(Adopted TBD)
Revision Date 8-20-21

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

(a) Purpose

The purpose of this rule is to reduce emissions of oxides of nitrogen (NOx), while 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.

(c) Definitions

(1) ALTERNATIVE BARCT NOx LIMIT FOR PHASE I, PHASE II, OR PHASE III means the unit specific NOx concentration limit that is selected by the owner or operator to achieve the Phase I, Phase II, or Phase III Facility BARCT Emission Target in the aggregate in the B-Plan or B-Cap, where the NOx concentration limit will include the corresponding percent O_2 correction and determined based on the averaging time in Table 1 or subdivision (k), whichever is applicable.

(2) ASPHALT PLANT means a facility that processes crude oil into asphalt.

(3) BASELINE FACILITY EMISSIONS means the sum of all the Baseline Unit Emissions at a Facility as calculated according to Attachment B of this rule.

(4) BASELINE UNIT EMISSIONS means a Unit's emissions as reported in the 2017 NOx Annual Emissions Report, or another representative year, as approved by the Executive Officer.

(5) BARCT EQUIVALENT COMPLIANCE PLAN (B-PLAN) means a compliance plan that allows an owner or operator to select NOx concentration limits for all Units subject to this rule that are equivalent, in aggregate, to the NOx concentration limits specified in Table 1 and Table 2.

(6) BARCT EQUIVALENT MASS CAP PLAN (B-CAP) means a compliance plan that establishes a mass emission cap for all units subject to this rule

that, in aggregate, are equivalent to or less than the Final Phase Facility BARCT Emission Target.

(7) BIOFUEL PLANT means a Facility that produces fuel by processing feedstocks including vegetable oil, animal fats, and tallow.

(8) BOILER means any Unit that is fired with gaseous fuel and used to produce steam. For the purpose of this rule, boiler does not include CO boilers.

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

(10) CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) is as defined by Rule 218 – Continuous Emission Monitoring.

(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 gas turbine exhaust.

(12) FACILITIES 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.

(13) FACILITIES WITH THE SAME OWNERSHIP means Facilities and their subsidiaries, Facilities that share the same board of directors, or Facilities that share the same parent corporation.

(14) FACILITY means, for the purpose of this rule, any unit or group of units which are located on one or more contiguous properties, in actual physical contact or separated solely by a public roadway or other public right-of-way, and operate under one South Coast AQMD Facility ID or Facilities with the Same Ownership.

(15) FINAL DETERMINATION NOTIFICATION means the notification issued by the Executive Officer to a RECLAIM facility designating that the facility is no longer in the NOx RECLAIM program.

(16) FINAL PHASE FACILITY BARCT EMISSION TARGET means the total mass emissions remaining per Facility calculated based on the applicable Table 1 emission limits or Table 2 conditional emission limits and the Baseline Emissions.

(17) 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 that is not subject to Rule 1118 – Control of Emissions from Refinery Flares.

(18) FLUIDIZED CATALYTIC CRACKING UNIT (FCCU) means a Unit in which petroleum intermediate 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 FCCU 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.

(19) FORMER RECLAIM FACILITY means a Facility, or any of its successors, that was in the NOx 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 NOx RECLAIM program.

(20) FUNCTIONALLY SIMILAR means, for the purpose of this rule, a Unit that will perform the same purpose as a Unit that was decommissioned in an approved B-Cap.

(21) GAS TURBINE 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 can include a Duct Burner.

(22) 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.

(23) 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.

(24) HYDROGEN PRODUCTION PLANT means a Facility that produces hydrogen by steam hydrocarbon reforming, partial oxidation of hydrocarbons, or other processes which primarily supplies hydrogen for petroleum refineries and Facilities with Related Operations to Petroleum Refineries.

(25) IMPLEMENTATION COMPLIANCE PLAN (I-PLAN) means an implementation plan for Facilities with six or more Units that includes an alternative implementation schedule and emission reduction targets.

(26) I-PLAN PERCENT REDUCTION TARGET means the percent reduction target specified for each phase of an I-Plan as specified in Table 6.

(27) NATURAL GAS means 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.

(28) NEW UNIT means, for the purpose of this rule, any Unit that meets the applicability of subdivision (b) where the South Coast AQMD Permit to Construct is issued on or after [*DATE OF ADOPTION*].

