(Adopted TBD)
Revision Date 7-21-21

PROPOSED RULE 1109.1. EMISSIONS OF OXIDES OF NITROGEN FROM PETROLEUM REFINERIES AND RELATED ~~INDUSTRIES~~OPERATIONS

(a) Purpose

The purpose of this rule is to reduce emissions of oxides of nitrogen (NOx), while ~~limiting~~ not increasing carbon monoxide (CO) emissions, from units at petroleum refineries and facilities with related operations to petroleum refineries.

(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~~, including asphalt plants, biofuel plants, hydrogen production plants, petroleum refineries, facilities that operate petroleum coke calciners, sulfuric acid plants, and sulfur recovery plants~~.

(c) Definitions

(1) ALTERNATIVE BARCT NOx LIMITS means the unit specific NOx limits that are selected by the owner or operator to achieve the Facility BARCT Emission Target in the aggregate in the B-Plan or B-Cap.

(~~1~~2) ASPHALT PLANT means a facility that processes crude oil into asphalt.~~, which is mixture of dark bituminous pitch with sand or gravel.~~

(3) B-CAP is a compliance plan that establishes a mass emission cap for all units subject to this rule that are equivalent, in aggregate, to the Facility BARCT Emission Targets.

(~~3~~4) B-PLAN is compliance plan that allows an owner or operator to select NOx concentration limits that are equivalent, in aggregate, to the NOx concentration limits specified in Table 1 and Table 2 for units to be included in the B-Plan.

(5) BARCT EQUIVALENT MASS EMISSIONS means the total mass emissions per facility calculated based on the Alternative BARCT NOx Limit and the 2017 Annual NOx Emissions, or another representative year as approved by the Executive Officer.

(~~2~~6) BIOFUEL PLANT means a facility that produces fuel by ~~refining~~ processing feedstocks including vegetable oil, animal fats, and tallow.

(~~3~~7) BOILER means any unit that is fired with gaseous fuel and used to produce steam. Boiler does not include carbon monoxide boilers ~~(CO boilers)~~.

(8) BREAKDOWN is as defined by Rule 430 – Breakdown Provision.

(9) CARBON MONOXIDE BOILER (CO BOILER) means a boiler with an integral waste heat recovery system used to oxidize CO-rich waste gases generated by the FCCU.

(~~4~~10) CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) ~~is~~ means the total combined unit and systems required to continuously determine air contaminants ~~and diluent gas concentrations~~ and/or mass emission rate of a source effluent (as applicable).

(~~7~~11) DUCT BURNER means a device in the heat recovery steam generator of a gas turbine that combusts fuel and adds heat energy to the turbine exhaust.

(~~9~~12) FACILITY BARCT EMISSION TARGET means the total mass emissions per facility calculated based on the applicable Table 1 emission limits or Table 2 near limits and the 2017 annual NOx emissions, or another representative year as approved by the Executive Officer.

(~~5~~13) FACILIT~~Y~~IES WITH RELATED OPERATIONS TO PETROLEUM REFINERIES includes asphalt plants, biofuel plants, hydrogen production plants, petroleum coke calcining facilities, sulfuric acid plants, and sulfur recovery plants.

(~~8~~14) FLARE means, for the purpose of this rule, a combustion device that oxidizes combustible gases or vapors from tank farms or liquid unloading, where the combustible gases or vapors being destroyed are routed directly into the burner without energy recovery, and it is not subject to Rule 1118 – Control of Emissions from Refinery Flares.

(~~6~~15) FLUIDIZED CATALYTIC CRACKING UNIT (FCCU) ~~is~~means a process unit in which petroleum intermediate ~~derivative~~ feedstock is charged and fractured into smaller molecules in the presence of a catalyst; or reacts with a contact material to improve feedstock quality for additional processing; and the catalyst or contact material is regenerated by burning off coke and other deposits. The unit includes, but is not limited to, the riser, reactor, regenerator, air blowers, spent catalyst, and all equipment for controlling air pollutant emissions and recovering heat including a CO boiler. ~~FCCU may include a CO boiler, which is a boiler with an integral waste heat recovery system used to oxidize CO-rich waste gases generated by the FCCU.~~

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(16) FORMER RECLAIM FACILITY means a facility, or any of its successors, that was in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX, that has received a final determination notification, and is no longer in the RECLAIM program.

(~~7~~17) GAS TURBINE ~~is~~ means an internal-combustion engine in which the expanding combustion gases drive a turbine which then drives a generator to produce electricity. Gas Turbines can be equipped with a cogeneration gas turbine that recovers heat from the gas turbine exhaust and ~~. Gas turbine can be equipped with or without a~~ can include a duct burner~~, which is a device located in the heat recovery steam generator of a gas turbine that combusts fuel and adds heat energy to the turbine exhaust to increase the output of the heat recovery, and fired with gaseous fuel~~.

~~(8) GROUND-LEVEL FLARE means a combustion device that oxidizes combustible gases or vapors, where the combustible gases or vapors being destroyed are routed directly into the burner without energy recovery.~~

(~~9~~18) HEAT INPUT means the heat of combustion released by burning a fuel source, using the higher heating value of the fuel. This does not include the enthalpy of incoming combustion air.

(~~10~~19) HIGHER HEATING VALUE (HHV) means the total heat liberated per mass of fuel combusted expressed as British thermal units (Btu) per pound or cubic feet, when fuel and dry air at standard conditions undergo complete combustion and all resulting products are brought to their standard states at standard conditions.

(~~11~~20) HYDROGEN PRODUCTION PLANT is a facility that produces hydrogen by steam methane reforming, partial oxidation of hydrocarbons, or other processes which primarily supplies hydrogen for petroleum refinery processes.

(21) I-PLAN is an implementation plan that includes an alternative implementation schedule to paragraph (e)(1) and emission reduction targets for facilities with six or more units.

(22) I-PLAN PERCENT REDUCTION TARGET is the percentage of total NOx emission reductions, defined as the difference between the Facility Baseline Mass Emission (Table E-2) and the Facility BARCT Mass Emissions Target (Table E-3), cumulatively achieved at each phase of an I-Plan.

~~(12) MALFUNCTION means any sudden, infrequent, and not reasonably preventable failure of air pollution control, monitoring equipment, or a~~

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~~process to operate in a normal manner, which causes, or has the potential to cause, the emission limitations to be exceeded. Breakdowns subject to Rule 430 – Breakdown Provisions or Rule 2004 – Requirements are not Malfunctions.~~

(23) NATURAL GAS is a mixture of gaseous hydrocarbons, with at least 80 percent methane (by volume), and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the California Public Utilities Commission.

(~~13~~24) OXIDES OF NITROGEN (NOx) EMISSIONS means the sum of nitric oxide and nitrogen dioxide emitted in the flue gas, calculated, and expressed as nitrogen dioxide.

(25) PARTS PER MILLION BY VOLUME (ppmv) means, for the purpose of this rule, milligram of pollutant per liter of dry combustion exhaust gas at standard conditions.

(~~14~~26) PETROLEUM COKE CALCINER is process equipment used to drive off contaminants from green petroleum coke by bringing the coke into contact with heated gas for the purpose of thermal processing. The unit includes, but is not limited to, a kiln, which is a refractory lined cylindrical device that that rotates on its own axis, and a pyroscrubber, which combusts large carbon particles in a stream of waste gas.

(~~15~~27) PETROLEUM REFINERY ~~is~~means a facility identified by the North American Industry Classification System Code 324110, Petroleum Refineries.

(~~16~~28) PROCESS HEATER means any equipment fired with gaseous and/or liquid fuels which transfers heat from combusted gases to water or process streams.

(~~17~~29) RATED HEAT INPUT CAPACITY means the maximum heat input capacity, which is the total heat of combustion released by burning a fuel source, as specified by the permit issued by the Executive Officer~~, 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 capacity specified on the nameplate, the new maximum heat input shall be considered as the Rated Heat Input Capacity.~~

(30) REFINERY FUEL GAS is any combustible mixture of gaseous hydrocarbons which is generated at a petroleum refinery and which is

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combusted for heat generation. Fuel gas includes natural gas when the natural gas is combined and combusted with a gas generated at a refinery at a maximum natural gas proportion of less than 50 percent of the fuel mixture's higher heating value.

~~(18) ROLLING AVERAGE means the average of a 15-minute subset of CEMS concentrations which is modified by shifting the subset forward, excluding the first number value of the series and including the next value in the subset.~~

(31) RULE 1109.1 EMISSION LIMITS mean, for the purpose of this rule, the NOx and CO emission limits and applicable percent O_2 correction listed in paragraphs (d)(2), (d)(3), (d)(13), Table 1, Table 2, Table 3, an approved B-Plan, or an approved B-Cap.

