

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology Guidelines for Non-Major Polluting Facilities

10-20-2000 Rev. 0
[10-03-2008 Rev. 1](#)

Equipment or Process: Boiler

Subcategory/Rating/ Size	Criteria Pollutants					
	VOC	NOx ¹⁾	SOx	CO	PM10	Inorganic
Natural Gas or Propane Fired, < 20 MM Btu/HR		≤ 12 ppmv dry corrected to 3% O ₂ ²⁾ (10-20-2000)	Natural Gas (10-20-2000)	≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% O ₂ (04-10-98)	Natural Gas (04-10-98)	
Natural Gas or Propane Fired, ≥ 20 MM Btu/HR		With Low-NOx Burner: ≤ 9 ppmv dry corrected to 3% O ₂ With Add-On Controls: ≤ 7 ppmv dry corrected to 3% O ₂ (10-20-2000)	Natural Gas (10-20-2000)	Same as above. (04-10-98)	Natural Gas (04-10-98)	With Add-On Controls: ≤ 5 ppmvd NH ₃ , corrected to 3% O ₂ ≤ 1 ppmvd ozone, corrected to 3% O ₂ (10-20-2000)
Oil Fired ³⁾		Compliance with AQMD Rule 1146 or 1146.1 (10-20-2000)	Sulfur Content ≤ 0.05% by Weight (10-20-2000) or .0015% by weight if purchased after May 31, 2004 (10-03-2008)	Same as above (10-20-2000)		
Landfill or Digester Gas Fired, < 75 MMBTU/Hr		≤ 30 ppmvd at 3% O ₂ dry. (04-10-98)		≤ 100 ppmvd at 3% O ₂ dry. (04-10-98)	≤ 0.1 gr/scf at 12% CO ₂ (Rule 409) (04-10-98)	
Landfill or Digester Gas Fired, ≥ 75 MMBTU/Hr		≤ 30 ppmv at 3% O ₂ dry. (4-10-98)		≤ 100 ppmv at 3% O ₂ dry. (4-10-98)	≤ 0.015 gr/dscf (4-10-98)	

1) Rules 1146 and 1146.1 require that boilers rated >2 and <75 MMBtu/hr meet 9 ppm NOx beginning 1/1/2012 for some categories, that natural gas-fired boilers rated at ≥75 MMBtu/hr meet 5 ppm by 1/1/2015 (except boilers at schools and universities), that natural-draft boilers rated >2

and ≤ 10 MMBtu/hr with unsealed combustion chambers meet 12 ppm by 1/1/2014, and that boilers firing landfill or digester gas meet 25 or 15 ppm, respectively, by 1/1/15 (all ppm are dry, corrected to 3% O₂). Electric utility boilers, refinery boilers rated >40 MMBtu/hr and sulfur plant reaction boilers rated ≥ 5 MMBtu/hr are excluded; and there are exceptions for low-use boilers and boilers that met a 12-ppm limit prior to 9/5/08. Applicants are advised to review these rules for further details.

- 24) A higher NO_x limit may be allowed for facilities required to have a standby fuel, where use of a clean standby fuel is not possible and an ultra low-NO_x burner is not available.
- 32) See Clean Fuels Policy in Part C of the BACT Guidelines. Oil firing is only allowed as a standby fuel, and where use of a clean standby fuel is not possible.

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10-20-2000 Rev. 0
[10-03-2008 Rev. 1](#)

Equipment or Process: Process Heater – Non-Refinery

Subcategory/Rating/ Size	Criteria Pollutants					
	VOC	NOx ¹⁾	SOx	CO	PM10	Inorganic
Natural Gas or Propane Fired, < 20 MM Btu/hr		≤ 20 ppmv dry corrected to 3% O ₂ ²⁾ (10-20-2000)	Natural Gas (10-20-2000)	≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% O ₂ (10-20-2000)	Natural Gas (10-20-2000)	
Natural Gas or Propane Fired, ≥ 20 MM Btu/hr		With Low-NOx Burner: ≤ 9 ppmv dry corrected to 3% O ₂ With SCR or LTO: ≤ 7 ppmv dry corrected to 3% O ₂ (10-20-2000)	Natural Gas (10-20-2000)	Same as above. (10-20-2000)	Natural Gas (10-20-2000)	With SCR: ≤ 5 ppmvd NH ₃ , corrected to 3% O ₂ With LTO: ≤ 1 ppmvd ozone, corrected to 3% O ₂ (10-20-2000)

1) [Rules 1146 and 1146.1 require that units rated >2 and <75 MMBtu/hr meet 9 ppm NOx beginning 1/1/2012 for some categories, that natural gas-fired units rated at ≥75 MMBtu/hr meet 5 ppm by 1/1/2015 \(except units at schools and universities\), that natural-draft units rated >2 and ≤10 MMBtu/hr with unsealed combustion chambers meet 12 ppm by 1/1/2014, and that units firing landfill or digester gas meet 25 or 15 ppm, respectively, by 1/1/15 \(all ppm are dry, corrected to 3% O₂\). Refinery process heaters rated >40 MMBtu/hr and thermal fluid heaters rated ≥5 MMBtu/hr are excluded; and there are exceptions for low-use units and units that met a 12-ppm limit prior to 9/5/08. Applicants are advised to review these rules for further details.](#)

2) [A higher NOx limit may be allowed for facilities required to have a standby fuel, where use of a clean standby fuel is not possible and an ultra low-NOx burner is not available.](#)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Best Available Control Technology Guidelines for Non-Major Polluting Facilities