(29) 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.

(30) 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.

(31) PETROLEUM COKE CALCINER means a Unit 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 Petroleum Coke Calciner includes, but is not limited to, a kiln, which is a refractory lined cylindrical device that rotates on its own axis, and a pyroscrubber, which combusts large carbon particles in a stream of waste gas.

(32) PETROLEUM COKE CALCINING FACILITY means a Unit within a Petroleum Refinery, or as a separate Facility, that operates a petroleum coke calciner.

(33) PETROLEUM REFINERY means a Facility identified by the North American Industry Classification System Code 324110, Petroleum Refineries.

(34) PHASE I, PHASE III, OR PHASE III BARCT B-CAP ANNUAL EMISSIONS means the total NOx mass emissions remaining per Facility that incorporates BARCT Alternative NOx Limits for Phase I, Phase II, and Phase III, decommissioned units, and other emission reduction strategies to meet the respective Phase I, Phase II, or Phase III Facility BARCT Emission

Targets in an I-Plan and are calculated pursuant to Attachment B of this rule.

(35) PHASE I, PHASE II, OR PHASE III BARCT EQUIVALENT MASS EMISSIONS means the total NOx mass emissions remaining per Facility that incorporates respective BARCT Alternative NOx Limits for Phase I, Phase II, and Phase III in an approved B-Plan that are designed to meet the respective Phase I, Phase II, or Phase III Facility BARCT Emission Targets in an I-Plan and are calculated pursuant to Attachment B of this rule.

(36) PHASE I, PHASE II, OR PHASE III FACILITY BARCT EMISSION TARGET means the total NOx mass emissions per Facility that must be achieved in an approved B-Plan or B-Cap that are based the percent reduction target of Phase I, Phase II, or if applicable, Phase III of an I-Plan option in Table 6 and are calculated pursuant to Attachment B of this rule.

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

(38) 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 South Coast AQMD permit.

(39) REPRESENTATIVE NOx CONCENTRATION means the most representative NOx emissions in the exhaust of the Unit as approved by the Executive Officer and measured by a certified CEMS if the Unit operates with a certified CEMS or the most recent approved source test for units not operating a certified CEMS. The Representative NOx Concentration for units that do not have CEMS or source test emission data will be based on the South Coast AQMD Annual Emission Report default emission factor for that Units.

(40) RULE 1109.1 EMISSION LIMITS mean the NOx and CO emission limits and corresponding percent O_2 correction listed in paragraphs (d)(3), (d)(4), Table 1, Table 2, Table 4, Table 5 an approved B-Plan, or an approved B-Cap.

(41) STANDARD CONDITIONS for a Former RECLAIM Facility is as defined by Rule 102 – Definition of Terms .

(42) STEAM METHANE REFORMER (SMR) HEATER means any Unit 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.

(43) 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, into sulfur dioxide (SO_2) gas.

(44) SULFURIC ACID PLANT means a Unit within a Petroleum Refinery, or as 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.

(45) SULFUR RECOVERY PLANT means a Unit within a Petroleum Refinery, or as a separate Facility, that recovers elemental sulfur or sulfur compounds from sour or acid gases and/or sour water generated by Petroleum Refineries.

(46) SULFUR RECOVERY UNITS/TAIL GAS (SRU/TG) INCINERATORS means the thermal or catalytic oxidizer where the residual hydrogen sulfide in the gas exiting the sulfur recovery plant (tail gas) is oxidized to SO_2 before being emitted to the atmosphere.

(47) UNIT means, for the purpose of this rule, any boilers, flares, FCCUs, gas turbines, petroleum coke calciners, process heaters, SMR heaters, sulfuric acid furnaces, SRU/TG incinerators, or vapor incinerators requiring a South Coast AQMD permit and not required to comply with another NOx emission limit in a South Coast AQMD Regulation XI rule.

(48) UNIT REDUCTION means the potential NOx emission reduction for a Unit if the Unit's NOx emissions were reduced from the Representative NOx Concentration to the applicable NOx concentration limit in Table 1 based on the Baseline Emissions calculated pursuant to Attachment B of this rule.

(49) 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).

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

(d) Emission Limits

(1) An owner or operator shall not operate a unit that exceeds the applicable NOx and CO emission limits at the percent O_2 correction specified in Table 1 and the averaging time specified in Table 1 or subdivision (k), whichever is applicable pursuant to the compliance schedule in subdivision (g).