(~~19~~32) SHUTDOWN is as defined by Rule 429.1 – Start-up and Shutdown of Refinery Equipment.~~the time period that begins when an operator with the intent to shut down a unit, reduces load and for flue gas temperatures to fall below the minimum operating temperature of the emission control equipment, and which ends in a period of zero fuel flowunless otherwise defined in the South Coast AQMD permit to operate~~.

(33) STANDARD CONDITIONS for a former RECLAIM facility are defined as one atmosphere of pressure and a temperature of 60-degree Fahrenheit.

(~~21~~34) START-UP is as defined by Rule 429.1.~~the time period that begins when a NOx emitting unit combusts fuel after a period of zero fuel flow and which ends when the flue gas temperature reaches the minimal operating temperature of the emission control equipment. Start-uUp does not include the time used to dry refractory if a separate unit is used for the drying process.~~

(~~22~~35) STEAM METHANE REFORMER (SMR) HEATER means any equipment that is fired with gaseous fuels and transfers heat from the combusted fuel to process tubes that contain catalyst, which converts light hydrocarbons combined with steam to hydrogen. ~~Light hydrocarbons include, but is not limited to, methane, ethane, propane, or a mixture of those hydrocarbons.~~

(~~23~~36) SULFURIC ACID FURNACE means a unit fueled with gaseous fuels and/or hydrogen sulfide gas used to convert elemental sulfur and/or decompose spent sulfuric acid, ~~which is used sulfuric acid which contains multiple impurities, and is partially neutralized.~~ into sulfur dioxide (SO_2) gas.

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(~~24~~37) SULFURIC ACID PLANT is a~~ny facility or~~ unit, within a petroleum refinery or a separate facility, engaged in the production of commercial grades of sulfuric acid, or regeneration of spent sulfuric acid into commercial grades of sulfuric acid ~~at a concentration ranging from 93 percent to 99.2 percent~~.

(~~25~~38) SULFUR RECOVERY PLANT is a ~~facility or processing~~ unit within a petroleum refinery or a separate facility that recovers elemental sulfur or sulfur compounds from sour or acid gases and/or sour water generated by petroleum refineries.

(~~26~~39) SULFUR RECOVERY UNITS/TAIL GAS (SRU/TG) INCINERATORS is the thermal or catalytic oxidizer where the residual hydrogen sulfide in the gas exi~~s~~ting the sulfur recovery plant (tail gas) is oxidized to SO_2 before being emitt~~ing~~ed to the atmosphere.

(~~27~~40) UNIT means, for the purpose of this rule, boilers, flares, fluid catalytic cracking units, gas turbines, ~~ground-level flares,~~ petroleum coke calciners, process heaters, steam methane reformer heaters, sulfuric acid furnaces, ~~sulfur recovery units/tail gas incinerators~~SRU/TG incinerators, and vapor incinerators requiring a South Coast AQMD permit and not specifically required to comply with a NOx emission limit by other South Coast AQMD Regulation XI rules.

(41) UNITS WITH COMBINED STACKS means two or more units where the flue gas from these units are combined in one or more common stack(s).

(~~28~~42) VAPOR INCINERATOR means a thermal oxidizer, afterburner, or other device for burning and destroying air toxics, ~~VOCs~~ volatile organic compounds, or other combustible vapors in gas or aerosol form in gas streams.

(d) Emission Limits

(1) ~~On and before [*COMPLIANCE DATE OR COMPLIANCE PLAN*], a~~An owner or operator shall not operate a unit~~, excluding start-up and shutdown periods as specified pursuant to subdivision (e), unless the unit meets~~ that exceeds the applicable NOx and CO emission limits based on the applicable averaging times specified in Table 1 and the compliance schedule pursuant to subdivision (e). ~~as demonstrated with CEMS pursuant to subdivision (f) or a source test pursuant to subdivision (g)~~

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TABLE 1: NOx AND CO EMISSION LIMITS
PARTS PER MILLION BY VOLUME (ppmv)

BOILERS				
Rated Heat Input Capacity (MMBtu/hour)	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
<40	40	400	2 hours	[*6 MONTHS AFTER DATE OF RULE ADOPTION*]
	5	400	2 hours	Pursuant to paragraph (j)(1)
≥40	2	400	8 hours	TBD
GROUND-LEVEL FLARES				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
	3% O_2			
Ground-Level Flares	20	400	3 hours	TBD
FLUIDIZED CATALYTIC CRACKING UNITS				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
	0% O_2			
FCCU	2	500	365 days	TBD
	5	500	7 days	
GAS TURBINES				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
	15% O_2			
Gas Turbine	2	130	8 hours	TBD

PETROLEUM COKE CALCINERS				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
	3% O_2			
Petroleum Coke Calciner	5	N/A	365 days	TBD
	10		7 days	
PROCESS HEATERS				
Rated Heat Input Capacity (MMBtu/hour)	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
	3% O_2			
<20	40	400	2 hours	[*6 MONTHS AFTER DATE OF RULE ADOPTION*]
	9	400		Pursuant to paragraph (j)(2)
20 – <40	30	400	2 hours	TBD
	9	400		Pursuant to paragraph (j)(2)
≥40	2	400	8 hours	TBD
SULFUR RECOVERY UNITS/TAIL GAS INCINERATORS				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	Compliance Date
	3% O_2			
SRU/TG Incinerators	30	400	8 hours	TBD

~~STEAM METHANE REFORMER HEATERS~~				
~~Equipment Category~~	~~NOx (ppmv)~~	~~CO (ppmv)~~	~~Averaging Time (Rolling Average)~~	~~Compliance Date~~
	~~3% O_2~~			
~~SMR Heater~~	~~5~~	~~400~~	~~8 hours~~	~~TBD~~
~~STEAM METHANE REFORMER HEATERS WITH GAS TURBINE~~				
~~Equipment Category~~	~~NOx (ppmv)~~	~~CO (ppmv)~~	~~Averaging Time (Rolling Average)~~	~~Compliance Date~~
	~~3% O_2~~			
~~SMR Heater with Gas Turbine~~	~~5~~	~~130~~	~~8 hours~~	~~TBD~~
~~SULFURIC ACID FURNACES~~				
	~~NOx (ppmv)~~	~~CO (ppmv)~~	~~Averaging Time (Rolling Average)~~	~~Compliance Date~~
	~~3% O_2~~			
~~Furnace~~	~~30~~	~~400~~	~~365 day~~	~~[*6 MONTHS AFTER DATE OF RULE ADOPTION*]~~
~~VAPOR INCINERATORS~~				
	~~NOx (ppmv)~~	~~CO (ppmv)~~	~~Averaging Time (Rolling Average)~~	~~Compliance date~~
	~~3% O_2~~			
~~Vapor Incinerators~~	~~20~~	~~400~~	~~3 hours~~	~~TBD~~

Unit	NOx (ppmv)	CO (ppmv)	Percent O_2	Rolling Averaging Time
Boilers <40 MMBtu/hour	Pursuant to paragraph (d)(2)	400	3	2-hour
Boilers ≥40 MMBtu/hour	5	400	3	24-hour
Flares	20	400	3	2-hour
FCCU	2	500	3	365-day
	5			7-day
Gas Turbines fueled with Natural Gas	2	130	15	24-hour
Gas Turbines fueled with Refinery Fuel Gas	3	130	15	24-hour
Petroleum Coke Calciner	5	2,000	3	365-day
	10			7-day
Process Heaters <40 MMBtu/hour	Pursuant to paragraph (d)(3)	400	3	2-hour
Process Heaters ≥40 MMBtu/hour	5	400	3	24-hour
SRU/TG Incinerators	30	400	3	24-hour
SMR Heaters	5	400	3	24-hour
SMR Heaters with Gas Turbine	5	130	15	24-hour
Sulfuric Acid Furnaces	30	400	3	365-day
Vapor Incinerators	30	400	3	2-hour

(2) Boilers <40 MMBtu/hour

An owner or operator of a boiler with a rated heat input capacity less than 40 MMBtu/hour shall:

(A) Not operate a boiler unless it complies with 40 ppmv NOx and 400 ppmv CO at three percent O_2 based on the applicable averaging time

in Table 1 as established in a Permit to Operate issued on or before January 1, 2023; and

(B) No later than six months after an owner or operator replaces either 50 percent or more of the unit's burners after [*DATE OF RULE ADOPTION*] or 50 percent or more of the heat input after [*DATE OF RULE ADOPTION*] shall:

(i) Submit a permit application to meet a NOx limit of 5 ppmv and 400 ppmv CO at three percent O_2 based on the applicable averaging time in Table 1; and

(ii) Meet the emission limits pursuant to clause (d)(2)(B)(i) no later than 36 months after a Permit to Construct is issued.

