

AQMD 1147 – NO_x Reductions from Miscellaneous Sources

(a) Purpose and Applicability

The purpose of this rule is to reduce nitrogen oxide emissions from gaseous and liquid fuel fired combustion equipment as defined in this rule. This rule applies to manufacturers, distributors, retailers, installers, owners, and operators of ovens, dryers, dehydrators, heaters, kilns, calciners, furnaces, crematories, incinerators, heated pots, cookers, roasters, fryers, closed and open heated tanks and evaporators, distillation units, afterburners, degassing units, vapor incinerators, catalytic or thermal oxidizers, soil and water remediation units and other combustion equipment with nitrogen oxide emissions that require a District permit and are not specifically required to comply with a nitrogen oxide emission limit by other District Regulation XI rules. This rule does not apply to solid fuel-fired combustion equipment, internal combustion engines, turbines, food ovens, charbroilers, boilers, water heaters, thermal fluid heaters, enclosed process heaters and other combustion equipment subject to nitrogen oxide limits of other District Regulation XI rules.

(c) Requirements

(1) On or after January 1, 2010 any person owning or operating a unit subject to this rule shall not operate the unit in a manner that exceeds the applicable nitrogen oxide emission limit specified in Table 1:

- (A) at the time a District permit is required
- (i) for operation of a new, relocated or replacement unit, or
- (ii) for a combustion system modification or combustion system replacement, or
- (iii) July 1 of the year a unit becomes 35 years old; or,
- (B) for in-use units, in accordance with the compliance schedule in Table 2.

(2) Unit age shall be based on:

- (A) The original date of manufacture as determined by:
 - (i) Original manufacturer's identification or rating plate permanently fixed to the equipment. If not available, then;
 - (ii) Invoice from manufacturer for purchase of equipment. If not available, then;
 - (iii) Information submitted to the District with prior permit applications for the specific unit. If not available, then;
 - (iv) The unit will be deemed by the District to be 20 years old as of July 1, 2012; or
- (B) The date that operations start for a tunnel kiln or crematory rebuilt prior to January 1, 2010 with new burner(s) as determined by:
 - (i) Production or fuel usage records after burner installation, and
 - (ii) Invoice for burner(s) installation. If not available, then;
 - (iii) Invoice for burner(s) purchase, If not available, then;
 - (iv) Manufacture date of burner(s) as identified by an attached manufacturers identification or rating plate or date stamp.

(3) In accordance with the schedule in the permit, owners or operators of units shall determine compliance with the emission limit specified in Table 1 using a District approved test protocol. The test protocol shall be submitted to the District at least 90 days prior to the scheduled test and approved by the District Source Testing Division.

(4) Notwithstanding the requirements of paragraph (c)(1), units with combustion system modifications or combustion system replacements completed prior to December 5, 2008 and after January 1, 2000 that resulted in replacement of more than 75% of the rated heat input capacity shall comply with the applicable emission limit specified in Table 1 of paragraph (c)(1) ten years from the date the modification was performed.

(5) The date a combustion system modification or combustion system replacement, as specified in paragraphs (c)(1) and (c)(4), is performed; shall be determined according to paragraph (c)(2).

(6) NO_x emissions of less than one pound per day shall be demonstrated by compliance with one of the following requirements:

- (A) A rated heat input capacity of less than 325,000 Btu per hour;
- (B) A permit condition that limits NO_x emissions to less than 1 pound per day;
- (C) Monthly recordkeeping of unit use documenting average emissions of less than one pound per day calculated based on a unit-specific non-resettable time meter or a non-resettable unit fuel meter with fuel use corrected to standard temperature and pressure. Owners or operators of units with installed calibrated non-resettable totalizing time or fuel meters may elect to comply with the requirements of (c)(6) by demonstrating each calendar month that

monthly NOx emissions are less than 22 pounds or less. Monthly emissions with a time meter shall be calculated using the unit's maximum hourly emission rate in pounds multiplied by the hours of operation each calendar month. The maximum hourly emission rate shall be equal to the rated heat input capacity of the unit multiplied by the unit's emissions at the rated heat input capacity in pound per million Btu. Monthly emissions calculated with a fuel meter shall be equal to the unit's emission rate per unit of fuel multiplied by the amount of fuel, corrected to standard temperature and pressure, used that calendar month.

(D) Daily recordkeeping of unit operation and the following specified rated heat input capacities operating less than or equal to the specified number of hours per day in Table 3:

(E) Daily recordkeeping of unit operation and the following specified rated heat input capacities operating less than or equal to the specified number of hours per calendar month in Table 4:

(F) Unit natural gas use less than or equal to 7,692 cubic feet per day at standard temperature and pressure, documented by daily recordkeeping of gas consumption with a non-resettable fuel meter; or

(G) Daily recordkeeping of unit operation using process specific parameters that demonstrate the unit does not emit one pound per day or more of NOx emissions, does not exceed the daily and weekly hours of operation submitted for the District permit application, and complies with all unit permit conditions.

