

**RULE 429 STARTUP AND SHUTDOWN PROVISIONS FOR OXIDES
 OF NITROGEN**

(a) Purpose

The purpose of this rule is to provide an exemption from oxides of nitrogen (NOx) and carbon monoxide (CO) concentration limits during Startup and Shutdown and establish requirements during Startup and Shutdown to limit NOx and CO emissions.

(b) Applicability

(1) The provisions of this rule shall apply to equipment utilizing CEMS, ACEMS, or SCEMS that are subject to the following rules:

Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines;

Rule 1146 – Emissions of Oxides of Nitrogen from Industrial Institutional and Commercial Boilers, Steam Generators, and Process Heaters;

Rule 1147 – NOx Reductions from Miscellaneous Sources;

Rule 1147.1 – NOx Reductions from Aggregate Dryers; and

Rule 1147.2 – NOx Reductions from Metal Melting and Heating Furnaces.

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) AGGREGATE DRYER means equipment that is subject to Rule 1147.1, including any combustion equipment fired with gaseous fuel used to reduce or minimize the moisture content of aggregate material, including dryers, rotary dryers, fluidized bed dryers and rotary kilns, as defined in Rule 1147.1.

(2) ALTERNATIVE CONTINUOUS EMISSION MONITORING SYSTEM (ACEMS) means a system that uses process or control device operating parameter measurements and a conversion equation, a graph, or computer program to produce results in units of the applicable emission limitation or standard on a continuous monitoring basis, which is demonstrated to the Executive Officer as having the same precision, reliability, accessibility, and timeliness as the data provided by a certified CEMS or certified CEMS component in accordance with Rule 218.2 and Rule 218.3.

- (c) (3) BOILER or STEAM GENERATOR means equipment that is subject to Rule 1146, including any combustion equipment fired with solid fossil fuel, liquid and/or gaseous fuel (excluding landfill and digester gas) and used to produce steam or to heat water, and that is not used exclusively to produce electricity for sale, as defined in Rule 1146. Boiler or Steam Generator does not include any open heated tank, adsorption chiller unit, or waste heat recovery boiler that is used to recover sensible heat from the exhaust of a combustion turbine or any unfired waste heat recovery boiler that is used to recover sensible heat from the exhaust of any combustion equipment.
- (4) CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) means the total combined equipment and systems, including the sampling interface, analyzers, and data acquisition and handling system, required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent (as applicable).
- (5) FORMER RECLAIM FACILITY means a facility that was in the NOx Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX – Regional Clean Air Incentives Market (RECLAIM), that has received a final determination notification, and is no longer in the RECLAIM program, or any of its successors.
- (6) FURNACE means any metal melting furnace, metal heat treating furnace, metal heating furnace, or metal forging furnace as defined in Rule 1147.2.
- (7) MINIMUM OPERATING TEMPERATURE means the minimum operating temperature specified by the manufacturer, unless otherwise defined in the permit issued by the South Coast AQMD.
- (8) NON-RECLAIM FACILITY is a facility that was not in the NOx Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX – Regional Clean Air Incentives Market (RECLAIM), or any of its successors.
- (9) NOx POST-COMBUSTION CONTROL EQUIPMENT means air pollution control equipment which eliminates, reduces, or controls the issuance of NOx after combustion.
- (10) PROCESS HEATER means equipment that is subject to Rule 1146, including any combustion equipment fired with liquid and/or gaseous fuel (excluding landfill and digester gas) and/or solid fossil fuel and which transfers heat from combustion gases to process streams, as defined in Rule 1146. Process Heater does not include any kiln or oven used for drying,

- (c) curing, baking, cooking, calcining, or vitrifying; or any unfired waste heat recovery heater that is used to recover sensible heat from the exhaust of any combustion equipment.
- (11) **RATED HEAT INPUT** means the heat input as specified by the permit issued by the South Coast AQMD, or if not specified on the permit, as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input specified on the nameplate, the new maximum heat input shall be considered as the rated heat input. Heat input means the chemical heat released due to assumed complete combustion of fuel in a unit, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.
- (12) **REFRACTORY DRYOUT** means the initial application of heat under controlled rates to safely remove water from the refractory lining as part of the curing process prior to placing the unit in service.
- (13) **SCHEDULED STARTUP** means a planned startup that is specified by January 1 of each year.
- (14) **SEMI-CONTINUOUS EMISSION MONITORING SYSTEM (SCEMS)** means an emission monitoring system that is different from a regular CEMS on response time and data acquisition frequency. SCEMS continuously takes and records measurements (e.g. concentration, mass emission, flow rate) at a minimum of once in every fifteen (15) minutes. SCEMS includes but is not limited to gas chromatography, integrated sensitized tape analyzer, other sample integration based technologies, and time-shared CEMS.
- (15) **SHUTDOWN** means the time period that starts when a Unit begins reducing load in advance of terminating fuel flow and ends in a period of zero fuel flow.
- (16) **STABLE CONDITIONS** means that the fuel flow and fuel composition to a unit is consistent and allows for normal operations.
- (17) **STARTUP** means the time period beginning when a Unit begins combusting fuel after a period of zero fuel flow.
- (18) **STATIONARY GAS TURBINE** means equipment that is subject to Rule 1134, which includes duct burners and cogeneration, combined cycle, compressor, recuperative, and simple cycle gas turbines, as defined by Rule 1134.