(3) Process Heaters <40 MMBtu/hour

An owner or operator of a process heater with a rated heat input capacity less than 40 MMBtu/hour shall:

(A) Not operate a heater that exceeds 40 ppmv NOx and 400 ppmv CO at three percent O_2 based on the applicable averaging time in Table 1 as established in the Permit to Operate issued on or before January 1, 2023; and

(B) Effective [*TEN YEARS AFTER RULE ADOPTION*], no later than six months after an owner or operator replaces either 50 percent or more of the unit's burners after [*TEN YEAS AFTER RULE ADOPTION*] or 50 percent or more of the heat input after [*TEN YEAS AFTER RULE ADOPTION*] shall:

(i) Submit a permit application to meet a NOx limit of 9 ppmv and 400 ppmv CO at three percent O_2 based on the applicable averaging time in Table 1; and

(ii) Meet the emission limits pursuant to clause (d)(2)(B)(i) no later than 36 months after a Permit to Construct is issued.

(4) Gas Turbines

Notwithstanding the NOx limit in Table 1, an owner or operator shall not operate a gas turbine that exceeds 5 ppmv NOx corrected to 15 percent O_2 (dry basis) based on a 24-hour rolling average during natural gas curtailment periods, where there is a shortage in the supply of pipeline natural gas due solely to supply limitations or restrictions in distribution pipelines by the utility supplying the gas, and not due to the cost of natural gas, provided:

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(A) A daily gas turbine operating record is maintained that includes the actual start-up and stop time, total hours of operation, and type (liquid or gas) and quantity of fuel used; and

(B) This information is available to District staff upon request for at least two years from the date of entry.

(5) An owner or operator of a CO boiler shall meet the Rule 1109.1 Emission Limits for the associated FCCU.

(6) NOx Emission Limits Near Table 1 NOx Limits

An owner or operator is not required to meet the NOx and CO limits in Table 1 provided:

(A) A Permit to Operate limits NOx and CO emission at or below the levels specified in Table 2 based on the applicable percent O_2 and averaging times;

(B) For process heaters larger than 110 MMBtu/hour, the Unit Share calculated pursuant to section B-2.3 is less than 20 tons per year; and

(C) The Permit to Operate with the conditions specified in subparagraph (d)(6)(A) is issued on or before January 1, 2023.

[DEVELOPING ADDITIONAL NEAR LIMIT CRITERIA]

TABLE 2: NOx EMISSION LIMITS NEAR TABLE 1 NOx LIMITS

Unit	NOx (ppmv)	CO (ppmv)	Percent O_2	Rolling Averaging Time
FCCU	8	500	3	365-day
	16			7-day
Gas Turbines fueled with Natural Gas	2.5	130	15	24-hour
Process Heaters 40 – 110 MMBtu/hour	18	400	3	24-hour
Process Heaters >110 MMBtu/hour	22	400	3	24-hour
SMR Heaters	7.5	400	3	24-hour
Vapor Incinerators	40	400	3	2-hour

(~~2~~7) ~~Notwithstanding the emission limits and averaging times in Table 1, a~~An owner or operator of units with combined stacks ~~and CEMS~~ will be subject to the most stringent Table 1 or Table 2 unit NOx and CO limit~~s~~ ~~and~~ with corresponding averaging time ~~pursuant to Table 1~~, except if the combined units are a SMR heater and a boiler, in which case the NOx limit for the SMR heater will apply.

(8) An owner or operator with a CO emission limit in a Permit to Operate that was established before [*DATE OF RULE ADOPTION*], may alternatively meet a CO emission limit in the Permit to Operate in lieu of the CO emission limit specified in Table 1 or Table 2.

(9) Notwithstanding the averaging times in Table 1 and Table 2, an owner or operator of a unit that operates with CEMS shall be allowed a 365-day rolling average for the first 18 months complying with the applicable Rule 1109.1 Emission Limits.

(10) An owner or operator of a unit subject to a 365-day rolling average shall comply with the Rule 1109.1 Emission Limits within 14 months from the date the Permit to Operate was issued.

(11) An owner or operator of a unit that operates with CEMS shall calculate the rolling averages pursuant to Attachment A of this rule.

(12) Interim Emission Limits

An owner or operator of a former RECLAIM facility shall not operate a unit that exceeds the applicable NOx and CO emission limits based on the applicable averaging times specified in Table 3 until that unit is required to meet another Rule 1109.1 Emission Limits pursuant to paragraph (e)(1) or an approved I-Plan.

TABLE 3: INTERIM NOx AND CO EMISSION LIMITS

Unit	NOx (ppmv)	CO (ppmv)	Percent O2	Rolling Averaging Time[1]
Boilers and Process Heaters <40 MMBtu/hour	40	400	3	365-day
Boilers and Process Heaters ≥40 MMBtu/hour	Pursuant to paragraph (d)(13)	400	3	365-day

Unit	NOx (ppmv)	CO (ppmv)	Percent O2	Rolling Averaging Time[1]
FCCU	40	500	3	365-day
Gas Turbines fueled with Natural Gas or Refinery Fuel Gas	20	130	15	365-day
Petroleum Coke Calciner	70	2,000	3	365-day
SRU/TG Incinerators	100	400	3	365-day
SMR Heaters	20[1]	400	3	365-day
	60[2]			365-day
SMR Heaters with Gas Turbine	5	130	15	365-day
Sulfuric Acid Furnaces	30	400	3	365-day
Vapor Incinerators	105	400	3	365-day

[1] SMR Heaters with post-combustion air pollution control equipment installed before [DATE OF RULE ADOPTION].

[2] SMR Heaters without post-combustion air pollution control equipment installed before [DATE OF RULE ADOPTION].

(13) An owner or operator of a Former RECLAIM Facility shall comply with an interim facility-wide NOx emission rate of 0.03 pound per million BTU of heat input for all the boilers and process heaters ≥40 MMBtu/hr based on the maximum rated capacity until all boilers and process heaters ≥40 MMBtu/hr are required to meet another NOx Rule 1109.1 Emission Limits pursuant to paragraph (e)(1) or an approved I-Plan.

~~(e) Start-up, Shutdown, and Malfunction~~

~~(1) An owner or operator of a unit with post-combustion controls that requires a minimum temperature to reduce NOx emissions is exempt from the applicable NOx and CO emission limits in paragraph (d)(1) during start-up, shutdown, or malfunction of a unitonly for the time periods specified in Table 2 which isor a lesser time if specified in an South Coast AQMD permitoccurs.~~

TABLE 2: START-UP, SHUTDOWN, MALFUNCTION ALLOWANCES

Unit	Not to Exceed per Start-up, Shutdown, or Malfunction (hours)
Gas Turbines	2
Sulfuric Acid Furnace	24
Boilers, Process Heaters, or Steam Methane Reformer Heaters	48
Steam Methane Reformer with Gas Turbine	60
FCCUs, Petroleum Coke Calciner, or SRU/TG Incinerators	120

(2) An owner or operator of a unit complying with the emission limits in subdivision (d) by using the start-up and shutdown allowances in Table 2 shall:

(A) Submit the timetable of the estimated dates for the scheduled startup and shutdown events for that year to the Executive Officer by January 1 of each year; and

(B) Not exceed XX scheduled start-up and shutdown events per year.

(3) An owner or operator of a unit with a start-up, shutdown, or malfunction event that exceeds the NOx and CO emissions limit specified in paragraph (d)(1) shall:

(A) Implement good air pollution control practices to minimize NOx emissions during periods of start-up, shutdown, and malfunction;

(B) Notify the Executive Officer within 24 hours following the shutdown, startup or malfunction by calling 1-800-CUT-SMOG (1-800-288-7664); and

(C) Submit a report, in a format approved by the Executive Officer, at the end of each month providing the start-up, shutdown, and malfunction events with the following information:

(i) Dates, times, and duration of the startup, shutdown, and malfunction event(s); and

(ii) Any other process variables that are appropriate as determined by the Executive Officer.

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(14) An owner or operator of a former RECLAIM facility is not subject to the Rule 1109.1 Emission Limits during start-up or shutdown pursuant to Rule 429.1 and during breakdown events pursuant to Rule 430 and shall exclude those measurements when calculating the applicable rolling average NOx and CO emissions.

(15) An owner or operator of a former RECLAIM facility for a unit with a CEMS shall exclude invalid CEMS data pursuant to Rule 218.2 – Continuous Emission Monitoring System: General Provisions and Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications.

