM	0.22 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	NOx	21.2 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	NOx	4.4 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	CO	3.5 G/KW-HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	1500 KW	CO	3.5 G/KW-HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	400 KW	PM2.5	0.18 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	400 KW	PM10	0.18 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	400 KW	PM	0.18 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	400 KW	NOx	3.53 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0425	11/15/2017	17.110	400 KW	CO	3.5 G/KW-HR	BACT-PSD; CERTIFIED ENGINES
NY-0103	9/28/2017	17.210	460 HP	VOC	0.1 G/HP-HR	LAER
NY-0103	9/28/2017	17.210	460 HP	PM	0.087 G/HP-HR	BACT-PSD
NY-0103	9/28/2017	17.210	460 HP	NOx	2.6 G/HP-HR	LAER
NY-0103	9/28/2017	17.210	460 HP	CO	0.53 G/HP-HR	BACT-PSD
IN-0263	8/22/2017	17.110	3600 HP	VOC	0.35 G/HP-HR	BACT-PSD
IN-0263	8/22/2017	17.110	3600 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0263	8/22/2017	17.110	3600 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0263	8/22/2017	17.110	3600 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0263	8/22/2017	17.110	3600 HP	NOx	4.42 G/HP-HR	BACT-PSD
IN-0263	8/22/2017	17.110	3600 HP	CO	2.61 G/HP-HR	BACT-PSD

