

**RULE 1147                      NO<sub>x</sub> 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 ~~subject to District Rule 1110.2~~, turbines, food ovens, charbroilers, ~~or~~ boilers, water heaters, thermal fluid heaters, ~~and enclosed process heaters subject to District Rules 1109, 1146, 1146.1, or 1146.2~~ and other combustion equipment subject to nitrogen oxide limits of other District Regulation XI rules 1111, 1112, 1117, 1118, 1121, or 1135.

(b) Definitions

- (1) ANNUAL CAPACITY FACTOR means the ratio of the ANNUAL HEAT INPUT of a unit in a calendar year to the amount of fuel it could have burned if it had operated at the rated heat input capacity for 100 percent of the time during the calendar year.
- (2) ANNUAL HEAT INPUT means the actual amount of heat released by fuels burned in a unit during a calendar year, based on the fuel's higher heating value.
- (3) BTU means British thermal unit or units.
- (4) COMBUSTION SYSTEM MODIFICATION means ~~replacement of a any~~ modification of burner(s) or heating unit that contains a burner(s), or burner(s) fuel system, combustion air supply, or combustion control system that changes the RATED HEAT INPUT CAPACITY of the burner(s) or heating unit.

- (5) COMBUSTION SYSTEM REPAIR means fixing or refurbishing of a burner(s) or heating unit that contains a burner(s), or burner(s) fuel system, combustion air supply, or combustion control system that does not result in a COMBUSTION SYSTEM MODIFICATION or COMBUSTION SYSTEM REPLACEMENT.
- (6) COMBUSTION SYSTEM REPLACEMENT means the substituting of a burner(s) or a heating unit that includes a burner(s).
- (75) FOOD OVEN means an oven, cooker, dryer, roaster, or other fuel-fired unit, excluding fryer, used to heat, ~~or~~ cook, dry, roast, or prepare food, food products, or products used for making beverages for human consumption.
- (86) HEATER means any combustion equipment that is fired with gaseous and/or liquid fuels and which transfers heat from combusted fuel to materials or air contained in the unit or in an adjoining cabinet, container or structure. Heater does not include any boiler or PROCESS HEATER designed to transfer heat to water or process streams that is subject to any NOx emission limits of District Rules 1109, 1146, 1146.1 or 1146.2, and does not include any internal combustion engine or turbine.
- (97) HEAT INPUT means the higher heating value of the fuel to the unit measured as BTU per hour.
- (108) HEAT OUTPUT means the enthalpy of the working fluid output of the unit.
- (11) INFRARED BURNER means a burner with:
- (A) Ceramic, metal fiber, sintered metal, or perforated metal flame-holding surface;
  - (B) More than 50% of the heat output as infrared radiation and that is operated in a manner where the zone including and above the flame-holding surface is red and does not produce observable blue or yellow flames in excess of ½ inch (13 mm) in length; and
  - (C) A RATED HEAT INPUT CAPACITY per square foot of flame holding surface of 100,000 BTU per hour or less.
- (129) IN-USE UNIT means any UNIT that is demonstrated to the Executive Officer that it was in operation at the current location prior to January 1, 2010.

- (130) MAKE-UP AIR HEATER means a UNIT used to heat incoming air in order to maintain the temperature of a spray booth, container, room or other enclosed space and to provide breathable air for a person who may be present during operation~~where a person is working including spray booths that are also used for drying coatings and auto body spray booths with an adjacent contiguous section for drying automobile coatings. A MAKE UP AIR HEATER is not a burner used to heat an oven, dryer, heater or other unit where workers are not present during heating.~~
- (141) NOx EMISSIONS means the sum of nitrogen oxide and nitrogen dioxide in the flue gas, collectively expressed as nitrogen dioxide.
- (152) PROCESS HEATER means any equipment that is fired with gaseous and/or liquid fuels and which transfers heat from combusted fuel to water or process streams. PROCESS HEATER does not include any fryer or any furnace, kiln or oven used for melting, heat treating, annealing, drying, curing, baking, cooking, calcining, or vitrifying; any heated tank; or any unfired waste heat recovery heater that is used to recover sensible heat from the exhaust of any combustion equipment.
- (163) PROTOCOL means a South Coast Air Quality Management District approved test protocol for determining compliance with emission limits for applicable equipment.
- (174) RATED HEAT INPUT CAPACITY means the gross HEAT INPUT of the combustion UNIT specified on a permanent rating plate attached by the manufacturer to the device. If the UNIT has been altered or modified ~~such that its gross HEAT INPUT is higher or lower than the rated HEAT INPUT capacity specified on the original manufacturer's permanent rating plate,~~ the new gross HEAT INPUT as specified in subparagraph (c)(12)(B) shall be considered as the rated HEAT INPUT capacity.
- (18) RELOCATION means removal from one parcel of land in the District and installation on another non-contiguous parcel of land. RELOCATION does not mean a move from one parcel of land to another parcel of land where the two parcels have the same address, are under common ownership, and are separated solely by a public roadway or other public right-of-way.
- (195) REMEDIATION UNIT means a device used to capture or incinerate air toxics, VOCs or other combustible vapors extracted from soil or water.