Owners or operators of units complying under this paragraph that fail to continuously demonstrate compliance with the applicable heat input rating, permit condition, or daily or monthly requirements of this paragraph shall comply with the applicable emission limit in Table 1 by the applicable compliance date in Table 2 or within 210 days from the date the unit first fails to continuously comply with heat input rating, permit condition, or the daily or monthly limit requirement whichever is later. A unit that must demonstrate compliance with an emission limit for failure to demonstrate emissions less than one pound per day pursuant to this provision shall comply with the applicable emission limit for the life of the unit.

(7) On or after January 1, 2010, any person owning or operating a unit subject to this rule shall perform combustion system maintenance in accordance with the manufacturer's schedule and specifications as identified in the manual and other written materials supplied by the manufacturer or distributor. The owner or operator shall maintain on site at the facility where the unit is being operated a copy of the manufacturer's, distributor's, installer's or maintenance company's written maintenance schedule and instructions and retain a record of the maintenance activity for a period of not less than three years. The owner or operator shall maintain on site at the facility where the unit is being operated a copy of the District certification or District approved source test reports, conducted by an independent third party, demonstrating the specific unit complies with the emission limit. The source test report(s) must identify that the source test was conducted pursuant to a District approved protocol. The model and serial numbers of the specified unit shall clearly be indicated on the source test report(s). The owner or operator shall maintain on the unit in an accessible location a permanent rating plate. The maintenance instructions, maintenance records and the source test report(s) or District certification shall be made available to the Executive Officer upon request.

(8) Any person owning or operating a unit subject to this rule complying with Table 1 using pounds per million BTU, shall install and maintain in service non-resettable, totalizing, fuel meters for each unit's fuel(s) prior to the compliance determination specified in paragraph (c)(3). Owners or operators of a unit with a combustion system that operates at only one firing rate that comply with an emission limit using pounds per million BTU shall install a non-resettable, totalizing, time or fuel meter for each fuel.

(9) Meters that require electric power to operate shall be provided a permanent supply of electric power that cannot be unplugged, switched off, or reset except by the main power supply circuit for the building and associated equipment or the unit's safety shut-off switch. Any person operating a unit subject to this rule shall not shut off electric power to a unit meter unless the unit is not operating and is shut down for maintenance or safety.

(10) On or before the compliance date, the owner or operator of a unit shall demonstrate compliance with the applicable emission limit in Table 1 pursuant to the provisions of subdivisions (d) or (e).

(11) Compliance by Certification

For units that do not allow adjustment of the fuel and combustion air for the combustion system by the owner or operator, and upon approval by the Executive Officer, an owner or operator may demonstrate compliance with the emission limit and demonstration requirement of this subdivision by certification granted to the manufacturer for any model of equipment sold for use in the District. Any unit certified pursuant to subdivision (e) shall be deemed in compliance with the emission limit in Table 1 and demonstration requirement of this subdivision, unless a District source test shows non-compliance.

(12) Identification of Units

(A) New Manufactured Units The manufacturer shall display the model number and the rated heat input capacity of the unit complying with subdivision (c) on a permanent rating plate. The manufacturer shall also display the District certification status on the unit when applicable.

(B) Modified Units The owner or operator of a unit with a modified combustion system (new or modified burners) shall display the new rated heat input capacity on a new permanent supplemental rating plate installed in an accessible location on the unit or burner. The gross heat input shall be based on the maximum fuel input corrected for fuel heat content, temperature and pressure. Gross heat input shall be demonstrated by a calculation based on fuel consumption recorded by an in-line fuel meter by the manufacturer or installer.

(13) The owner or operator shall maintain on site a copy of all documents identifying the unit's rated heat input capacity for as long as the unit is retained on-site. The rated heat input capacity shall be identified by a manufacturer's or distributor's manual or invoice and a permanent rating plate attached to the unit. If a unit is modified, the rated heat input capacity shall be calculated pursuant to subparagraph (c)(12)(B). The documentation of rated heat input capacity for modified units shall include the name of the company and person modifying the unit, a description of all modifications, the dates the unit was modified and calculation of rated heat input capacity. The documentation for modified units shall be signed by the highest ranking person modifying the unit.

(14) Alternate Compliance Plans

(A) Owners or operators of facilities with three or more in-use units required to demonstrate compliance with the emission limit within two consecutive calendar years may submit an alternate compliance plan to phase-in compliance of all units. The compliance plan shall be submitted at least 270 days prior to the date the first unit is required to demonstrate compliance. The alternate compliance plan shall identify the units included in the plan and a schedule identifying when each unit will comply with the emission limit and the compliance determination for each unit will be completed. At least one unit shall demonstrate compliance with the applicable emission limit of this rule by the first compliance date for any unit included in the plan. Each year thereafter, a minimum of 20 percent of additional units and no less than one unit shall demonstrate compliance with the applicable emission limit. All units with NO_x emissions greater than or equal to 1 pound per day identified in Table 2 of paragraph (c)(1) must demonstrate compliance with the applicable emission limit of this rule before January 1, 2015.

(15) Any unit with NO_x emissions less than one pound per day that becomes 35 years old on or before July 1, 2018 shall demonstrate compliance with the applicable emission limit specified in paragraph (c)(1) on or before July 1, 2020.