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
CA-1219	7/25/2017	17.110	2722 HP	NOx	4 G/HP-HR	OTHER CASE-BY-CASE, TIER II ENGINE
CA-1220	7/25/2017	17.110	1881 HP	NOx	3.9 G/HP-HR	OTHER CASE-BY-CASE, TIER II ENGINE
CA-1221	7/25/2017	17.110	3634 HP	NOx	3.5 G/HP-HR	OTHER CASE-BY-CASE, TIER II ENGINE
MI-0421	7/20/2017	17.110	1600 KW	PM2.5	1.41 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	1600 KW	PM10	1.41 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	1600 KW	PM	1.41 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	1600 KW	NOx	22.6 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	1600 KW	CO	3.5 G/KW-HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	400 KW	PM2.5	0.18 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	400 KW	PM10	0.18 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	400 KW	PM	0.18 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	400 KW	NOx	3.53 LB/HR	BACT-PSD; CERTIFIED ENGINES
MI-0421	7/20/2017	17.110	400 KW	CO	3.5 G/KW-HR	BACT-PSD; CERTIFIED ENGINES
LA-0276	4/28/2017	17.110	700 HP	VOC	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0296	4/28/2017	17.110	2682 HP	VOC	0.85 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0296	4/28/2017	17.110	2682 HP	SOx	0.03 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0296	4/28/2017	17.110	2682 HP	PM2.5	0.88 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0296	4/28/2017	17.110	2682 HP	PM10	0.88 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0296	4/28/2017	17.110	2682 HP	NOx	27.37 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0296	4/28/2017	17.110	2682 HP	CO	15.43 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0305	4/28/2017	17.110	4023 HP	SOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0305	4/28/2017	17.110	4023 HP	PM2.5	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0305	4/28/2017	17.110	4023 HP	PM10	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0305	4/28/2017	17.110	4023 HP	NOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0305	4/28/2017	17.110	4023 HP	CO	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0309	4/28/2017	17.110	2922 HP	VOC	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0309	4/28/2017	17.110	2922 HP	SOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0309	4/28/2017	17.110	2922 HP	PM2.5	0.2 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0309	4/28/2017	17.110	2922 HP	PM10	0.2 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
LA-0309	4/28/2017	17.110	2922 HP	NOx	6.4 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0309	4/28/2017	17.110	2922 HP	CO	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0313	4/28/2017	17.110	2584 HP	PM2.5	0.86 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0313	4/28/2017	17.110	2584 HP	PM10	0.86 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0313	4/28/2017	17.110	2584 HP	NOx	27.34 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0313	4/28/2017	17.110	2584 HP	CO	14.81 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0316	4/28/2017	17.110	3353 HP	VOC	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0316	4/28/2017	17.110	3353 HP	PM2.5	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0316	4/28/2017	17.110	3353 HP	PM10	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0316	4/28/2017	17.110	3353 HP	NOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0316	4/28/2017	17.110	3353 HP	CO	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	2346 HP	PM2.5	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	2346 HP	PM10	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	2346 HP	NOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	2346 HP	CO	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	896 HP	PM2.5	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	896 HP	PM10	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	896 HP	NOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0317	4/28/2017	17.110	896 HP	CO	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
AR-0140	12/13/2016	17.110	1500 KW	SOx	20 %	BACT-PSD; COMPLY WITH SUBPART IIII
AR-0140	12/13/2016	17.110	1500 KW	PM2.5	0.04 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII
AR-0140	12/13/2016	17.110	1500 KW	PM10	0.04 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII
AR-0140	12/13/2016	17.110	1500 KW	PM	0.02 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0292	9/19/2016	17.110	1341 HP	PM2.5	0.44 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0292	9/19/2016	17.110	1341 HP	NOx	14.16 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0288	9/14/2016	17.110	2682 HP	VOC	0.85 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0288	9/14/2016	17.110	2682 HP	SOx	0.03 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0288	9/14/2016	17.110	2682 HP	PM2.5	0.88 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0288	9/14/2016	17.110	2682 HP	PM10	0.88 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
LA-0288	9/14/2016	17.110	2682 HP	NOx	27.37 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0288	9/14/2016	17.110	2682 HP	CO	15.43 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
OK-0154	7/29/2016	17.110	1341 HP	VOC	0.32 LB/HP-HR	BACT-PSD
OK-0154	7/29/2016	17.110	1341 HP	NOx	4.99 G/HP-HR	BACT-PSD
MD-0043	7/25/2016	17.110	1300 HP	PM10	0.17 G/HP-HR	BACT-PSD
MD-0043	7/25/2016	17.110	1300 HP	NOx	4.8 G/HP-HR	LAER
MD-0043	7/25/2016	17.210	350 HP	PM10	0.17 G/HP-HR	BART; COMPLY WITH SUBPART IIII
MD-0043	7/25/2016	17.210	350 HP	NOx	3 G/HP-HR	LAER; COMPLY WITH SUBPART IIII
MI-0406	7/7/2016	17.110	1000 KW	PM2.5	0.15 G/HP-HR	BACT-PSD
MI-0406	7/7/2016	17.110	1000 KW	PM10	0.15 G/HP-HR	BACT-PSD
MI-0406	7/7/2016	17.110	1000 KW	PM	0.15 G/HP-HR	BACT-PSD
MI-0406	7/7/2016	17.110	1000 KW	NOx	4.8 G/HP-HR	BACT-PSD
MI-0406	7/7/2016	17.110	1000 KW	CO	2.6 G/HP-HR	BACT-PSD
IN-0234	7/6/2016	17.210	425 HP	VOC	0.05 G/HP-HR	BACT-PSD
IN-0234	7/6/2016	17.210	425 HP	PM10	0.16 G/HP-HR	BACT-PSD
IN-0234	7/6/2016	17.210	425 HP	PM	0.16 G/HP-HR	BACT-PSD
IN-0234	7/6/2016	17.210	425 HP	NOx	9.5 G/HP-HR	BACT-PSD
IN-0234	7/6/2016	17.210	425 HP	CO	2.01 G/HP-HR	BACT-PSD
MD-0044	7/6/2016	17.110	1550 HP	VOC	4.8 G/HP-HR	LAER
MD-0044	7/6/2016	17.110	1550 HP	PM2.5	0.17 G/HP-HR	BACT-PSD
MD-0044	7/6/2016	17.110	1550 HP	PM10	0.17 G/HP-HR	BACT-PSD
MD-0044	7/6/2016	17.110	1550 HP	PM	0.15 G/HP-HR	BACT-PSD
MD-0044	7/6/2016	17.110	1550 HP	NOx	4.8 G/HP-HR	LAER
MD-0044	7/6/2016	17.110	1550 HP	CO	2.6 G/HP-HR	BACT-PSD
MD-0044	7/6/2016	17.210	350 HP	VOC	3 G/HP-HR	LAER; COMPLY WITH SUBPART IIII
MD-0044	7/6/2016	17.210	350 HP	PM2.5	0.17 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0044	7/6/2016	17.210	350 HP	PM10	0.17 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0044	7/6/2016	17.210	350 HP	PM	0.15 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0044	7/6/2016	17.210	350 HP	NOx	3 G/HP-HR	LAER; COMPLY WITH SUBPART IIII