(2016) RESPONSIBLE OFFICIAL means:

(A) For a corporation: a president or vice-president of the corporation in charge of a principal business function or a duly authorized person who performs similar policy-making functions for the corporation; or

(B) For a partnership or sole proprietorship: general partner or proprietor, respectively.

(C) For a government agency: a duly authorized person

(217) TENTER FRAME DRYER is a cloth dryer that holds the edges of the material as it is dried in order to control shrinkage.

(2218) THERM means 100,000 BTU.

(2319) UNIT means any oven, dryer, dehydrator, heater, kiln, calciner, furnace, crematory, incinerator, heated pot, cooker, roaster, fryer, heated tank and evaporator, distillation unit, afterburner, degassing unit, vapor incinerator, catalytic or thermal oxidizer, soil or water remediation units and other combustion equipment with nitrogen oxide emissions requiring a District permit and not specifically required to comply with a NOx emission limit by other District Regulation XI rules. UNIT does not mean any solid fuel fired combustion equipment, internal combustion engine—subject to District Rule 1110.2, turbine, charbroiler, or boiler, water heater, thermal fluid heaters, or enclosed process heater, subject to District Rules 1109, 1146, 1146.1, or 1146.2 and other combustion equipment subject to nitrogen oxide limits of other District Regulation XI rules—1111, 1112, 1117, 1118, 1121, or 1135.

(240) VAPOR INCINERATOR means a furnace, afterburner, or other device for burning and destroying air toxics, VOCs or other combustible vapors in gas or aerosol form in gas streams.

(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 for operation of a new, relocated or modified-replacement unit, or for a combustion system modification or combustion system replacement, or July 1 or the year a unit becomes 30 years old; or,

(B) for in-use units, in accordance with the compliance schedule in Table 2, or at the time of a combustion modification.

**Table 1 – NO<sub>x</sub> Emission Limit  
for Unit Heat Ratings ≥ 325,000 BTU/hour**

Equipment Category(ies)	NO <sub>x</sub> Emission Limit		
	PPM @ 3% O <sub>2</sub> , dry or Pound/mmBtu heat input		
	Process Temperature		
<b>Gaseous Fuel-Fired Equipment</b>	≤ 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 <sup>1</sup>	<del>360</del> ppm or 0.0736 lb/mmBtu	60 ppm or 0.073 lb/mmBtu	60 ppm or 0.073 lb/mmBtu
<u>Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without Integrated Afterburner</u>	<u>60 ppm or 0.073 lb/mmBtu</u>	<u>60 ppm or 0.073 lb/mmBtu</u>	<u>60 ppm or 0.073 lb/mmBtu</u>
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, <del>Crematory, Incinerator, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank</del>	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	<u>30 ppm or 0.036 lb/mmBtu</u>	
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
<b>Liquid Fuel-Fired Equipment</b>	≤ 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 NOx Emissions of One Pound per Day or More**

<b>Equipment Category(ies)</b>	<b>Submit Permit Application</b>	<b>Unit Shall Be in Compliance</b>
<b><u>Specific UNIT</u></b>		
Remediation UNIT manufactured <u>and installed prior to March 1, 2012+1998</u>	Seven months prior to <u>a combustion system modification, combustion system replacement or unit replacement or a change of location/relocation.</u>	Upon combustion <u>system modification, combustion system replacement or unit replacement or change of location/relocation</u> beginning March 1, 2012
<u>Evaporator, heated process tank, or parts washer with a District permit issued and operating prior to January 1, 2014</u>	<u>Seven months prior to combustion system modification, combustion system replacement or unit replacement</u>	<u>Upon combustion system modification, combustion system replacement or unit replacement</u>
Tar Pot		All new permit applications beginning January 1, 2013
<b><u>UNIT with Emissions ≥1 Pound/Day</u></b>		
<u>Afterburner, degassing unit, catalytic oxidizer, thermal oxidizer, vapor incinerator, evaporator, food oven, fryer, heated process tank, parts washer or spray booth make-up air heater manufactured prior to 1998</u>	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