(16) Notwithstanding the requirements of paragraphs (c)(1) and (c)(10), an owner or operator of any in-use unit 35 years of age or older may continue operating that unit provided:

(A) NO_x emissions are less than 1 pound per day as demonstrated through a biennial emissions test conducted pursuant to paragraphs (d)(1) through (d)(10) and recordkeeping with a calibrated non-resettable fuel or time meter as specified in the unit's SCAQMD Permit to Operate; and

(B) The biennial emissions test is conducted no later than 180 days before the in-use unit becomes 35 years of age for the first demonstration and no later than 18 months after completion of the previous biennial emissions test for any subsequent demonstrations.

(17) An owner or operator of a unit that fails to continuously demonstrate emissions less than one pound per day pursuant to paragraph (c)(16) shall demonstrate compliance with the applicable NO_x emission limit in Table 1 through compliance with the requirements of paragraphs (d)(1) through (d)(10) no later than 1 year from the date the owner or operator fails to demonstrate unit emissions are less than one pound per day.

**Table 1 – NO_x Emission Limit
for Unit Heat Ratings ≥ 325,000 BTU/hour**

Equipment Category(ies)	NO _x Emission Limit		
	PPM @ 3% O ₂ , dry or Pound/mmBtu heat input		
	Process Temperature		
Gaseous Fuel-Fired Equipment	≤ 800° F	> 800 ° F and < 1200° F	≥ 1200 ° F
Asphalt Manufacturing Operation	40 ppm	40 ppm	
Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator ¹	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu
Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without Integrated Afterburner	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu
Evaporator, Fryer, Heated Process Tank, or Parts Washer	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu	
Metal Heat Treating, Metal Melting Furnace, Metal Pot, or Tar Pot	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu
Oven, Dehydrator, Dryer, Heater, Kiln, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank	30 ppm or 0.036 lb/mmBtu	30 ppm or 0.036 lb/mmBtu	60 ppm or 0.073 lb/mmBtu
Make-Up Air Heater or other Air Heater located outside of building with temperature controlled zone inside building	30 ppm or 0.036 lb/mmBtu	30 ppm or 0.036 lb/mmBtu	
Tenter Frame or Fabric or Carpet Dryer	30 ppm or 0.036 lb/mmBtu		
Other Unit or Process Temperature	30 ppm or 0.036 lb/mmBtu	30 ppm or 0.036 lb/mmBtu	60 ppm or 0.073 lb/mmBtu
Liquid Fuel-Fired Equipment	≤ 800° F	> 800 ° F and < 1200° F	≥ 1200 ° F
All liquid fuel-fired Units	40 ppm or 0.053 lb/mmBtu	40 ppm or 0.053 lb/mmBtu	60 ppm or 0.080 lb/mmBtu

1. Emission limit applies to burners in units fueled by 100% natural gas that are used to incinerate air toxics, VOCs, or other vapors; or to heat a unit. The emission limit applies solely when burning 100% fuel and not when the burner is incinerating air toxics, VOCs, or other vapors. The unit shall be tested or certified to meet the emission limit while fueled with natural gas.

Table 2 – Compliance Schedule for Specific In-Use Units and In-Use Units with NO_x Emissions of One Pound per Day or More

Equipment Category(ies)	Submit Permit Application	Unit Shall Be in Compliance
Specific UNIT		
Remediation UNIT manufactured and installed prior to March 1, 2012	Seven months prior to a combustion system modification, combustion system replacement or unit replacement or a relocation.	Upon combustion system modification, combustion system replacement or unit replacement or relocation beginning March 1, 2012
Evaporator, heated process tank, or parts washer with a District permit issued and operating prior to January 1, 2014	Seven months prior to combustion system modification, combustion system replacement or unit replacement	Upon combustion system modification, combustion system replacement or unit replacement
Tar Pot		All new permit applications beginning January 1, 2013
UNIT with Emissions ≥1 Pound/Day		
Afterburner, degassing unit, catalytic oxidizer, thermal oxidizer, vapor incinerator, fryer, or spray booth make-up air heater manufactured prior to 1998	December 1, 2013	July 1, 2014
Other UNIT manufactured prior to 1986	December 1, 2011	July 1, 2012
Other UNIT manufactured prior to 1992	December 1, 2011	July 1, 2012
Other UNIT manufactured prior to 1998	December 1, 2012	July 1, 2013
Any UNIT manufactured after 1997	December 1 of the year prior to the compliance date	July 1 of the year the unit is 15 years old

Table 3 – Small and Low Use Unit Daily Operating Limits

Unit Rating (Btu/hour)	Daily Hour Limit
325,000 to 400,000	16
400,001 to 500,000	14
500,001 to 800,000	8
800,001 to 1,000,000	6
1,000,001 to 1,200,000	5

Table 4 – Small and Low Use Unit Monthly Operating Limits

Unit Rating (Btu/hour)	Monthly Hour Limit
325,000 to 400,000	352
400,001 to 500,000	308
500,001 to 800,000	176
800,001 to 1,000,000	132