- (c) (19) TUNNEL KILN means equipment that is subject to Rule 1147, including any gaseous fired equipment which transfers heat from combusted fuel to air contained in the unit with exhaust moisture content above 30 percent using a continuous moving conveyor or vehicle, as defined in Rule 1147.
- (20) UNIT means an Aggregate Dryer, Boiler, Furnace, Tunnel Kiln, Process Heater, or Stationary Gas Turbine.
- (d) Requirements
 - (1) An owner or operator of equipment is not subject to the applicable NOx and CO concentration limits and rolling average provisions in the rules specified in paragraph (b)(1) during Startup and Shutdown.
 - (2) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility that exceeds the applicable NOx or CO concentration limit in the rules specified in paragraph (b)(1) during Startup or Shutdown shall not exceed the duration limits in Table 1.

TABLE 1: STARTUP AND SHUTDOWN DURATION LIMITS

Unit Type	Not to Exceed per Startup or Shutdown
Boilers and Process Heaters > 40 MMBtu/hour Rated Heat Input	8 hours
Boilers and Process Heaters ≤ 40 MMBtu/hour Rated Heat Input	6 hours
Simple Cycle Gas Turbines	15 minutes
Cogeneration, Combined Cycle, Compressor and Recuperative Gas Turbines	2 hours
Furnaces	24 hours
Aggregate Dryers	60 minutes
Tunnel Kilns	2 hours

- (A) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility shall not allow Startup to last longer than the time that is necessary to reach Stable Conditions and to reach the Minimum Operating Temperature of the NOx Post-Combustion Control Equipment, if applicable. Once a Unit reaches Stable Conditions and the Minimum Operating Temperature of the

- (d) NOx Post-Combustion Control Equipment, if applicable, a Unit is subject to the applicable NOx and CO concentration limits in the rules specified in paragraph (b)(1).
- (3) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility shall not exceed the maximum number of Scheduled Startups specified in Table 2 per calendar year for each Unit.

TABLE 2: MAXIMUM NUMBER OF SCHEDULED STARTUPS

Unit Type	Maximum Number of Scheduled Startups per Calendar Year
Furnaces	35
All Other Units	10

- (4) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility shall take all reasonable and prudent steps to minimize emissions during Startup and Shutdown.
 - (5) An owner or operator of a Unit equipped with NOx Post-Combustion Control Equipment at a Former RECLAIM Facility or Non-RECLAIM Facility shall install and maintain in operation an annually calibrated temperature measuring device at the inlet of the NOx Post-Combustion Control Equipment.
 - (6) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility with NOx Post-Combustion Control Equipment shall operate NOx Post-Combustion Control Equipment, including the injection of any associated chemical reagent into the exhaust stream to control NOx, if the temperature of the gas to the inlet of the NOx Post-Combustion Control Equipment is greater than or equal to the Minimum Operating Temperature of the NOx Post-Combustion Control Equipment and the temperature of the exhaust gas is stable.
- (e) Notification
- An owner or operator of a Unit at a Former RECLAIM Facility or a Non-RECLAIM Facility shall notify the South Coast AQMD on or before January 1 each year of all Scheduled Startups for the upcoming calendar year by calling 1-800-CUT-SMOG, or by using other approved methods of notification as approved by the Executive Officer. The notification shall contain the date and time each

- (e) Scheduled Startup will begin, the anticipated duration of the Scheduled Startup, and the associated application number(s) of the Unit(s).
- (f) Recordkeeping
 - (1) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility shall maintain the following records on-site for 5 years:
 - (A) An operating log for Startup, Shutdown, and Refractory Dryout events which contains the date, time, duration, and reason for each event; and
 - (B) A list of Scheduled Startups.
 - (2) An owner or operator of a Unit equipped with NOx Post-Combustion Control Equipment at a Former RECLAIM Facility or Non-RECLAIM Facility shall maintain on-site documentation from the manufacturer of the Minimum Operating Temperature of the NOx Post-Combustion Control Equipment, unless the applicable permit issued by the South Coast AQMD specifies the required Minimum Operating Temperature of the NOx Post-Combustion Control Equipment.
- (g) Exemptions
 - (1) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility is exempt from paragraphs (d)(2) and (f)(1) when fuel is burned exclusively in a pilot light.
 - (2) An owner or operator of a Unit at a Former RECLAIM Facility or Non-RECLAIM Facility is exempt from paragraph (d)(2) during Refractory Dryout.