- (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 AQMDistrict with prior permit applications for the specific unit. If not available, then;
  - (iv) ~~The Unit is~~ will be deemed by the AQMDistrict 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 subparagraph (c)(2)(B), ~~if not available, then subparagraph (c)(2)(C).~~
- (6) ~~Notwithstanding the requirements of paragraph (c)(1), a unit with a District permit to construct or permit to operate, and with emissions of one pound per day or less of nitrogen oxides, may defer compliance with the applicable emission limit specified in Table 1 of paragraph (c)(1) for up to five years from the applicable compliance date in Table 2 of (c)(1). NOx emissions of less than one pound per day or less shall be demonstrated by~~ compliance with one of the following requirements:

- (A) ~~A unit has a rated heat input capacity of less than 400325,000 Btu per hour; or less.~~
- (B) ~~A permit condition that limits NOx emissions to less than 1 pound per day; The unit as of September 9, 2011 has a NOx permit emission limit of one pound per day or less, a permit condition with a process limit that results in one pound per day or less of NOx emissions including but not limited to fuel use, material throughput or operating schedule, or actual operations that results in one pound per day or less of NOx emissions. Daily operating records of unit fuel use or process rate and daily operating hours demonstrating that starting January 1, 2012 until the date of compliance, the unit has a maximum emission rate of 1 pound of NOx 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 requesting, no later than January 1, 2012, unit permit conditions of limits on operating hours per calendar month and/or a fuel meter and a limit on the amount of fuel use per demonstrating each calendar month so that monthly NOx emissions are less than 2230 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:

**Table 3 – Small and Low Use Unit Daily Operating Limits**

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

(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:

**Table 4 – Small and Low Use Unit Monthly Operating Limits**

<u>Unit Rating (Btu/hour)</u>	<u>Monthly Hour Limit</u>
<u>325,000 to 400,000</u>	<u>352</u>
<u>400,001 to 500,000</u>	<u>308</u>
<u>500,001 to 800,000</u>	<u>176</u>
<u>800,001 to 1,000,000</u>	<u>132</u>
<u>1,000,001 to 1,200,000</u>	<u>110</u>

(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 ~~emission-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~~five or more in-use units ~~with permit emissions greater than one pound per day NOx that will required to demonstrate compliance with the emission limit within two consecutive calendar years~~burner modifications may submit an alternate compliance plan by January 1, 2012 to phase-in compliance of all units ~~starting April 1, 2012 and ending before January 1, 2015. 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 ~~be demonstrate compliance modified to comply with the applicable emission limit of this rule by the first compliance date for any unit included in the plan~~April 1, 2012. Each year thereafter, a minimum of 20 percent of additional units and no less than one unit shall ~~demonstrate compliance~~be modified to comply with the applicable emission limit. All units with NOx 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 NOx emissions less than one pound per day that becomes 30 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.

~~(B) Owners or operators of facilities with pollution control unit(s) in series with process unit(s) (e.g., an oven and afterburner) that have NOx emissions greater than one pound per day and different compliance dates may elect to synchronize compliance of all units in the series on one date no later than December 1, 2013.~~

(d) Compliance Determination

(1) All compliance determinations pursuant to paragraph (c)(6) shall be calculated:

(A) Using a District approved test protocol averaged over a period of at least 15 minutes of combustion system operation and no more than 60 consecutive minutes;

(B) After unit start up; and

(C) In the unit's as-found operating condition.

(2) For each unit, a compliance determination shall be made in the maximum heat input range at which the unit normally operates.

(3) An additional compliance determination shall be made using a heat input of less than 35% of the rated heat input capacity for any of the following types of units with process temperature less than 1200 °F that operate with variable heat input that falls below 50% rated heat input capacity during normal operation: Make-Up Air Heater, other Air Heater located outside of process building, Oven, Dehydrator, Dryer, Tenter-Frame Dryer, Fabric Dryer, Carpet Dryer, Heater, Cooker, Roaster, non-metallurgical Furnace, or Heated Storage Tank. The additional compliance determination for the specified units in this paragraph shall be made:

(A) Using a heat input of less than 35% of the rated heat input capacity; or

(B) For at least 30 consecutive minutes after unit start up using the lowest operating temperature that may be used during normal operation of the unit.