TABLE 1: NOx AND CO EMISSION LIMITS

Unit	NOx (ppmv)	CO (ppmv)	O2 Correction (%)	Rolling Averaging Time[1]
Boilers <40 MMBtu/hour	Pursuant to paragraph (d)(3)	400	3	24-hour
Boilers ≥40 MMBtu/hour	5	400	3	24-hour
FCCU	2	500	3	365-day
	5			7-day
Flares	20	400	3	2-hour
Gas Turbines fueled with Natural Gas	2	130	15	24-hour
Gas Turbines fueled with Gaseous Fuel other than Natural 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)(4)	400	3	24-hour
Process Heaters ≥40 MMBtu/hour	5	400	3	24-hour
SMR Heaters	5	400	3	24-hour
SMR Heaters with Gas Turbine	5	130	15	24-hour
SRU/TG Incinerators	30	400	3	24-hour
Sulfuric Acid Furnaces	30	400	3	365-day
Vapor Incinerators	30	400	3	24-hour

[1] Averaging times apply to units operating a certified CEMS and shall be calculated pursuant to Attachment A of this rule. Requirements, including averaging times, for units without CEMS are specified in subdivision (k).

(2) Conditional NOx and CO Emission Limits

(A) An owner or operator of a unit is eligible to meet the NOx and CO emission limits in Table 2, in lieu of the NOx and CO emission limits in Table 1 provided:

(i) The Executive Officer has not issued a Permit to Construct on or after December 4, 2015 for the installation of a post combustion control device for the unit;

(ii) For a process heater with a rated heat input capacity greater than or equal to 40 MMBtu/hour and 110 MMBtu/hour or less, the Unit Reduction calculated pursuant to Attachment B of this rule is less than 10 tons per year based the applicable Table 1 NOx emission limit;

(iii) For boilers or process heaters greater than 110 MMBtu/hour, the Unit Reduction calculated pursuant to Attachment B of this rule is less than 20 tons per year based on the applicable Table 1 NOx emission limit;

(iv) The South Coast AQMD Permit to Construct or South Coast AQMD Permit to Operate for the unit does not have a condition that limits the NOx concentration to a level at or below the applicable Table 1 NOx emission limit;

(v) The Representative NOx Concentration of the unit is below the applicable Table 1 NOx emission; and

(vi) The unit is not identified as being decommissioned in an approved B-Plan for reductions in an I-Plan or approved B-Cap pursuant to subparagraph (e)(1)(D).

(B) An owner or operator that meets the conditions in subparagraph (d)(2)(A) that elects to meet the NOx and CO emission limits in Table 2 in lieu of the NOx and CO emission limits in Table 1 shall:

(i) Before July 1, 2022, submit a complete South Coast AQMD permit application to apply for a permit condition that limits the NOx emissions to the applicable levels specified in Table 2; and

(ii) No later than 18 months after the South Coast AQMD Permit to Construct is issued, meet the NOx and CO emission limits at the percent O_2 correction and the averaging time specified in Table 2 or subdivision (k), whichever is applicable.

(C) Notwithstanding subparagraph (d)(2)(A) and (d)(2)(B), an owner or operator shall meet the Conditional NOx and CO Emission Limits in Table 2 in lieu of the NOx and CO Emission Limits in Table 1 if:

(i) The owner or operator is submitting a B-Plan or a B-Cap, and their unit is listed in Table D-1;

(ii) The owner or operator is submitting a B-Cap and has selected I-Plan Option 4, and their unit is listed in Table D-2.

TABLE 2: CONDITIONAL NOx AND CO EMISSION LIMITS

Unit	NOx (ppmv)	CO (ppmv)	O_2 Correction (%)	Rolling Averaging Time[1]
Boilers >110 MMBtu/hour	7.5	400	3	24-hour
FCCUs	8	500	3	365-day
	16			7-day
Gas Turbines fueled with Natural Gas	2.5	130	15	24-hour
Process Heaters 40 – 10 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	24-hour

[1] Averaging times apply to units operating a certified CEMS and shall be calculated pursuant to Attachment A of this rule. Requirements, including averaging times, for units without CEMS are specified in subdivision (k).

