PROPOSED RULE 429.1 STARTUP AND SHUTDOWN PROVISIONS AT PETROLEUM REFINERIES AND RELATED OPERATIONS

(a) Purpose

The purpose of this rule is to provide an exemption from Rule 1109.1 oxides of nitrogen (NOx) and carbon monoxide (CO) emission limits and applicable rolling average provisions during startup, shutdown, commissioning, and certain maintenance events and establish requirements during startup, shutdown, and certain maintenance events to limit NOx and CO emissions.

(b) Applicability

The provisions of this rule shall apply to an owner or operator of units at petroleum refineries and facilities with related operations to petroleum refineries.

(c) Definitions

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

(1) CASTABLE REFRACTORY means refractory that is made by curing liquid material that has been poured into a mold.

(2) CATALYST MAINTENANCE means conditioning, repairing, or replacing the catalyst in NOx post-combustion control equipment associated with a unit which has a bypass stack or duct that exists prior to [*Date of Adoption*].

(3) CATALYST REGENERATION ACTIVITIES means the procedure where air or steam is used to remove coke from the catalyst of a unit or the conditioning of catalyst prior to the startup of a unit.

(4) COMMISSIONING means the first commissioning of a unit, the first commissioning of NOx post-combustion control equipment, or electrical testing associated with upgrades or repairs of cogeneration gas turbines as required by North American Electric Reliability Corporation standards.

(5) FACILITY as defined in Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations.

(6) FACILITY WITH RELATED OPERATIONS TO PETROLEUM REFINERIES as defined in Rule 1109.1.

(7) FORMER RECLAIM FACILITY as defined in Rule 1109.1.

(8) MINIMUM OPERATING TEMPERATURE means the minimum operating temperature specified by the manufacturer, unless otherwise defined in the South Coast AQMD Permit to Construct or Permit to Operate.

(9) NEW FACILITY means a facility that begins operation after [*Date of Adoption*].

(10) NOx POST-COMBUSTION CONTROL EQUIPMENT means air pollution control equipment which eliminates, reduces, or controls the issuance of NOx after combustion.

(11) OXIDES OF NITROGEN (NOx) EMISSIONS as defined in Rule 1109.1.

(12) PETROLEUM REFINERY as defined in Rule 1109.1.

(13) RATED HEAT INPUT CAPACITY as defined in Rule 1109.1.

(14) REFRACTORY DRYOUT means the initial application of heat under controlled rates to safely remove water from refractory lining as part of the curing process prior to placing the unit in service.

(15) SCHEDULED STARTUP means a planned startup that is specified by January 1 of each year.

(16) SHUTDOWN means the time period that begins when an operator reduces the load or heat input, and flue gas temperatures fall below the minimum operating temperature of the NOx post-combustion control equipment, if applicable, and which ends in a period of zero fuel flow or zero feedstock, or when combustion/circulation air flow ends if the unit does not use fuel for combustion.

(17) STABLE CONDITIONS means that the fuel flow, fuel composition, or feedstock to a unit, or the combustion/circulation air if the unit does not use fuel for combustion, is consistent and allows for normal operations.

(18) STARTUP means the time period that begins when a NOx emitting unit combusts fuel, after a period of zero fuel flow or zero feedstock, or when combustion/circulation air is introduced if the unit does not use fuel for combustion, and ends when the flue gas temperature reaches the minimum operating temperature of the NOx post-combustion control equipment and the unit reaches stable conditions, or when the time limit specified in Table 1 is reached, whichever is sooner.

(19) TUNING means adjusting, optimizing, rebalancing, or other similar operations to a gas turbine or an associated control device or otherwise as defined in a South Coast AQMD Permit to Construct or Permit to Operate. Tuning does not include normal operations to meet load fluctuations.

(20) UNIT means equipment that is subject to Rule 1109.1 which includes boilers, flares, fluid catalytic cracking units (FCCUs), gas turbines, petroleum coke calciners, process heaters, steam methane reformer heaters, sulfuric acid furnaces, sulfur recovery units/tail gas incinerators (SRU/TG incinerators), and vapor incinerators, as defined in Rule 1109.1, requiring a South Coast AQMD Permit to Operate and not required to comply with a NOx emission limit by other South Coast AQMD Regulation XI rules.

(21) WATER FREEING means the procedure of gradually heating a unit to vaporize and remove any accumulated or condensed water in the unit during startup.

(d) Requirements

(1) An owner or operator of a unit is not subject to the NOx and CO emission limits in Rule 1109.1 paragraphs (d)(3), (d)(4), Table 1, Table 2, Table 3, an approved B-Plan, or an approved B-Cap and the applicable rolling average provisions during the following:

(A) Startup or shutdown;

(B) Maintenance for units with a South Coast AQMD Permit to Operate condition before [*Date of Adoption*] which allows the use of a bypass to conduct maintenance and catalyst maintenance; and

(C) Tuning and commissioning, provided that a South Coast AQMD Permit to Construct or Permit to Operate specifies requirements during tuning and commissioning.

(2) The owner or operator of a unit at a former RECLAIM facility or a new facility shall not exceed the time allowances specified in Table 1 when emissions from the unit exceed the NOx or CO emission limits established in Rule 1109.1 during a startup or shutdown.