- (4) For compliance determinations after the initial approved test, the operator is not required to resubmit a protocol for approval if: there is a previously approved protocol and the unit has not been altered in a manner that requires a permit alteration; and rule or permit emission limits have not become more stringent~~changed~~ since the previous test.
- (52) All parts per million emission limits specified in subdivision (c) are referenced at 3 percent volume stack gas oxygen on a dry basis.
- (63) Compliance with the NO<sub>x</sub> emission limits of subdivision (c) and determination of stack-gas oxygen and carbon dioxide concentrations for this rule shall be determined according to the following procedures:
- (A) District Source Test Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling (March 1989); or
  - (B) ASTM Method D6522-00 – Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers; or
  - (C) United States Environmental Protection Agency Conditional Test Method CTM-030 – Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers and Process Heaters Using Portable Analyzers; or
  - (D) District Source Test Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources (March 1989); and
  - (E) District Source Test Method 10.1 – Carbon Monoxide and Carbon Dioxide by Gas Chromatograph/Non-Dispersive Infrared Detector (GC/NDIR) – Oxygen by Gas Chromatograph-Thermal Conductivity (GC/TCD) (March 1989); or
  - (F) Any alternative test method determined approved before the test in writing by the Executive Officers of the District, the California Air Resources Board and the United States Environmental Protection Agency.
- (74) For any operator who chooses to comply using pound per million Btu, NO<sub>x</sub> emissions in pounds per million Btu of heat input shall be calculated

using procedures in 40 CFR Part 60, Appendix A, Method 19, Sections 2 and 3.

- (85) Records of source tests shall be maintained for ten years and made available to District personnel upon request. Emissions determined to exceed any limits established by this rule through the use of any of the test methods specified in subparagraphs (d)(3)(A) through (d)(3)(F) shall constitute a violation of this rule.
- (96) All compliance determinations shall be made using an independent contractor to conduct testing, which is approved by the Executive Officer under the Laboratory Approval Program for the applicable test methods.
- (107) For equipment with two or more units in series or multiple units with a common exhaust ~~or units with one dual purpose burner that both heats the process and incinerates VOC, toxics or PM~~, the owner or operator may demonstrate compliance with the emission limits in Table 1 by one of the following:
  - (A) Test each unit separately and demonstrate each unit's compliance with the applicable limit, or
  - (B) Test only after the last unit in the series and at the end of a common exhaust for multiple units ~~or dual purpose burner~~, when all units are operating, and demonstrate that the series of units either meet:
    - (i) The lowest emission limit in Table 1 applicable to any of the units in series, or
    - (ii) A heat input weighted average of all the applicable emission limits in Table 1 using the following calculation.

$$\text{Weighted Limit} = \frac{\sum [ (EL_x) \cdot (Q_x) ]}{\sum [ Q_x ]}$$

Where:

EL<sub>x</sub> = emission limit for unit X

Q<sub>x</sub> = total heat input for unit X during test

(11) An owner or operator of any unit with a unit heat rating of 2 million Btu per hour or less may elect to demonstrate compliance with the applicable emission limit through a burner manufacturer's performance warranty in lieu of a compliance demonstration pursuant to paragraphs (d)(1) through (d)(10) or subdivision (e) of this rule provided the following information required in subparagraphs (d)(11)(A) through (d)(11)(C) is provided when a permit application is submitted for a unit:

(A) The manufacturer or manufacturer authorized distributor of the burner(s) submits performance warranties that are signed by the burner manufacturer's responsible official pursuant to subparagraph (b)(20)(A) of this rule, that warrants the burner(s), fuel and combustion air system, and combustion control system identified in the application for the District Permit that complies with the applicable NOx emission limit in Table 1 of paragraph (c)(1) when used for specified processes, operating conditions, and within specified temperature ranges. The signed performance warranties shall be submitted separately, and addressed to the:

(i) owner or operator of the unit; and

(ii) Executive Officer or designee.