(e) Compliance Schedule

(1) An owner or operator of a unit that is required to meet the NOx and CO concentration limits specified in Table 1, shall:

(A) Submit a permit application by July 1, 2023 for each unit that does not meet the NOx and CO concentration limits specified in Table 1; and

(B) Meet the emission limits specified in the permit no later than 36 months after a Permit to Construct is issued.

(2) I-Plan Submittal

An owner or operator of a six or more units that elects to meet the NOx and CO emission limits specified in Table 1, an approved B-Plan, or an approved B-Cap using an alternative implementation schedule specified in Table 4, shall submit an I-Plan to the Executive Officer for approval on or before July 1, 2022 that:

(A) Identifies all the units subject to the rule and the turnaround schedules for each unit;

(B) Identifies the device identification number and description of each unit that will cumulatively meet the I-Plan Percent Reduction Target listed in Table 4;

(C) Identifies the unit(s) that meets or exceeds the I-Plan Percent Reduction Targets for each Phase in Table 4 pursuant to the I-Plan Calculation under Section (B-2) of Attachment B;

(D) Specifies the choice of I-Plan Option 1 or I-Plan Option 2;

(E) Meets the I-Plan Percent Reduction Targets pursuant to the Implementation Schedule in Table 4.

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TABLE 4: I-PLAN PERCENT REDUCTION TARGETS AND SCHEDULE[1]

		Phase I	Phase II	Phase III
I-Plan Option 1	**Percent Reduction Targets**	**70**	**100**	**N/A**
	Permit Application Submittal Date	July 1, 2023	January 1, 2027	N/A
	Compliance Date	No later than 36 months after a Permit to Construct is issued	No later than 36 months after a Permit to Construct is issued	NA
I-Plan Option 2	**Percent Reduction Targets**	**60**	**80**	**100**
	Permit Application Submittal Date	July 1, 2023	January 1, 2025	January 1, 2028
	Compliance Date	No later than 36 months after a Permit to Construct is issued	No later than 36 months after a Permit to Construct is issued	No later than 36 months after a Permit to Construct is issued

[1] Percent reduction targets represent refinery-wide emission reductions including refineries under common ownership pursuant to Attachment E.

(3) I-Plan Review Process

(A) The Executive Officer shall notify the owner or operator in writing whether the I-Plan is approved or disapproved. Determination of approval status for the I-Plan shall be based on, at a minimum, whether:

(i) The I-Plan contains information required under subparagraph (e)(2)(A) through (e)(2)(E);

(ii) The owner or operator is complying with the applicable Table 1 or Table 2 emission limits or has an approved B-Plan or an approved B-Cap; and

(iii) The I-Plan meets the percent reductions specified in Table 4 based on the NOx limits in Table 1, an approved B-Plan, or an approved B-Cap.

(B) If the Executive Officer disapproves the I-Plan, the owner or operator shall correct any deficiencies and re-submit the I-Plan for approval within 30 days.

(C) If the Executive Officer disapproves the I-Plan a second time, the owner or operator shall comply with the compliance schedule pursuant to paragraph (e)(1).

(4) Time Extensions and Other Provisions

(A) An owner or operator of a unit with an approved I-Plan may request a one twelve--month extension for each unit from the Compliance Date in Table 4. The request shall be made in writing no later than 90 days prior to the implementation deadline. The time extension request shall include:

(i) The phase and unit needing a time extension;

(ii) The reason(s) a time extension is requested; and

(iii) The length of time requested.

(B) The Executive Officer shall review the request for the time extension and approve the request within 60 days of receipt. The request shall be approved if the following criteria are met:

(i) The owner or operator provides sufficient details justifying the basis for the requested extension and its duration; and

(ii) The owner or operator demonstrates that there are specific circumstances that necessitate the additional time requested to comply with scheduled deadlines. Such a demonstration may include, but is not limited to, detailed schedules, engineering designs, construction plans, permit applications, purchase orders, and contractor delays that demonstrate the timeline in the approved I-Plan cannot be met.

(C) If the Executive Officer notifies the owner or operator of a disapproval of a time extension request, the owner or operator shall meet the emission limits in Table 1, an approved B-Plan, or an approved B-Cap within 60 calendar days after receiving notification of disapproval of the time extension request.

(5) An owner or operator of a unit complying with Table 2 emission limits that replaces existing post-combustion air pollution control equipment or burners, shall submit a permit application to meet the applicable Table 1 NOx and CO emission limits and averaging times if:

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(A) Existing post-combustion air pollution control equipment for a FCCU, gas turbine fueled with natural gas, or process heater >40 MMBtu/hr, or SMR Heater is replaced such that the fixed capital cost of the new components for the post-combustion air pollution control equipment exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; or

(B) 50 percent or more of the vapor incinerators' burners are replaced after [*DATE OF RULE ADOPTION*] or 50 percent or more of the rated heat input capacity is replaced after [*DATE OF RULE ADOPTION*]

(6) An owner or operator of a unit exempt from the Table 1 emission limits pursuant to paragraphs (m)(2), (m)(5), (m)(6), (m)(7), (m)(8) or (m)(9) that exceeds the applicable exemptions limitations shall:

(A) Submit a permit application to comply with the Table 1 emission limit within six months of the exceedance; and

(B) Meet the emission limits specified on Table 1 no later than 36 months after a Permit to Construct is issued.

(7) An owner or operator of an approved I-Plan shall submit permit applications and meet NOx limits specified in either Table 1, Table 2, an approved B-Plan, or an approved B-Cap.

(8) An owner or operator with an approved B--Plan or an approved B-Cap that elects to permanently shut down a unit to meet the I-Plan Percent Reduction Target or meet the Facility BARCT Emission Target for an approved B-Cap shall:

(A) Surrender the South Coast AQMD Permit to Operate for the unit that is shutdown; and

(B) Disconnect and blind the fuel line(s) for the unit that is shutdown.

(f) B-Plan Requirements

(1) B-Plan Submittal

An owner or operator of a facility with six or more units that elects to meet the NOx emission limits pursuant to an approved B-Plan in lieu of Table 1 NOx concentration limits shall submit a B-Plan no later than July 1, 2022 that:

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(A) Identifies the device identification number, description, and Alternative BARCT NOx limits for each unit that will cumulatively meet the Facility BARCT Emission Target;

(B) Includes the NOx concentration limits for each of the units identified in subparagraph (f)(1)(A);

(C) Demonstrates the Equivalent Mass Emissions are equal to or less than the Facility BARCT Emission Target pursuant to Attachment C; and

(D) Demonstrates the sum of the Alternative Unit Share calculated pursuant to section B-2.4 meets or exceeds the I-Plan Percent Reduction Targets for each Phase in Table 4.

(2) B-Plan Review Process

(A) The Executive Officer shall notify the owner or operator in writing whether the B-Plan is approved or disapproved. Determination of approval status for the B-Plan shall be based on, at a minimum, whether:

(i) The B-Plan contains information required under subparagraph (f)(1)(A) through (f)(1)(D);

(ii) The Equivalent Mass Emissions do not exceed the Facility BARCT Emission Target as calculated pursuant to Attachment C.

(B) If the Executive Officer disapproves the B-Plan, the owner or operator shall correct any deficiencies and re-submit the B- Plan for approval within 30 days.

(C) If the Executive Officer disapproves the B-Plan a second time, the owner or operator shall comply with the emission limits in Table 1 or Table 2.

(3) An owner or operator of units in the approved B-Plan shall have an enforceable South Coast AQMD permit condition that limits:

(A) NOx to the Alternative BARCT NOx limits for each unit in the B-Plan based on the percent O_2 and averaging time in Table 1; and

(B) CO to the Table 1 CO limits for each unit in the B-Plan based on the applicable percent O_2 and averaging time in Table 1.

(4) An owner or operator shall not operate a unit that exceeds the applicable NOx and CO emission limits based on the applicable averaging times specified in the approved B-Plan.

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(g) B-Cap Requirements

(1) B-Cap Submittal

An owner or operator of a facility with six or more units that elects to meet the NOx and CO emission limits pursuant to an approved B-Cap in lieu of Table 1 NOx concentration limits shall submit a B-Cap no later than July 1, 2022 that: [DEVELOPING ELEMENTS TO BE INCLUDED IN B-CAP]

(2) B-Cap Maximum Alternative BARCT NOx limits

Each unit in the B-Cap shall not exceed the Alternative NOx Limits in Table 5.