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
MD-0044	7/6/2016	17.210	350 HP	CO	3 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MI-0418	7/6/2016	17.110	2710 KW	NOx	7.13 G/KW-HR	BACT-PSD
MI-0418	7/6/2016	17.110	3490 KW	NOx	8 G/KW-HR	BACT-PSD
OK-0164	7/6/2016	17.210	300 HP	VOC	0.15 G/HP-HR	BACT-PSD
TX-0728	5/16/2016	17.110	1500 HP	PM2.5	0.15 LB/HR	OTHER CASE-BY-CASE; TIER II ENGINE
TX-0728	5/16/2016	17.110	1500 HP	PM10	0.15 LB/HR	OTHER CASE-BY-CASE; TIER II ENGINE
TX-0728	5/16/2016	17.110	1500 HP	PM	0.15 LB/HR	OTHER CASE-BY-CASE; TIER II ENGINE
TX-0728	5/16/2016	17.110	1500 HP	NOx	0.0218 G/HP-HR	LAER; TIER II ENGINE
TX-0728	5/16/2016	17.110	1500 HP	CO	0.0126 G/HP-HR	OTHER CASE-BY-CASE; TIER II ENGINE
IN-0185	5/13/2016	17.110	300 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0185	5/13/2016	17.110	300 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0185	5/13/2016	17.110	300 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0185	5/13/2016	17.110	300 HP	NOx	3 G/HP-HR	BACT-PSD
MD-0045	5/13/2016	17.210	1490 HP	PM2.5	0.18 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	1490 HP	PM10	0.18 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	1490 HP	PM	0.2 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	1490 HP	NOx	6.4 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	1490 HP	CO	3.5 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	305 HP	PM2.5	0.18 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	305 HP	PM10	0.18 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	305 HP	PM	0.2 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	305 HP	NOx	4 G/KW-H	LAER; COMPLY WITH SUBPART IIII
MD-0045	5/13/2016	17.210	305 HP	CO	3.5 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0046	5/13/2016	17.210	1500 KW	PM10	0.18 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0046	5/13/2016	17.210	1500 KW	PM	0.2 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0046	5/13/2016	17.210	1500 KW	NOx	6.4 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0046	5/13/2016	17.210	1500 KW	CO	3.5 G/KW-H	BACT-PSD; COMPLY WITH SUBPART IIII
MD-0046	5/13/2016	17.210	300 HP	PM10	0.18 G/HP-HR	BACT-PSD; COMPLY WITH SUBPART ZZZZ
MD-0046	5/13/2016	17.210	300 HP	PM	0.2 G/KW-H	BACT-PSD; COMPLY WITH SUBPART ZZZZ

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
MD-0046	5/13/2016	17.210	300 HP	NOx	4 G/KW-H	BACT-PSD; COMPLY WITH SUBPART ZZZZ
MD-0046	5/13/2016	17.210	300 HP	CO	3.5 G/KW-H	BACT-PSD; COMPLY WITH SUBPART ZZZZ
IL-0114	5/5/2016	17.210	373 HP	VOC	0.4 G/KW-H	BACT-PSD
IL-0114	5/5/2016	17.210	373 HP	PM2.5	0.1 G/KW-H	BACT-PSD
IL-0114	5/5/2016	17.210	373 HP	PM10	0.1 G/KW-H	BACT-PSD
IL-0114	5/5/2016	17.210	373 HP	PM	0.1 G/KW-H	BACT-PSD
IL-0114	5/5/2016	17.210	373 HP	NOx	3.5 G/KW-H	BACT-PSD
IL-0114	5/5/2016	17.210	373 HP	CO	3.5 G/KW-H	BACT-PSD
IN-0180	5/5/2016	17.110	3600 HP	VOC	0.31 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.110	3600 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.110	3600 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.110	3600 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.110	3600 HP	NOx	4.46 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.110	3600 HP	CO	2.61 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.210	500 HP	VOC	0.141 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.210	500 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.210	500 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.210	500 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.210	500 HP	NOx	2.83 G/HP-HR	BACT-PSD
IN-0180	5/5/2016	17.210	500 HP	CO	2.6 G/HP-HR	BACT-PSD
MI-0412	5/5/2016	17.210	165 HP	PM	0.22 G/HP-HR	BACT-PSD
MI-0412	5/5/2016	17.210	165 HP	NOx	3 G/HP-HR	BACT-PSD
MI-0412	5/5/2016	17.210	165 HP	CO	3.7 G/HP-HR	BACT-PSD
PR-0009	5/5/2016	17.110	670 HP	VOC	0.15 G/HP-HR	BACT-PSD
PR-0009	5/5/2016	17.110	670 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
PR-0009	5/5/2016	17.110	670 HP	PM10	0.15 G/HP-HR	BACT-PSD
PR-0009	5/5/2016	17.110	670 HP	PM	0.15 G/HP-HR	BACT-PSD
PR-0009	5/5/2016	17.110	670 HP	NOx	2.85 G/HP-HR	BACT-PSD
PR-0009	5/5/2016	17.110	670 HP	CO	2.6 G/HP-HR	BACT-PSD