(B) The burner manufacturer, manufacturer authorized distributor submits to the Executive Officer or designee, supporting documentation including emission test reports of at least five District approved emission tests using District approved test protocol and methods of five different units using the same burner, fuel and combustion air system, and combustion control system that demonstrate compliance with the applicable emission limit for the same type of process operating in the same temperature range as the unit in the permit application. The five emission test results submitted for the manufacturer's performance warranty must have been approved by the District prior to submittal of an application for permit.

(C) A contract or purchase order, signed by the responsible official of the unit's owner or operator pursuant to paragraph (b)(20), for purchase of the burner(s), fuel and combustion air system, and combustion control system to be installed in the unit as identified

in the permit application and the signed letter or bid from the burner manufacturer to the owner or operator of the unit as specified in subparagraph (d)(11)(A) of this rule.

(D) The owner or operator of any unit where the requirements specified in subparagraphs (d)(11)(A) through (d)(11)(C) are not met or submits any manufacturer's performance warranty, contract, or purchase order that is not identical to the combustion system specified in the application for the unit's permit and installed in the unit, shall demonstrate unit compliance with the applicable emission limit in Table 1 through emission testing pursuant to the requirements of paragraphs (d)(1) through (d)(10) of this rule.

(i) The owner or operator specified above shall demonstrate unit compliance through emission testing within 210 calendar days from the date a permit is approved by the District. A unit that must demonstrate compliance with an emission limit of this paragraph and shall comply with the applicable emission limit for the life of the unit.

(E) The owner or operator of any unit that fails to operate the unit as specified in the manufacturer's performance warranty in subparagraphs (d)(11)(A) through (d)(11)(C), including specified processes, operating conditions, and temperatures, shall demonstrate compliance with the applicable emission limit in Table 1 through emission testing pursuant to the requirements of paragraphs (d)(1) through (d)(10) of this rule.

(e) Certification

(1) Unit Certification

For units that do not allow adjustment of the fuel and combustion air for the combustion system by the owner or operator, any manufacturer or distributor that distributes for sale or sells units or burner systems for use in the District may elect to apply to the Executive Officer to certify such units or burner systems as compliant with subdivision (c).

(2) Manufacturer Confirmation of Emissions

Any manufacturer's application to the Executive Officer to certify a model of equipment as compliant with the emission limit and demonstration requirement of subdivision (c) shall obtain confirmation from an independent contractor that is approved by the Executive Officer under the Laboratory Approval Program for the necessary test methods prior to applying for certification that each unit model complies with the applicable requirements of subdivision (c). This confirmation shall be based upon District approved emission tests of standard model units and a District approved protocol shall be adhered to during the confirmation testing of all units subject to this rule. Emission testing shall comply with the requirements of paragraphs (d)(1) through (d)(5) except emission determinations shall be made at 100% rated heat input capacity and an additional emission determination shall be made using a heat input of less than 35% of the rated heat input capacity for any Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer, Vapor Incinerator, Make-Up Air Heater, other Air Heater located outside of process building, Oven, Dehydrator, Dryer, Tenter-Frame Dryer, Fabric Dryer, Carpet Dryer, Heater, Kiln, Crematory, Incinerator, Calciner, Cooker, Roaster, non-metallurgical Furnace, or Heated Storage Tank.

- (3) When applying for unit(s) certification, the manufacturer shall submit to the Executive Officer the following:
- (A) A statement that the model is in compliance with subdivision (c). The statement shall be signed and dated by the manufacturer's responsible official and shall attest to the accuracy of all statements;
  - (B) General Information
    - (i) Name and address of manufacturer,
    - (ii) Brand name, if applicable,
    - (iii) Model number, as it appears on the unit rating plate; and
    - (iv) Rated Heat Input Capacity, gross output of burner(s) and number of burners;
  - (C) A description of each model being certified; and
  - (D) A source test report verifying compliance with the applicable emission limit in subdivision (c) for each model to be certified. The source test report shall be prepared by the confirming independent contractor and shall contain all of the elements

identified in the District approved Protocol for each unit tested. The source test shall have been conducted no more than ninety (90) days prior to the date of submittal to the Executive Officer.