TABLE 5: Maximum Alternative BARCT NOx Limits

Unit	Alternative NOx Limit (ppmv)	Percent Oxygen
Boilers and Process Heaters <40 MMBtu/hour	TBD	3
Boilers and Process Heaters ≥40 MMBtu/hour	TBD	3
FCCU	TBD	3
Gas Turbines	TBD	15
Petroleum Coke Calciner	TBD	3
SRU/TG Incinerator	TBD	3
Vapor Incinerator	TBD	3

(3) B-Cap Review Process

(A) The Executive Officer shall notify the owner or operator in writing whether the B-Cap is approved or disapproved. Determination of approval status for the B-Cap shall be based on, at a minimum, whether:

(i) The B-Cap contains information required under paragraph (g)(1);

(ii) The NOx concentration limits for each unit in the B-Cap do not exceed the Alternative NOx Limits in Table 5; and

(iii) The Equivalent Mass Emissions do not exceed the Facility BARCT Emission Target as calculated pursuant to Attachment D.

(B) If the Executive Officer disapproves the B-Cap, the owner or operator shall correct any deficiencies and re-submit the B-Cap for approval within 30 days.

(C) If the Executive Officer disapproves the B-Cap a second time, the owner or operator shall comply with the emission limits in Table 1 or Table 2.

(4) The units in the approved B-Cap shall have an enforceable South Coast AQMD permit condition that limits:

(A) NOx to the Alternative BARCT NOx limits for each unit in the B-Cap based on the percent O_2 and averaging time in Table 1; and

(B) CO to the Table 1 CO limits for each unit in the B-Plan based on the applicable percent O2 and averaging time in Table 1.

(5) An owner or operator shall not operate a unit that exceeds the applicable NOx and CO emission limits based on the applicable averaging times specified in the approved B-Cap and shall not exceed the Facility BARCT Emission Target.

(6) New Units

An owner or operator with an approved B-Cap that adds a new unit to their facility shall demonstrate prior to approval of a Permit to Construct for a new unit that the Equivalent Mass Emissions with the addition of a new unit do not exceed the Facility BARCT Emission Target as calculated pursuant to Attachment D unless: [DEVELOPING CRITERIA]

(7) Missing Data Procedures for a Facility Complying with a B-Cap

An owner or operator of a unit with a non-operational CEMS, which is a CEMS that is not collecting data, shall:

(A) Calculate missing data using the average of the recorded emissions for the hour immediately before the missing data period and the hour immediately after the missing data period, if the missing data period is less than or equal to 8 continuous hours; or

(B) Calculate missing data using the maximum hourly emissions recorded for the previous 30 days, commencing on the day immediately prior to the day the missing data occurred, if the missing data period is more than 8 continuous hours.

(h) Additional Provisions for Compliance Plans

(1) Modifications to B-Plan and B-Cap

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An owner or operator complying with an approved B-Plan or an approved B-Cap can adjust the Alternative NOx Limits provided:

(A) A revised plan is submitted to the Executive Officer no later than 90 days before the Permit Application Submittal Deadline in Table 4;

(B) The Targets in Table 4 are met for I-Plan;

(C) The Facility BARCT Emission Targets in Table E-3 are met for B-Plan and B-Cap; and

(D) The revised plan is approved by the Executive Officer pursuant to subparagraph (f)(2)(A) or (g)(3)(A).

(2) Turnaround Provision

An owner or operator complying with an approved I-Plan can request a time extension from the Compliance Date in Table 4 if the issuance of a permit to construct is issued more than 24 months after the date the permit application is deemed complete provided:

(A) The permit to construct is issued after the units scheduled turnaround; and

(B) The subsequent scheduled turnaround for that unit does not occur until 12 months after the Compliance Date in Table 4 pursuant to the time extension pursuant to paragraph (e)(4).

(3) Plan Fees

The review and approval of the I-Plan, B-Plan, and B-Cap pursuant to paragraphs (e)(3), (e)(4), (f)(2), (g)(3), and (h)(1) shall be subject to applicable plan fees as specified in Rule 306 – Plan Fees.

(~~f~~i) CEMS Requirements

(1) An owner or operator of a former RECLAIM facility with ~~of~~ a unit with a rated heat input capacity of 40 MMBtu/hour or greater ~~a boiler, with a rated heat input capacity greater than 40 MMBtu/hour; gas turbine;, FCCU; petroleum coke calciner;, process heater with a rated heat input capacity greater than 40 MMBtu/hour;, SMR heater;, SMR heater with a gas turbine; , or and SRU/TG incinerator sulfuric acid furnace and subject to paragraph (d)(1)~~ shall install, certify, operate, and maintain a CEMS~~, or an equivalent verification system,~~ to measure NOx~~, CO,~~ and O_2~~,~~ in a manner that complies with the applicable Rule~~s~~ 218.2 and Rule 218.3 ~~series~~ to demonstrate compliance with NOx emission limits at the applicable percent O_2 and averaging times ~~with the NOx emissions limits of this rule~~.

(2) An owner or operator of a former RECLAIM facility with a sulfuric acid furnace subject to the emission limits in Table 1, Table 3, an approved B-Plan or an approved B-Cap shall install, certify, operate, and maintain a CEMS to measure NOx in a manner that complies with the applicable Rules 218.2 and 218.3 to demonstrate compliance with the Table 1 NOx emissions limits, and within 12 months from [*DATE OF RULE ADOPTION*] shall install, certify, operate, and maintain a CEMS that complies with the Rules 218.2 and 218.3 to measure O_2 and demonstrate compliance with the Rule Emission Limits at the applicable percent of O_2.

(3) An owner or operator of a unit with a CEMS that measures CO at [*DATE OF RULE ADOPTION*] must certify, operate, and maintain the CO CEMS in a manner that complies with the applicable Rules 218.2 and 218.3 to demonstrate compliance with the Table 1 CO emissions limits.

~~(2) Until the CEMS is operating, an owner or operator of a unit that has a 365-day rolling average with a non-operational CEMS, which is a CEMS that is not collecting data, shall:~~

~~(A) Calculate missing data using the average of the recorded emissions for the hour immediately before the missing data period and the hour immediately after the missing data period, if the missing data period is less than or equal to 8 continuous hours; or~~

~~(B) Calculate missing data using the maximum hourly emissions recorded for the previous 30 days commencing on the day immediately prior to the day the missing data occurred, if the missing data period is more than 8 continuous hours.~~

~~(3) Emissions determined to exceed any limits established by this rule through the use of CEMS, and data generated pursuant to paragraph (f)(2), shall constitute a violation of the rule.~~

(~~g~~j) Source Test Requirements

(1) An owner or operator of a unit that is not required to install and operate a CEMS pursuant to ~~paragraph (f)(1)~~subdivision (i), shall demonstrate compliance with the applicable ~~NOx and CO emission limits in paragraph (d)(1)~~ Rule 1109.1 Emission Limits by conducting a source test according to the schedule in Table ~~3~~6.

(2) ~~An owner or operator of a unit listed in Table 3 that operates a CEMS, are subject to subdivision (f) in lieu of subdivision (g).~~An owner or operator

that elects to install and operate a CEMS to demonstrate compliance with the applicable Table 1 NOx and CO emission limits and percent O_2 for a unit with a rated heat input capacity less than 40 MMBtu/hour, shall meet the CEMS requirements under subdivision (i).

TABLE ~~3~~6: SOURCE TESTING SCHEDULE

Combustion Equipment	~~Rated Heat Input Capacity (MMBtu/ hour)~~	Source Test Schedule
~~Boilers and Process Heaters~~	~~<40~~	~~Within 12 months from previous source test and every 12 months thereafter~~
Vapor Incinerators and ~~EnclosedGround~~ Flares <40MMBtu/hr	~~All~~	Within 36 months from previous source test and every 36 months thereafter
All Other Units		Within 12 months from previous source test and every 12 months thereafter

(3) An owner or operator of former RECLAIM Facility with a unit that has not conducted a source test within the schedule in Table 6 shall conduct a source test within:

(A) Six months from receiving a final determination notification for units 20 MMBtu/hour to <40 MMBtu/hour.

(B) 12 months from receiving a final determination notification for units <20 MMBtu/hour.

(~~3~~4) An owner or operator of a new or modified unit shall conduct the initial source test within six months from ~~installation~~commencing operation.

(~~4~~5) Ammonia Source Test Procedures

The owner or operator of a unit with air pollution control equipment with ammonia emissions in the exhaust shall conduct source testing according to the procedures in District Source Test Method 207.1 for Determination of Ammonia Emissions from Stationary Sources or utilize an ammonia CEMS certified under an approved South Coast AQMD protocol to demonstrate compliance with the ammonia emission limit in the permit to operate pursuant to the schedule in Table 7.