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
IN-0158	5/4/2016	17.110	1006 HP	SOx	0.012 LB/HR	BACT-PSD
IN-0158	5/4/2016	17.110	1006 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	1006 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	1006 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	1006 HP	NOx	4.8 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	1006 HP	CO	2.6 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	2012 HP	SOx	0.024 LB/HR	BACT-PSD
IN-0158	5/4/2016	17.110	2012 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	2012 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	2012 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	2012 HP	NOx	4.8 G/HP-HR	BACT-PSD
IN-0158	5/4/2016	17.110	2012 HP	CO	2.6 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.110	3600 HP	VOC	0.31 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.110	3600 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.110	3600 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.110	3600 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.110	3600 HP	NOx	4.46 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.110	3600 HP	CO	2.61 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.210	500 HP	VOC	0.141 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.210	500 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.210	500 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.210	500 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.210	500 HP	NOx	2.83 G/HP-HR	BACT-PSD
IN-0173	5/4/2016	17.210	500 HP	CO	2.6 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.110	4690 HP	VOC	0.31 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.110	4690 HP	PM2.5	0.15 LB/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.110	4690 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.110	4690 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.110	4690 HP	NOx	4.46 G/HP-HR	BACT-PSD

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
IN-0179	5/4/2016	17.110	4690 HP	CO	2.61 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.210	481 HP	VOC	0.141 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.210	481 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.210	481 HP	PM10	0.15 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.210	481 HP	PM	0.15 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.210	481 HP	NOx	2.86 G/HP-HR	BACT-PSD
IN-0179	5/4/2016	17.210	481 HP	CO	2.6 G/HP-HR	BACT-PSD
LA-0272	5/4/2016	17.110	1200 HP	VOC	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0272	5/4/2016	17.110	1200 HP	PM2.5	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0272	5/4/2016	17.110	1200 HP	PM10	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0272	5/4/2016	17.110	1200 HP	NOx	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
LA-0272	5/4/2016	17.110	1200 HP	CO	N/A	BACT-PSD; COMPLY WITH SUBPART IIII
MI-0402	5/4/2016	17.110	732 HP	PM	0.05 G/HP-HR	BACT-PSD
MI-0402	5/4/2016	17.110	732 HP	NOx	4.85 G/HP-HR	BACT-PSD
MI-0402	5/4/2016	17.110	732 HP	CO	0.31 G/HP-HR	BACT-PSD
MI-0410	5/4/2016	17.210	315 HP	PM	0.15 G/HP-HR	BACT-PSD
MI-0410	5/4/2016	17.210	315 HP	NOx	3 G/HP-HR	BACT-PSD
MI-0410	5/4/2016	17.210	315 HP	CO	2.6 G/HP-HR	BACT-PSD
OH-0352	5/4/2016	17.110	2250 KW	VOC	3.93 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
OH-0352	5/4/2016	17.110	2250 KW	PM10	0.99 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
OH-0352	5/4/2016	17.110	2250 KW	NOx	27.8 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
OH-0352	5/4/2016	17.110	2250 KW	CO	17.35 LB/HR	BACT-PSD; COMPLY WITH SUBPART IIII
MI-0400	4/14/2016	17.110	4000 HP	PM	0.15 G/HP-HR	BACT-PSD
AK-0082	2/19/2016	17.110	2695 HP	VOC	0.31 G/HP-HR	BACT-PSD
AK-0082	2/19/2016	17.110	2695 HP	PM2.5	0.15 G/HP-HR	BACT-PSD
AK-0082	2/19/2016	17.110	2695 HP	PM10	0.15 G/HP-HR	BACT-PSD
AK-0082	2/19/2016	17.110	2695 HP	NOx	4.8 G/HP-HR	BACT-PSD
AK-0082	2/19/2016	17.110	2695 HP	CO	2.6 G/HP-HR	BACT-PSD
SC-0159	8/27/2014	17.110	1000 KW	VOC	6.4 G/KW-HR	BACT-PSD; COMPLY WITH SUBPART IIII