- (4) When applying for unit certification, the manufacturer shall submit the information identified in paragraph (e)(3) no more than ninety (90) days after the date of the source test identified in subparagraph (e)(3)(D) and at least 120 days prior to the date of the proposed sale and installation of any District certified unit.
  - (5) The Executive Officer shall certify a unit model which complies with the provisions of subdivision (c) and of paragraphs (e)(2), (e)(3), and (e)(4).
  - (6) Certification status shall be valid for five years from the date of approval by the Executive Officer. After the fifth year, recertification shall be required by the Executive Officer according to the requirements of paragraphs (e)(2), (e)(3), and (e)(4).
- (f) Enforcement
- (1) The Executive Officer may inspect certification records and unit installation, operation, maintenance, repair, combustion system modification, combustion system repair, combustion system replacement, unit replacement, relocation and test records of owners, operators, manufacturers, distributors, retailers, and installers of units located in the District, and conduct such tests as are deemed necessary to ensure compliance with this rule. Tests shall include emission determinations, as specified in paragraph (d)(1) to (d)(104), of a random sample of any category of units subject to this rule.
  - (2) An emission determination specified under paragraph (f)(1) that finds NOx emissions in excess of those allowed by this rule or permit conditions shall constitute a violation of this rule.
- (g) Exemptions
- (1) The provisions of this rule shall not apply to units:
    - (A) subject to the nitrogen oxide limits of other District Regulation XI rules 1109, 1110.2, 1111, 1112, 1117, 1121, 1134, 1135, 1146, 1146.1, or 1146.2; or
    - (B) located at RECLAIM facilities.
  - (2) The provisions of this rule shall not apply to charbroilers or food ovens.

- (3) The provisions of this rule shall not apply to:
- (A) Flares subject to District Rule 1118;
  - (B) Flares, afterburners, degassing units, thermal or catalytic oxidizers or vapor incinerators in which a fuel, including but not limited to natural gas, propane, butane or liquefied petroleum gas, is used only to maintain a pilot for vapor ignition or is used for five minutes or less to bring a unit up to operating temperature;
  - (C) Municipal solid waste incinerators with a District permit operating before December 5, 2008;
  - (D) An afterburner or vapor incinerator with a District permit operating before December 5, 2008 that has an integrated thermal fluid heat exchanger that captures heat from the afterburner or vapor incinerator and an oven or furnace exhaust in order to reduce fuel consumption by an oven or the afterburner or vapor incinerator; or
  - (E) A flare, afterburner, degassing unit, remediation unit, thermal oxidizer, catalytic oxidizer or vapor incinerator process in which a ~~fuel, including but not limited to natural gas, propane, butane or liquefied petroleum gas, is mixed with~~ particulate matter, air toxics, VOCs, landfill gas, digester gas or other combustible vapors are mixed in the unit's burner with combustion air or fuel, including but not limited to natural gas, propane, butane or liquefied petroleum gas, prior to or at incineration in the unit, in order to maintain vapor concentration above the upper explosion limit or above a manufacturer specified limit in order to maintain combustion or temperature in the unit. This exemption does not apply to a regenerative thermal or catalytic oxidizer unit with a burner with a separate fuel line used to heat up or maintain temperature of the unit or a unit that incinerates particulate matter, air toxics, VOCs or other combustible vapors in a gas stream moving past the burner flame.
- (4) Afterburners, degassing units, thermal oxidizers, catalytic oxidizers, vapor incinerators, and spray booth make-up air heaters installed and operating before March 1, 2012 and with emissions less than one pound per day, are exempt from the emission limit in Table 1 until the unit is 30 years old or undergoes a combustion system modification, combustion system

replacement, or relocation or the unit is replaced. New ~~a~~Afterburners, degassing units, thermal oxidizers, catalytic oxidizers, vapor incinerators, and spray booth make-up air heaters installed for use at a specific facility after December 5, 2008 and before March 1, 2012 and with emissions of one pound per day or more, are exempt from shall comply with the emission limit in Table 1 until on and after July 1 of the year the unit is 15 years old.