10-20-2000 Rev. 0
 6-6-2003 Rev. 1
 12-3-2004 Rev. 2
 7-14-2006 Rev. 3
[10-3-2008 Rev. 4](#)

Equipment or Process: I.C. Engine, Stationary, Emergency¹⁾

Subcategory/	Rating/Size	Criteria Pollutants					
		NMHC or VOC	NOx	NOx + NMHC ²⁾	SOx	CO	PM
Compression Ignition, Fire Pump³⁾⁴⁾⁷⁾	50 ≤ HP < 100			Tier 2: 7.5 grams/kW-hr (5.6 grams/bhp-hr) Tier 3 (After 12/31/2010): 4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008)	Diesel fuel sulfur content ≤ 0.05% by weight (4-10-98) On or after June 1, 2004 the user may only purchase diesel	Tier 2 or Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008)	Compliance with Rule 1470 (12-3-2004) Tier 2 or Tier 3: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (10-03-2008)
	100 ≤ HP < 175			Tier 2: 6.6 grams/kW-hr (4.9 grams/bhp-hr) Tier 3 (After 12/31/2009): 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008)	fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Tier 2 or Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008)	Compliance with Rule 1470 (12-3-2004) Tier 2 or Tier 3: 0.30 grams/kW-hr (0.22 grams/bhp-hr) (10-03-2008)
	175 ≤ HP < 750			Tier 2: 6.6 grams/kW-hr (4.9 grams/bhp-hr) Tier 3 (After 12/31/2008): 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008)		Tier 2 or Tier 3: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008)	Compliance with Rule 1470 (12-3-2004) Tier 2 or Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008)
	≥750 HP			Tier 2: 6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008)		Tier 2: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008)	Tier 2: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008)
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	≥750 HP	Tier 1 (NMHC): 1.0 g/bhp-hr (4-10-98) Tier 2 (After 7/13/2006): See NOx+NMHC (7-14-2006)	Tier 1: 6.9 g/bhp-hr (4-10-98) Tier 2 (After 7/13/2006): See NOx+NMHC (7-14-2006)	Tier 2 (After 7/13/2006): 6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008/7-14-2006)		Tier 1: 8.5 g/bhp-hr (4-10-98) Tier 2 (After 7/13/2006): 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008 7-14-2006)	Compliance with Rule 1470 (12-3-2004) Tier 1: 0.38 g/bhp-hr (4-10-98) Tier 2 (After 7/13/2006): 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008 7-14-2006)
Spark Ignition ⁶⁾	All	VOC: 1.5 grams/bhp-hr (10-20-2000)	1.5 grams/bhp-hr (10-20-2000)		See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000)	2.0 grams/bhp-hr (10-20-2000)	See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000)

- 1) An emergency engine is an engine which operates as a temporary replacement for primary mechanical or electrical power sources during periods of fuel or energy shortage or while a primary power source is under repair. This includes fire pumps, emergency electrical generation and other emergency uses. ~~Exceptions to the requirements in the table may be made for emergency fire pumps if it is demonstrated that there are no UL-listed fire pumps that meet the required emission limits.~~
- 2) NMHC + NOx means the sum of non-methane hydrocarbons and oxides of nitrogen emissions.
- 3) AQMD restricts operation of emergency compression-ignition engines to 50 hours per year, or less if required by Rule 1470, for maintenance and testing and a maximum of 200 hours per year total operation. For engines used to drive standby generators, operation beyond 50 hours per year for maintenance and testing is allowed only in the event of a loss of grid power or up to 30 minutes prior to a rotating outage provided that the electrical grid operator or electric utility has ordered rotating outages in the control area where the engine is located or has indicated that it expects to issue such an order at a certain time, and the engine is located in a control area that is subject to the rotating outage. A new stationary compression-ignition engine will also be subject to a proposed federal New Source Performance Standard--Title 40, Part 60, Subpart IIII of the Code of Federal Regulations.
- 4) Limits with an associated “after” date are required for an engine for which the application is deemed complete after that date. Limits without an associated “after” date are required now. The engine must be certified by U.S. EPA or CARB to meet the Tier 1, 2 or 3 emission requirements of 40 CFR Part 89 – Control of Emissions from New and In-use Nonroad Compression-Ignition Engines shown in the table– or otherwise demonstrate that it meets the Tier 1, 2 or 3 emission limits. If, because of the averaging, banking, and trading program, there is no new engine from any manufacturer that meets the above standards, then the engine must meet the family emission limits established by the manufacturer and approved by U.S. EPA. The PM limits apply only to filterable PM.

- 5) A USEPA settlement with certain engine manufacturers caused Tier 3 engines to become available one year earlier than the date specified in Part 89 for engines in the 300 hp to <750 hp size range.
- 6) AQMD restricts operation of emergency spark-ignition engines to 50 hours per year for maintenance and testing and a maximum of 200 hours per year total operation. For emergency spark-ignition engines used to drive standby generators, operation beyond 50 hours per year for maintenance and testing is allowed only during emergencies resulting in an interruption of service of the primary power supply or during Stage II or III electrical emergencies declared by the electrical grid operator. Operators are allowed to use emergency spark-ignition engines as part of an interruptible electric service program. An interruptible electric service program is a program in which the facility receives payment or reduced rates in return for a requirement to reduce its electric load on the grid when requested to do so by the utility, the grid operator, or other organization.
- 7) [Since some requirements are based upon the California Airborne Toxic Control Measure for Stationary Compression Ignition Engines, applicants are referred to Title 17, Section 93115.3 of the California Code of Regulations for possible exemptions.](#)