TABLE 1: STARTUP AND SHUTDOWN DURATION LIMITS

Unit Type	Time Allowance (Hours)
Boilers and Gas Turbines without NOx Post-Combustion Control Equipment, Flares, Vapor Incinerators without NOx Post-Combustion Control Equipment or Castable Refractory	2
Gas Turbines with NOx Post-Combustion Control Equipment	4
Vapor Incinerators with NOx Post-Combustion Control Equipment, Vapor Incinerators with Castable Refractory	20
Process Heaters without NOx Post-Combustion Control Equipment	24
Boilers and Process Heaters with NOx Post-Combustion Control Equipment, Steam Methane Reformer Heaters, Sulfuric Acid Furnaces	48
Steam Methane Reformers with Gas Turbine	60
FCCU Feed Pre-Heater	90
FCCUs, Petroleum Coke Calciners, SRU/TG Incinerators	120

(A) An owner or operator of a unit at a former RECLAIM facility or a new facility shall not allow a startup to last longer than the time to reach stable conditions and to reach the minimum operating temperature of the NOx post-combustion control equipment, if applicable.

(3) An owner or operator of a unit at a former RECLAIM facility or a new 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
Cogeneration Gas Turbines	10
Process Heaters on Delayed Coking Units	5
All Other Units	2

(4) An owner or operator of a unit at a former RECLAIM facility or a new facility shall take all reasonable and prudent steps to minimize emissions during startup, shutdown, maintenance for units with a South Coast AQMD Permit to Operate condition before [*Date of Adoption*] which allows the use of a bypass to conduct maintenance, catalyst maintenance, tuning, and commissioning.

(5) An owner or operator of a unit at a former RECLAIM facility or a new facility equipped with NOx post-combustion control equipment shall install and maintain 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 a new facility shall operate the NOx post-combustion control equipment, if applicable, including the injection of any associated chemical reagent into the exhaust stream to control NOx, if the temperature of the exhaust gas to the inlet of the NOx post-combustion control equipment is greater than or equal to the minimum operating temperature and the temperature is stable.

(7) An owner or operator of a unit equipped with NOx post-combustion control equipment at a former RECLAIM facility and which has a stack or duct that exists prior to [*Date of Adoption*] that allows for the exhaust gas to bypass the NOx post-combustion control equipment and that elects to use a bypass to conduct catalyst maintenance shall:

(A) Not use a bypass if the unit is scheduled to operate continuously for less than five years between planned maintenance shutdowns of the unit;

(B) Not use a bypass to conduct catalyst maintenance for more than 200 hours in a rolling three-year cycle;

(C) Operate the unit at 50% of the rated heat input capacity of the process unit or less when the NOx post-combustion control equipment is bypassed;

(D) Notify the South Coast AQMD by calling 1-800-CUT-SMOG at least 24 hours prior to bypassing the NOx post-combustion control equipment. This notification shall contain the date and estimated time and duration that the NOx post-combustion control equipment will be bypassed; and

(E) Continuously monitor NOx and CO emissions with a certified Continuous Emissions Monitoring System (CEMS) pursuant to Rule 218.2 – Continuous Emission Monitoring System: General Provisions and Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications or a contractor approved under the South Coast AQMD Laboratory Approval Program (LAP).

(e) Notification

(1) An owner or operator of a unit at a former RECLAIM facility or a new facility shall notify the South Coast AQMD by calling 1-800-CUT-SMOG at least 24 hours prior to a scheduled startup. The notification shall contain the date and time the scheduled startup will begin.

(f) Recordkeeping

(1) An owner or operator of a unit at a former RECLAIM facility or a new facility shall maintain the following records on-site for 5 years and make this information available to the South Coast AQMD upon request:

(A) An operating log for startup, shutdown, refractory dryout, catalyst maintenance, catalyst regeneration activities, tuning, commissioning, and water freeing events which contains the date, time, duration, and reason for each event;

(B) A list of scheduled startups;

(C) A list of planned maintenance shutdowns for the next 5 years for each unit equipped with a bypass stack or duct that exists prior to [*Date of Adoption*]; and

(D) NOx and CO emissions data collected pursuant to subparagraph (d)(7)(E).

(2) An owner or operator of a unit equipped with NOx post-combustion control equipment at a former RECLAIM facility or a new facility shall maintain on-site documentation from the manufacturer of the minimum operating temperature of the NOx post-combustion control equipment and make this information available to the South Coast AQMD upon request, unless the South

Coast AQMD Permit to Construct or Permit to Operate 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 a new facility shall be exempt from the requirements of paragraph (d)(2) during the following:

(A) Refractory dryout;

(B) Catalyst regeneration activities;

(C) Commissioning; and

(D) Water freeing for a maximum of 24 hours.

(2) An owner or operator of a unit equipped with a NOx post-combustion control equipment at a former RECLAIM facility or a new facility with a South Coast AQMD Permit to Operate condition before [*Date of Adoption*] which allows the use of a bypass to conduct maintenance shall be exempt from the requirements of paragraph (d)(7).

(3) An owner or operator of a unit at a former RECLAIM facility or a new facility is exempt from paragraphs (d)(2) and (f)(1) when fuel is burned exclusively in a pilot light.