- (5) New or relocated ~~r~~Remediation units installed after December 5, 2008 and before March 1, 2012, are exempt from the emission limit in Table 1 until replacement with a new unit, a combustion system modification, combustion system replacement, or change of location relocation on or after January 1, 2012.
- (6) Fryers installed and operating before January 1, 2014 and with emissions less than one pound per day, are exempt from the emission limit in Table 1 until the unit is 30 years old, a combustion system modification, combustion system replacement, relocation, or the unit is replaced. New food ovens, ~~f~~Fryers, heated process tanks, parts washers, and evaporators installed after December 5, 2008 and operating before January 1, 2014 and with emissions of one pound per day or more, are exempt from the emission limit in Table 1 until July 1 of the year the unit is 15 years old.
- (7) Remediation units are exempt from the applicable emission limit in Table 1 while fueled with propane, butane or liquefied petroleum gas in a location where natural gas is not available. Remediation units must comply with the emission limit when natural gas is available and while fueled with natural gas.
- (8) The provisions of paragraphs (c)(1) and (c)(3) of this rule shall not apply to any evaporator, heated process tank, or parts washer with a District permit issued and operating prior to January 1, 2014 until a combustion system modification, combustion system replacement, relocation, or the unit is replaced.
- (9) The provisions of paragraph (c)(3) of this rule shall not apply to units heated solely with infrared burners.
- (10) On and after (date of adoption) the provisions of paragraphs (c)(1) and (c)(3) of this rule shall not apply to any unit that becomes subject to this rule subsequent to a revision of District Rule 219, on or after May 5, 2017, until the unit is replaced. a combustion system modification, combustion

system replacement, unit relocation, the applicable compliance date in Table 2 of paragraph (c)(1), or, for units with NOx emissions less than one pound per day, the unit becomes 30 years old.

- (11) The requirement to demonstrate compliance with an emission limit in Table 1 shall not apply to any in-use unit with emissions less than one pound per day NOx at the time the unit is relocated with the facility to the new facility location and the facility and unit is owned and operated by the same company and owner(s) for 36 calendar months prior to and 36 calendar months after the unit relocation. This exemption from demonstrating compliance with an emission limit at the time of a unit and facility relocation does not apply if the relocated unit is replaced, undergoes a combustion system modification or combustion system replacement, subject to a compliance date in Table 2 of paragraph (c)(1), or, for units with NOx emissions less than one pound per day and not subject to paragraph (g)(8), the unit becomes 30 years old.

(h) Technology Assessment

- (1) On or before December 7, 2015, the Executive Officer shall conduct a technology assessment and shall report to the Governing Board on the availability of burner systems and units for processes with NOx emissions of one pound per day or less.

(i) Mitigation Fee Compliance Option

- (1) An owner or operator of a unit with emissions of ~~more than~~ 1 pound per day or more may elect to delay the applicable compliance date in Table 2 of paragraph (c)(1) or (c)(4) three years by submitting an alternate compliance plan and paying an emissions mitigation fee to the District in lieu of meeting the applicable NOx emission limit in Table 1.

(2) Compliance Demonstration

An owner or operator of a unit electing to comply with the mitigation fee compliance option shall:

- (A) Submit an alternate compliance plan and pay the mitigation fee to the Executive Officer at least 150 days prior to the applicable compliance date in Table 2 of paragraph (c)(1) or (c)(4), and

(B) Maintain on-site a copy of verification of mitigation fee payment and AQMDistrict approval of the alternate compliance plan that shall be made available upon request to AQMDistrict staff.

(3) Plan Submittal

The alternate compliance plan submitted pursuant to paragraphs (i)(1) and (i)(2) shall include:

- (A) A completed AQMDistrict Form 400A with company name, AQMDistrict Facility ID, identification that application is for a compliance plan (section 7 of form), and identification that request is for the Rule 1147 mitigation fee compliance option (section 9 of form);
- (B) Attached documentation of unit fuel use for previous 5 years, description of weekly operating schedule, unit permit ID, unit heat rating (Btu/hour), and fee calculation;
- (C) Filing fee payment; and
- (D) Mitigation fee payment as calculated by Equation 1.

Equation 1:

$$MF = R \times (3 \text{ years}) \times (L_1 - L_0) \times (AF) \times (k)$$

Where,

MF = Mitigation fee, \$

R = Fee Rate = \$12.50 per pound (\$6.25 per pound for a small business with 10 or fewer employees and gross annual receipts of \$500,000 or less)

$L_1$  = Default NO<sub>x</sub> emission factor, 0.136 lbs of NO<sub>x</sub>/mmBtu for natural gas and LPG, and 0.160 lb/mmBtu for fuel oils

$L_0$  = Applicable NO<sub>x</sub> emission limit specified in Table 1 in lbs/mmBtu

AF = Annual average fuel usage of unit for previous 5 years, mmscf/yr for natural gas or gallons for liquid fuel

k = unit conversion for cubic feet of natural gas to Btu = 1,050 Btu/scf, 95,500 Btu/gallon for LPG, and 138,700 Btu/gallon for fuel oil