TABLE 7: SOURCE TESTING SCHEDULE

	Source Test Schedule
Units operating without NOx and ammonia CEMS	• Conduct source test simultaneously for NOx, CO, and ammonia quarterly during the first 12 months of unit operation and thereafter. • Source tests may be conducted annually after the first 12 months of unit operation if four consecutive quarterly source tests demonstrate compliance with the ammonia emission limit. • If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the ammonia emissions limits prior to resuming annual source tests.
Units operating with NOx CEMS and without ammonia CEMS	• Conduct source test for ammonia quarterly during the first 12 months of unit operation and thereafter. • Source tests may be conducted annually after the first 12 months of unit operation if four consecutive quarterly source tests demonstrate compliance with the ammonia emission limit. • If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the ammonia emissions limits prior to resuming annual source tests.
Units operating without NOx CEMS and with ammonia CEMS	• Conduct source tests to determine compliance with NOx emission limits pursuant to Table 6.

(~~5~~6) An owner or operator of a unit required to conduct a source test pursuant to subdivision (j) shall submit a source test protocol for approval ~~no later than 60 days prior to a scheduled source test date~~within 60 days after the Permit to Construct was issued or for unit subject to within 60 days from receiving a final determination notification~~,~~ unless otherwise approved by the Executive Officer, and conduct the source test within 90 days after a written approval of the source test protocol by the Executive Officer is distributed.~~;~~ ~~and~~

(~~6~~7) At least one week prior to conducting a source test, an owner or operator of a unit shall notify the Executive Officer by calling 1-800-CUT-SMOG~~, in writing,~~ of the intent to conduct source testing, providing:

(A) Facility name and identification number;

(B) Device identification number; and

(C) Date when source test will be conducted.

(~~7~~8) Unless requested by the Executive Officer, after the approval of the initial source test protocol pursuant to paragraph ~~(g)(5)~~(j)(6), an owner or operator ~~of a unit subject to this rule~~ is not required to resubmit a source test protocol for approval pursuant to paragraph ~~(g)(5)~~(j)(6) if:

(A) The method of operation of the unit has not been altered in a manner that requires a permit application submittal;

(B) Rule or permit emission limits have not become more stringent since the previous source test; ~~and~~

(C) There have been no changes in the source test method that is referenced in the approved source test protocol~~.~~; and

(D) The approved source test protocol is still representative of the operation and configuration of the unit.

(~~8~~9) An owner or operator of a unit shall conduct the source test using a South Coast AQMD approved contractor under the Laboratory Approval Program:

(A) Using a South Coast AQMD approved source test protocol;

(B) Using at least one of the following test methods:

(i) South Coast AQMD Source Test Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling; or

(ii) South Coast AQMD Source Test Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources and South Coast AQMD Source Test Method 10.1 – Carbon Monoxide and Carbon Dioxide by Gas Chromatograph/Non-Dispersive Infrared Detector – Oxygen by Gas Chromatograph-Thermal Conductivity (GC/TCD); or

(iii) Any other test method determined to be alternative and approved by the Executive Officer, and either the California

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Air Resources Board or the U. S. Environmental Protection Agency, as applicable.

(~~B~~C) Using the applicable Averaging Time specified in ~~paragraph (d)(1)~~Table 1;

(~~C~~D) During operation other than start-up and~~, or~~ shut-down; and

(~~D~~E) In as-found operating condition.

(~~9~~10) An owner or operator of a unit shall submit all source test reports, including the source test results and a description of the unit tested, to the Executive Officer within 60 days of completion of the source test.

~~(10) An owner or operator of a unit shall conduct the source test using a South Coast AQMD approved contractor under the Laboratory Approval Program according to the following methods:~~

~~(A) South Coast AQMD Source Test Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling (March 1989), or~~

~~(B) South Coast AQMD Source Test Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources (March 1989) and South Coast AQMD 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~~

~~(C) Any other test method determined to be alternative and approved before the test in writing by the Executive Officer of the South Coast AQMD and the California Air Resources Board and the Regional Administrator of the U.S. EPA, Region IX.~~

(11) Emissions determined to exceed any limits established by this rule by any of the reference test methods in subparagraph ~~(g)(8)~~(j)(9)(B) shall constitute a violation of the rule.

(12) An owner or operator of a unit that exceeds any limits established by this rule by any of the reference test methods in subparagraph ~~(g)(8)~~(j)(9)(B) shall inform the Executive Officer within 72 hours from the time an owner or operator knew of excess emissions, or reasonably should have known.

(~~h~~k) Diagnostic Emission Checks

(1) An owner or operator of a unit required to perform a source test pursuant to subdivision ~~(f)~~(j) shall:

(A) Perform diagnostic emissions checks of NOx, CO, and O_2 emissions, ~~,~~ with a portable NOx, CO, and O_2 analyzer that is calibrated, maintained and operated in accordance with manufacturers specifications and recommendations ~~and~~ of the South Coast AQMD Combustion Gas Periodic Monitoring Protocol for the Periodic Monitoring of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Combustion Sources Subject to Rules 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines, 1146 – Emissions of Oxides of Nitrogen From Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, and 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; and

(B) Conduct the ~~portable analyzer~~ diagnostic emission checks by a person who has completed an appropriate training program approved by South Coast AQMD ~~approved training program~~ in the operation of portable analyzers and has received a certification issued by the South Coast AQMD.

(2) An owner or operator shall perform diagnostic emission checks pursuant to paragraph ~~(h)(1)~~(k)(1) at least every: ~~31 days or 744 operating hours, whichever occurs later~~. ~~If the unit complies for three consecutive diagnostic emission checks, without any adjustments to the O2 sensor set points, then the unit may be checked every~~

(A) 90 days or every 2,000 operating hours, whichever occurs later, for units that require a source test every 12 months; and~~, until the resulting diagnostic emission check exceeds the applicable limit at which time unit must be checked at least every 31 days or 744 operating hours, whichever occurs later~~

(B) 365 days or every 8760 operating hours, whichever occurs later, for units that require a source test every 36 months.

(3) A diagnostic emissions check that finds the emissions in excess of those allowed by this rule or a permit condition shall not constitute a violation of this rule if an owner or operator corrects the problem and demonstrates compliance with another diagnostic emissions check within 72 hours from the time an owner or operator knew of excess emissions, or reasonably should have known, or shut down the unit by the end of an operating cycle,

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whichever is sooner. Any diagnostic emission check conducted by South Coast AQMD staff that finds emissions in excess of those allowed by this rule or a permit condition is a violation.

(~~i~~l) Monitoring, Recordkeeping, and Reporting Requirements~~-~~

~~(1) An owner or operator of a unit subject to Rule 1109.1 subdivision (f) shall comply with the applicable Rule 218 series to demonstrate compliance with the NOx emissions limits of this rule.~~

(~~2~~1) Operating Log

An owner or operator of a unit shall maintain the following daily records for each unit, in a manner approved by the South Coast AQMD:

(A) Time and duration of start-ups and shutdowns;

(B) Total hours of operation;

(C) Quantity of fuel; and

(D) Cumulative hours of operation to date for the calendar year.~~;~~

(x) [DEVELOPING CRITERIA FOR 0.03 POUND PER MMBTU INTERIM LIMIT]

(~~3~~2) An owner or operator of a unit shall keep and maintain ~~all~~ the following records~~,~~ on-site for five years, except that all data gathered or computed for intervals of less than 15 minutes shall be maintained for a minimum of 48 hours, and shall make them available to the Executive Officer upon request:

(A) CEMS data;

(B) Source tests reports;

(C) Diagnostic emission checks; and

(D) Written logs of start-ups, shutdowns, and breakdowns, ~~and~~ all maintenance, service and tuning records, and any other information required by this rule.~~including CEMS data, source tests reports, diagnostic emission checks and written logs of start-ups, shutdowns, and malfunctions, and all maintenance, service and tuning records, and any other information required by this rule:~~

~~(A) On-site for five years, except that all data gathered or computed for intervals of less than 15 minutes shall be maintained for a minimum of 48 hours; and~~

~~(B) Made available to the Executive Officer upon request.~~

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(3) An owner or operator of a boiler or process heater that is exempt from the applicable Table 1 emission limits pursuant to paragraphs (m)(5) and (m)(6), or an owner or operator of a flare that is exempt from the applicable Table 1 emission limits pursuant to subparagraph (m)(8)(A) shall:

(A) Within 90 days of [*DATE OF RULE ADOPTION*], install and operate a non-resettable totalizing time meter or a fuel meter unless a metering system is currently installed and the fuel meter is approved in writing by the Executive Officer.

(B) Within 90 days of [*DATE OF RULE ADOPTION*], each non-resettable totalizing time meter or a fuel meter required under subparagraph (l)(3)(A) that requires dependable electric power to operate shall be equipped with 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 safety shut-off switch.