RBLCID	DATE	PROCCESS CODE	RATING	POLLUTANT	STANDARD	CASE-BY-CASE_BASIS
CA-1212	1/27/2014	17.110	2683 HP	PM2.5	0.2 G/KW-HR	BACT-PSD
CA-1212	1/27/2014	17.110	2683 HP	PM10	0.2 G/KW-HR	BACT-PSD
CA-1212	1/27/2014	17.110	2683 HP	PM	0.2 G/KW-HR	BACT-PSD
CA-1212	1/27/2014	17.110	2683 HP	NOx	6.4 G/KW-HR	BACT-PSD
CA-1212	1/27/2014	17.110	2683 HP	CO	3.5 G/KW-HR	BACT-PSD
IA-0105	8/13/2013	17.110	2000 KW	VOC	0.4 G/KW-HR	BACT-PSD
IA-0105	8/13/2013	17.110	2000 KW	PM2.5	0.2 G/KW-HR	BACT-PSD
IA-0105	8/13/2013	17.110	2000 KW	PM10	0.2 G/KW-HR	BACT-PSD
IA-0105	8/13/2013	17.110	2000 KW	PM	0.2 G/KW-HR	BACT-PSD
IA-0105	8/13/2013	17.110	2000 KW	NOx	6 G/KW-HR	BACT-PSD
IA-0105	8/13/2013	17.110	2000 KW	CO	3.5 G/KW-HR	BACT-PSD
MI-0394	8/13/2013	17.110	2280 KW	NOx	6.93 G/KW-HR	BACT-PSD
MI-0394	8/13/2013	17.110	3010 KW	NOx	5.98 G/KW-HR	BACT-PSD
MI-0395	8/13/2013	17.110	2500 KW	NOx	7.13 G/KW-HR	BACT-PSD
MI-0395	8/13/2013	17.110	3010 KW	NOx	5.98 G/KW-HR	BACT-PSD
AK-0076	5/30/2013	17.110	1750 KW	PM2.5	0.2 G/KW-HR	BACT-PSD
AK-0076	5/30/2013	17.110	1750 KW	NOx	6.4 G/KW-HR	BACT-PSD
AK-0076	5/30/2013	17.110	1750 KW	CO	3.5 G/KW-HR	BACT-PSD

(A) Due to the large number of entries only determinations entered since 01/01/2013 are included in the above table.
(B) Process Code 17.110 includes Large Internal Combustion Engines (> 500 BHP) fueled using Fuel Oil (ASTM #1, 2, includes kerosene, aviation, diesel fuel.
(C) Process Code 17.210 includes Small Internal Combustion Engines (≤ 500 BHP) fueled using Fuel Oil (ASTM #1, 2, includes kerosene, aviation, diesel fuel.

Note: The above BACT determinations were compared to the emissions limits required by NSPS, Subpart IIII. The above emissions limits are the same as the NSPS, Subpart III requirements for the same model year and horsepower range. Therefore, the most stringent BACT is compliance with NSPS, Subpart IIII.

Attachment B

Review of BACT Determinations published by ARB

List of BACT determinations published in ARB's BACT Clearinghouse for I.C. Engines; Emergency; Compression Ignition:

Capacity	Source	Date	NOx	VOC	CO	PM10	Notes:
764 BHP	SCAQMD	7/11/2001	6.19 g/hp-hr	0.03 g/hp-hr	0.37 g/hp-hr	0.04 g/hp-hr	CARB-certified emissions for this engine family (1CPXL15.8ERK) are (g/BHP-hr): NOx 6.19, ROG .03, CO 0.37, PM .04 Standard conditions for compression ignition engine used to drive emergency generator including: less than 199 hrs/yr operation, fuel sulfur less than 0.05% and EPA nonroad certified as evidenced by manufacturer tag.
685 BHP	SCAQMD	7/11/2001	4.17 g/hp-hr	0.07 g/hp-hr	0.52 g/hp-hr	0.07 g/hp-hr	CARB-certified emissions for this engine family (1CPXL15.8ESK) are (g/BHP-hr): NOx 4.17, ROG .07, CO 0.52, PM .07 Standard conditions for compression ignition engine used to drive emergency generator including: less than 199 hrs/yr operation, fuel sulfur less than 0.05% and EPA nonroad certified as evidenced by manufacturer tag. This engine meets EPA Tier 2 requirements for nonroad engine at 600<750 BHP, which became effective 1-1-2002
610 BHP	SCAQMD	7/11/2001	4.17 g/hp-hr	0.07 g/hp-hr	0.52 g/hp-hr	0.07 g/hp-hr	CARB-certified emissions for this engine family (1CPXL15.8ESK) are (g/BHP-hr): NOx 4.17, ROG .07, CO 0.52, PM .07 Standard conditions for compression ignition engine used to drive emergency generator including: less than 199 hrs/yr operation, fuel sulfur less than 0.05% and EPA nonroad certified as evidenced by manufacturer tag.