(C) Ensure that the continuous electric power to the non-resettable totalizing time meter or fuel meter required under subparagraph (l)(3)(A) may only be shut off for maintenance or safety.

(D) Within 90 days of [*DATE OF RULE ADOPTION*], ensure that each non-resettable totalizing time meter or fuel meter is calibrated and recalibrate the meter annually thereafter, based on the manufacturer's recommended procedures. If the non-resettable totalizing time or fuel meter was calibrated within one year prior to [*DATE OF RULE ADOPTION*], the next calibration shall be conducted within one year of anniversary date of the prior calibration.

~~(4) An owner or operator of a process heater or boiler that is exempt from the applicable emission limits in paragraph (d)(1) pursuant to paragraph (l)(2), or an owner or operator of a ground flare that is exempt from the applicable emission limits in paragraph (d)(1) pursuant to subparagraph (l)(4)(A) shall~~

(E) M~~m~~onitor and maintain hours of operation records as follows:

(~~A~~i) For the ~~200~~ hours per year validation, using a calibrated non-resettable totalizing time meter or equivalent method approved in writing by the Executive Officer; or

(~~B~~ii) For the annual throughput limit equivalent to ~~200~~ hours per year validation, using a calibrated fuel meter or equivalent method approved in writing by the Executive Officer.

(~~5~~4) An owner or operator of a vapor incinerator that is exempt from the applicable Table 1 NOx emission limits ~~in paragraph (d)(1)~~ pursuant to paragraph ~~(l)(5)~~(m)(9) shall record~~:monitor and maintain emissions records as follows:~~

(A) The ~~A~~annual throughput ~~shall be monitored~~ using a calibrated fuel meter or equivalent method approved in writing by the Executive Officer~~,~~; and

(B) Emissions ~~shall be determined~~ using a source test pursuant to subdivision ~~(f)~~(j) or by using a default emission factor approved in writing by the Executive Officer.

(5) An owner or operator of a unit subject to the compliance schedule in subparagraphs (d)(2)(B), (d)(3)(B), and (e)(5)(B) shall maintain records of burner replacement, including number of burners and date of installation.

(6) An owner or operator of a unit subject to the compliance schedule in subparagraph (e)(5)(A) shall maintain records of the date the existing post-combustion control equipment was installed or replaced.

~~(j) Compliance Schedule~~

~~(1) An owner or operator of a boiler with a rated heat input capacity less than 40 MMBtu/hour must comply with the 5 ppmv NOx limitat replacement pursuant to paragraph (d)(1) by [TEN YEARS AFTER RULE ADOPTION] or when 50 percent or more of the unit's burners are replaced, whichever is earlier.~~

~~(2) Effective [*TEN YEARS AFTER RULE ADOPTION*], an owner or operator of a process heater with a rated heat input capacity less than 40 MMBtu/hour must submit a permit application to comply with themeet the NOx and CO concentration limits in Table 1 9 ppmv NOx and 400 ppmv CO limits in Table 1 at replacement pursuant to paragraph (d)(1) when 50 percent or more of the unit's burners are replaced., 18 months after the Permit to Operate is issued.~~

~~(3) An owner or operator of a process heater with a rated heat input capacity less than or equal to 40 MMBtu/hour exempt from the applicable emission limits in paragraph (d)(1) pursuant to subparagraph (l)(4)(B), must comply~~

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~~with the 2 ppmv emission limits in paragraph (d)(1) according to the following schedule:~~

~~(A) For units with post-combustion controls operating more than 25 years, [*TEN YEARS AFTER RULE ADOPTION*] or when the existing post-combustion air pollution control equipment is replaced, whichever is earlier; or~~

~~(B) For units with post-combustion controls operating for less than 25 years, 25 years after the installation of post-combustion control equipment.~~

(~~l~~m) Exemptions

(1) The provisions of this rule shall not apply to an owner~~s~~ or operator~~s~~ of a ~~:~~

~~(A) Boilers that are unfired; and~~

~~(B)~~Bboiler~~s~~ ~~and~~ or ~~Heaters~~ process heater with a rated heat input capacity ~~<~~less than or equal to ~~5~~2 MMBtu/hour that are fired with liquid and/or gaseous fuel and used exclusively for space or water heating and are ~~will be~~ subject to ~~Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters~~Rule 1146.2 – Emissions Of Oxides Of Nitrogen From Large Water Heaters And Small Boilers And Process Heaters~~, if applicable~~.

(2) An owner or operator of a process heater fired at less than 15 percent of the rated heat input capacity shall be exempt from the Table 1 emission limits.

(3) An owner or operator of a FCCU that must bypass the post-combustion air pollution control equipment to conduct boiler inspections required under California Code of Regulations, Title 8, Section 770(b) shall be exempt from the Table 1 emission limits during the required boiler inspections and may exclude the resulting emissions calculated using the applicable rolling average calculation pursuant to Attachment A.

(~~2~~4) An owner or operator of a process heater ~~only~~ which is used only for start-up of a FCCU and that process heater is operated for ~~that operates~~ 200 hours or less per calendar year shall be exempt from the requirements in subdivisions (d), ~~(f), and (g)~~ (e), (i), and (j) provided:

(A) The process heater or boiler has a South Coast AQMD permit that specifies conditions that limits the operating hours to 200 hours or less; and

(B) The process heater or boiler operates in compliance with the South Coast AQMD permit condition.

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(~~3~~5) An owner or operator of a process heater used for start-up or a boiler used during start-up or shutdown at a sulfuric acid plant that does not exceed 90,000 MMBtu of annual heat input per calendar year ~~and~~ shall be exempt from the requirements in subdivisions (d), ~~(f) and (g)~~ (e), (i), and (j) provided:

(A) The process heater or boiler has a South Coast AQMD permit that specifies conditions that limits the heat input to 90,000 MMBtu or lower per calendar year; and

(B) The process heater or boiler operates in compliance with the South Coast AQMD permit condition specified in subparagraph (m)(5)(A).

~~(4) An owner or operator of a process heater with a rated heat input capacity of 40 MMBtu/hour or greater shall be exempt from the applicable provisions in subdivision (d) provided:~~

~~(A) The rated heat input capacity of the process heater is less than 40 MMBtu/hour and was installed prior to [DATE OF RULE ADOPTION] and meets the following:~~

~~(i) The South Coast AQMD permit to operate as of [DATE OF RULE ADOPTION] includes a condition limiting the NOx concentration to 40 ppmv NOx or less at three percent O_2 on a dry basis; and~~

~~(ii) The NOx and ammonia limits; averaging time; and start-up, shutdown conditions; and tuning requirements specified on the South Coast AQMD permit to operate as of [DATE OF ADOPTION] are retained.~~

~~(B) The rated heat input capacity of the process heater is greater or equal to 40 MMBtu/hour and was installed prior to [DATE OF RULE ADOPTION] and meetings the following:~~

~~(i~~A) ~~The South Coast AQMD permit to operate as of [*DATE OF RULE ADOPTION*] includes a condition limiting the NOx concentration to 5 x ppmv NOx or less at three percent O_2 on a dry basis or an owner or operator submits a permit application that limits the NOx concentration to 5 ppmv NOx or less at three percent O_2 on a dry basis as of [*6 MONTHS AFTER DATE OF RULE ADOPTION*]; and~~

~~(ii~~B) ~~The NOx and ammonia limits; averaging times; and start-up, and shutdown provisions; and tuning requirements specified on the~~

~~South Coast AQMD permit to operate are retained as of [*DATE OF RULE ADOPTION*] are retained; and~~

~~(C) The process heater operates in compliance with the South Coast AQMD permit condition.~~

(6) An owner or operator of a boiler with a rated heat capacity of less than 40 MMBtu/hour that operates 200 hours or less per calendar year, or with an annual throughput limit equivalent to 200 hours per calendar year, shall be exempt from the requirements in subdivisions (d), (e) and (j), provided:

(A) The boiler has an enforceable South Coast AQMD permit conditions that limits the operating hours to 200 hours or the annual throughput equivalent to 200 hours; and

(B) The boiler operates in compliance with the permit conditions.

(7) An owner or operator of a boiler or process heater operating only the pilot during start-up or shutdown shall be exempt from the emission limits in paragraphs (d)(2), (d)(3), Table 1, Table 2, Table 3, an approved B-Plan, or an approved B-Cap and may exclude those emission from the rolling average calculation pursuant to Attachment A.