Capacity	Source	Date	NOx	VOC	CO	PM10	Notes:
536 BHP	SCAQMD	7/11/2001	4.8 g/hp-hr	N/A	2.6 g/hp-hr	0.15 g/hp-hr	The USEPA engine family to which this engine belongs has been certified to meet 2001 USEPA Tier 2 standards for non-road engines. For 300<600 BHP engine ratings in 2001, Tier 2 standards are (g/BHP-hr): (NOx+HC)<4.8, CO<2.6, PM<0.15. Standard conditions for compression ignition engine used to drive emergency generator including: less than 199 hrs/yr operation, fuel sulfur less than 0.05% and EPA nonroad certified as evidenced by manufacturer tag.
471 BHP	SCAQMD	7/11/2001	4.8 g/hp-hr	N/A	2.6 g/hp-hr	0.15 g/hp-hr	The USEPA engine family to which this engine belongs has been certified to meet 2001 USEPA Tier 2 standards for non-road engines. For 300<600 BHP engine ratings in 2001, Tier 2 standards are (g/BHP-hr): (NOx+HC)<4.8, CO<2.6, PM<0.15. Certified equipment permit. Standard conditions for the engine used to drive emergency generator including: <199 hrs/yr operation, fuel sulfur <0.05%, engine must be an EPA nonroad certified as evidenced by manufacturer tag.

Capacity	Source	Date	NOx	VOC	CO	PM10	Notes:
470 BHP	SCAQMD	12-1-2001	4.8 g/hp-hr	N/A	2.6 g/hp-hr	0.15 g/hp-hr	The USEPA engine family (1CEXL0661AAC) to which this engine belongs has been certified to meet 2001USEPA Tier 2 standards for non-road engines. For 300<600 BHP engine ratings, in 2001, Tier 2 standards are (g/BHP-hr): (NOx + HC) <4.8, CO <2.6, PM <0.15 Certified equipment permit. Standard conditions are: <199 hrs/yr operation, fuel sulfur <0.05%. Also, engine must be an EPA nonroad certified as evidenced by manufacturer tag.
395 BHP	SCAQMD	12-4-2001	4.8 g/hp-hr	N/A	2.6 g/hp-hr	0.15 g/hp-hr	The USEPA engine family (1CEXL0661AAC) to which this engine belongs has been certified to meet 2001USEPA Tier 2 standards for non-road engines. For 300<600 BHP engine ratings, in 2001, Tier 2 standards are (g/BHP-hr): (NOx + HC) <4.8, CO <2.6, PM <0.15 Certified equipment permit. Standard conditions are: <199 hrs/yr operation, fuel sulfur <0.05%. Also, engine must be an EPA nonroad certified as evidenced by manufacturer tag.
295 BHP	SCAQMD	11-21-2001	4.72 g/hp-hr	0.96 g/hp-hr	1.6 g/hp-hr	0.33 g/hp-hr	USEPA certified emissions for this engine family (1GNXL07.5FAA) are (g/BHP-hr): NOx 4.72, ROG 0.96, CO 1.6, PM 0.33 Certified equipment permit. Standard conditions are: <199 hrs/yr operation, fuel sulfur <0.05%. Also, engine must be an EPA nonroad certified as evidenced by manufacturer tag.

Capacity	Source	Date	NOx	VOC	CO	PM10	Notes:
267 BHP	SCAQMD	11-21-2001	4.72 g/hp-hr	0.96 g/hp-hr	1.6 g/hp-hr	0.33 g/hp-hr	USEPA certified emissions for this engine family (1GNXL07.5FAA) are (g/BHP-hr): NOx 4.72, ROG 0.96, CO 1.6, PM 0.33. Certified equipment permit. Standard conditions are: <199 hrs/yr operation, fuel sulfur <0.05%. Also, engine must be an EPA nonroad certified as evidenced by manufacturer tag.
100 BHP	SCAQMD	10-7-1999	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	The engine shall not operate more than 200 hrs/yr. The engine timing be retard by 4 degrees relative to standard timing The emission data being reported by the engine manufacturer are: NOx: 6.808 grams/bhp-hr CO: 0.32 grams/bhp-hr ROG: 0.2 grams/bhp-hr PM10: 0.06 grams/bhp-hr
1448 BHP	SCAQMD	11-9-1999	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	200 hrs/yr and 4 degree timing retard
1109 BHP	SCAQMD	03-28-2000	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	NOx: 5.93 grams/bhp-hr CO: 0.71 grams/bhp-hr ROG: 0.03 grams/bhp-hrPM10: 0.109 grams/bhp-hr provided by engine manufacture. 200 hrs/yr operation
1480 BHP	SCAQMD	02-22-2000	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	The engine shall not operate more than 200 hrs/yr. The engine emissions, as provided by the engine manufacturer: NOx: 5.9 grams/bhp-hr CO: 0.6 grams/bhp-hr ROG: 0.3 grams/bhp-hr PM: 0.2 grams/bhp-hr

Capacity	Source	Date	NOx	VOC	CO	PM10	Notes:
883 BHP	SCAQMD	01-18-2000	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	The engine shall not operate more than 200 hrs/yr. The engine emissions, as provided by the engine manufacturer: NOx: 6.2 grams/bhp-hr CO: 0.9 grams/bhp-hr ROG: 0.25 grams/bhp-hr PM10: 0.247 grams/bhp-hr
2115 BHP	SCAQMD	02-01-2000	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	The engine shall not operate more than 200 hrs/yr. The engine emissions, as provided by the engine manufacturer: NOx: 6.2 grams/bhp-hr CO: 1.3 grams/bhp-hr ROG: 0.2 grams/bhp-hr PM10: 0.3 grams/bhp-hr
890 BHP	SCAQMD	03-30-2000	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	The engine shall not operate more than 200 hrs/yr. The engine emissions, as provided by the engine manufacturer: NOx: 5.77 grams/bhp-hr CO: 0.15 grams/bhp-hr ROG: 0.04 grams/bhp-hr PM10: 0.21 grams/bhp-hr
68 BHP	SCAQMD	08-18-1999	6.9 g/hp-hr	1 g/hp-hr	8.5 g/hp-hr	0.38 g/hp-hr	
2937 BHP	SBACPD	05-16-2006	4.5 g/hp-hr				Test data from EPA certification database for EPA Engine Family Name 6CPXL78.1E2T; Certified Tier 2 engine
2722 BHP	SDAPCD	07-09-2012	4 g/hp-hr				Tier 2 certified engine and 50 hr/yr for M&T; No add-ons but certified engine includes a turbocharger, charge air cooler. SCR determined to be not technologically feasible.

Capacity	Source	Date	NOx	VOC	CO	PM10	Notes:
1881 BHP	SDAPCD	10-03-2011	3.9 g/hp-hr				Tier 2 certified engine, 50 hr/yr M&T limit; No add-on controls, but certified engine includes turbocharger and charge air cooler. SCR determined to be not technologically feasible. Propane or Natural gas fired engine not cost effective.
3634 BHP	SDAPCD	12-05-2011	3.5 g/hp-hr				Tier 2 certified engine and 50 hr/yr M&T limit; No add-on controls, but certified engine includes turbocharger and charge air cooler. SCR determined to be not technologically feasible. Propane or Natural gas fired engine not cost effective. Passed an AQIA for NO2 impacts.

= BACT standards are based on certification data for the engine family for that model year. The engine family was certified to meet Exhaust Emission Standards for Off-Road Compression Ignition Engines listed in Title 13, Cal. Code Regs., §2423, Table 1a.

= BACT standards are based on certification data for the engine family for that model year. The engine family was certified to meet exhaust emission standards for Nonroad Compression Ignition Engines listed in 40 CFR §89.112.

= Selected as the most stringent BACT determination achieved in practice.

Note: All three BACT determinations are for prime-use engines and are therefore not applicable to standby engines.