(~~5~~8) ~~Ground-Level~~ Flares

(A) An owner or operator of a ~~ground-level~~ flare that operates 20 hours or less per calendar year, or with an annual throughput limit equivalent to 20 hours per year, shall be exempt from the requirements in subdivisions (d), (e) and ~~(g)~~(j), provided:

(i) The flare has ~~a~~ enforceable South Coast AQMD permit conditions that ~~specifies conditions that~~ limit~~s~~ the operating hours to 20 hours or the annual throughput equivalent to 20 hours; and

(ii) The flare ~~or flare station operates~~ is in compliance with the permit condition~~s~~.

(B) An owner or operator of an open flare, which is an unshrouded flare, shall not be required to conduct source testing pursuant to subdivision ~~(g)~~(j).

(~~6~~9) Vapor Incinerators

An owner or operator of a vapor incinerator that emits 100 pounds of NOx or less in a year ~~than~~ shall be exempt from the requirements in subdivision (d) provided:

(A) The vapor incinerator has ~~a~~ enforceable South Coast AQMD permit conditions that limit NOx emissions to less than 100 pounds of NOx per year through operating hours or annual throughput~~specifies conditions that limits the operating hours or annual throughput~~; and

(B) The vapor incinerator operates in compliance with the permit conditions.

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ATTACHMENT A
SUPPLEMENTAL REQUIREMENTS

(A-1) Emission Data Averaging [DEVELOPING CALCULATION APPROACH]

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ATTACHMENT B

IMPLEMENTATION COMPLIANCE PLAN (I-PLAN) REQUIREMENTS

(B-1) Applicability

Any owner or operator of a facility with six or more units that elects to meet the NOx and CO emission limits specified in Table 1, an approved B-Plan, or an approved B-Cap using an alternative implementation schedule in lieu of the dates specified in paragraph (e)(1) shall comply with the requirements under this appendix.

(B-2) I-Plan Percent Reduction Targets, Facility Totals, and Unit Shares

(B-2.1) I-Plan Percent Reduction Targets are calculated by summing the NOx emission reduction from selected units in each phase and divided by the Facility Total as calculated pursuant to section (B-2.2) where:

(B-2.1.1) I-Plan Phase I Target: is the sum of the NOx emission reduction from the units included in Phase I divided by the Facility Total;

(B-2.1.2) I-Plan Phase II Target: is the sum of the NOx emission reduction from the units included in Phase I and II divided by the Facility Total; and

(B-2.1.3) I-Plan Optional Phase Target: is the sum of the NOx emission reduction from the units included in Phase I, II, and Optional Phase divided by the Facility Total.

(B-2.2) The Facility Total is the sum of the NOx mass emission reduction from all the units identified in the I-Plan.

(B-2.3) The Unit Share for each unit shall be determined by the Executive Officer using the following equation:

$$\text{Unit Share} = \left(1 - \frac{C_{\text{Table 1}}}{C_{\text{Baseline}}}\right) \times \text{Baseline Emissions}$$

Where:

$C_{\text{Table 1}}$ = The applicable Table 1 or Table 2 NOx concentration limit for each unit included in the B-Plan. For units with both a 365-day and 7-day NOx concentration, the most stringent NOx concentration applies.

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$C_{Baseline}$ = The NOx concentration in the flue gas for each unit as determined pursuant to section (B-2.5).

Baseline Emissions = The 2017 NOx baseline emissions as listed for each unit as determined pursuant to section (B-2.6).

(B-2.4) The Alternative Unit Share for each unit included in a B-Plan shall be determined by the Executive Officer using the following equation:

$$\text{Alternative Unit Share} = \left(1 - \frac{C_{Alternative}}{C_{Baseline}}\right) \times \text{Baseline Emissions}$$

Where:

$C_{Alternative}$ = The applicable Alternative BARCT NOx Limit in an approved B-Plan for each unit included in the B-Plan.

$C_{Baseline}$ = The NOx concentration in the flue gas for each unit as determined pursuant to section (B-2.5).

Baseline Emissions = The 2017 NOx baseline emissions as listed for each unit as determined pursuant to section (B-2.6).

(B-2.5) The NOx concentration in the flue gas shall be determined by the Executive Officer based on annual CEMS data, the most recent source test or another source of data if CEMS or source test data is not available.

(B-2.6) The Baseline Emissions shall be determined by the Executive Officer based on the applicable 2017 NOx Annual Emissions Reporting data or another year if the 2017 NOx Annual Emissions Reporting data is not representative and is expressed as pounds per year.

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ATTACHMENT C
BARCT EQUIVALENT COMPLIANCE PLAN (B-PLAN) REQUIREMENTS

(C-1) Applicability

An owner or operator of a facility with six or more units that elects to meet the NOx and CO emission limits pursuant to an approved B-Plan in lieu of Table 1 NOx concentration limits shall comply with the requirements under this appendix.

(C-2) B-Plan Calculations

(C-2.1) The Facility BARCT Emission Target for each B-Plan shall be calculated using the following equations:

Facility BARCT Emission Target

$$= \sum_{i=1}^{N} \left(\frac{C_{Table\ 1}}{C_{Baseline}} \times \text{Baseline Emissions} \right)_i$$

Where:

N = Number of included units in B-Plan

$C_{Table\ 1}$ = The applicable Table 1 NOx concentration limit for unit i included in B-Plan.

$C_{Baseline}$ = The NOx concentration in the flue gas for unit i included in B-Plan as determined pursuant to section (B-2.5).

Baseline Emissions = The 2017 NOx baseline emissions for unit i included in B-Plan as determined pursuant to section (B-2.6).

(C-2.2) The Equivalent Mass Emissions for each unit included in a B-Plan shall be calculated using the following equation:

Equivalent Mass Emission

$$= \sum_{i=1}^{N} \left(\frac{C_{Alternative}}{C_{Baseline}} \times \text{Baseline Emissions} \right)_i$$

Where:

N = Number of included units in B-Plan

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$C_{Alternative}$ = The applicable Alternative BARCT NOx Limit in an approved B-Plan for unit i included in the B-Plan.

$C_{Baseline}$ = The NOx concentration in the flue gas for unit i included in B-Plan as determined pursuant to section (B-2.5).

Baseline Emissions = The 2017 NOx baseline emissions for unit i included in B-Plan as determined pursuant to section (B-2.6).

(C-3) Near limit units [DEVELOPING CRITERIA FOR NEAR LIMIT UNITS]

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ATTACHMENT D

BARCT EQUIVALENT MASS CAP PLAN (B-Cap) REQUIREMENTS

(D-1) Applicability

An owner or operator of a facility with six or more units that elects to meet the NOx and CO emission limits pursuant to an approved B-Cap in lieu of Table 1 NOx concentration limits shall comply with the requirements under this appendix.

(D-2) B-Cap Calculations [DEVELOPING CALCULATION APPROACH]

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ATTACHMENT E

FACILITIES EMISSIONS – BASELINE AND TARGETS

(E-1) Facilities with Six or More Units Including Facilities with Common Ownership

TABLE E-1: Facilities with Six or More Units Including Facilities with Common-Ownership

Owner	Facility	Facility ID
Chevron Products Company (Chevron)	El Segundo Refinery	800030
Lunday-Thagard Company	World Oil	800080
Marathon Petroleum Company/Tesoro Refining and Marketing, LLC (Marathon)	Tesoro – Carson	174655
	Tesoro – Wilmington	800436
	Tesoro – Sulfur Recovery Plant	151798
	Tesoro – Petroleum Coke Calciner	174591
PBF	Torrance Refining Company	181667
Phillips 66	Phillips 66 – Carson	171109
	Phillips 66 – Wilmington	171107
Valero	Ultramar/Valero Wilmington	800026
	Valero Asphalt Plant	800393
World Energy	AltAir Paramount	187165

(E-2) Facility Baseline Mass Emissions

Table E-2 provides the Baseline Mass Emissions for Facilities with six or more units. Baseline Mass Emissions in Table E-2 are based on 2017 reported emissions for Rule 1109.1 units. A year other than 2017 was used for units where the 2017 reported emissions were not representative of normal operations.

TABLE E-2: Baseline Mass Emissions for Facilities with Six or More Units

Owner	Baseline Mass Emissions (2017) (tons/year)
Chevron	701
Lunday-Thagard Company	26
Marathon	1,638
PBF	901
Phillips 66	848
Valero	248
World Energy	30

(E-3) Facility BARCT Mass Emissions Target

Target mass emissions for each major facility (six or more units) shall be determined pursuant to Table E-3.

TABLE E-3: BARCT Mass Emissions Targets – Major Facilities

Owner	Target Mass Emissions at Compliance Date (tons)
Chevron	TBD
Lunday-Thagard Company	TBD
Marathon	TBD
PBF	TBD
Phillips 66	TBD
Valero	TBD
World Energy	TBD

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