(3) Boilers with Rated Heat Input Less Than 40 MMBtu/hour

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

(A) Before January 1, 2023, have a South Coast AQMD Permit that includes an enforceable emission limit that does not exceed 40 ppmv NOx and 400 ppmv CO at three percent O_2 correction and limits the

averaging times to Table 1 or subdivision (k), whichever is applicable.

(B) On and after January 1, 2023, not operate a boiler that exceeds 40 ppmv NOx and 400 ppmv CO at three percent O_2 correction as demonstrated pursuant to the averaging times in Table 1 or subdivision (k), whichever is applicable; and

(C) No later than six months after an owner or operator cumulatively replaces either 50 percent or more of the burners in a boiler or replaces burners that represent 50 percent or more of the heat input in a boiler, where the cumulative replacement begins from July 1, 2022, shall:

(i) Submit a complete South Coast AQMD permit application to impose a 5 ppmv NOx emission limit and a 400 ppmv CO emission limit at three percent O_2 correction that limits the averaging times to Table 1 or subdivision (k), whichever is applicable; and

(ii) Meet the emission limits pursuant to clause (d)(3)(C)(i) no later than 36 months after a South Coast AQMD Permit to Construct is issued.

(4) Process Heaters with Rated Heat Input Less Than 40 MMBtu/hour

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

(A) Before January 1, 2023, have a South Coast AQMD Permit that includes an enforceable emission limit that does not exceed 40 ppmv NOx and 400 ppmv CO at three percent O_2 correction and limits the averaging times to Table 1 or subdivision (k), whichever is applicable;

(B) On and after January 1, 2023, not operate a process heater that exceeds 40 ppmv NOx and 400 ppmv CO at three percent O_2 correction as demonstrated pursuant to the averaging times in Table 1 or subdivision (k), whichever is applicable; and

(C) Effective [*TEN YEARS AFTER DATE OF ADOPTION*], no later than six months after an owner or operator cumulatively replaces either 50 percent or more of the burners in a process heater or replaces burners that represent 50 percent or more of the heat input

in a process heater, where the cumulative replacement begins from [*FIVE YEARS AFTER DATE OF ADOPTION*], shall:

(i) Submit a complete South Coast AQMD permit application to impose a 9ppmv NOx emission limit and a 400 ppmv CO emission limit at three percent O_2 correction and limits the averaging times to Table 1 or subdivision (k), whichever is applicable; and

(ii) Meet the emission limits pursuant to clause (d)(4)(C)(i) no later than 36 months after a South Coast AQMD Permit to Construct is issued.

(5) Gas Turbines

Notwithstanding the NOx emission limits in Table 1, an owner or operator shall not operate a gas turbine that exceeds 5 ppmv NOx corrected to 15 percent O_2 correction 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:

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

(B) This information is available to South Coast AQMD staff upon request for at least five years from the date of entry.

(6) An owner or operator of units with combined stacks shall be subject to the most stringent applicable Table 1 or Table 2 NOx and CO emission limit at the percent O2 correction based on the averaging time in Table 1 or subdivision (k), whichever is applicable.

(7) An owner or operator of a unit with a CO emission limit in a South Coast AQMD Permit to Operate that was established before [DATE OF ADOPTION], shall meet the CO emission limit in the South Coast AQMD Permit to Operate in lieu of the CO emission limit specified in Table 1 or Table 2.

(8) An owner or operator of a unit with an averaging time less than 365-day in Table 1 or Table 2 that operates a CEMS shall be required to demonstrate compliance with the applicable NOx emission limits in Table 1, Table 2, an approved B-Plan, or an approved B-Cap six months after, either the date the South Coast AQMD Permit to Operate is issued, 36 months after the Permit to Construct is issued or completion of a compliance demonstration source test, whichever is sooner.

(9) An owner or operator of a unit subject to a 365-day rolling average shall demonstrate compliance with the Rule 1109.1 Emission Limits beginning 14 months after either the date the South Coast AQMD Permit to Operate is issued, 36 months after the Permit to Construct is issued, or completion of a compliance demonstration source test, whichever is sooner.

(e) B-Plan and B-Cap Requirements

(1) An owner or operator of a facility with six or more units that elects to meet the NOx emission limits in an approved B-Plan in lieu of meeting Table 1 or Table 2 NOx emission limits shall:

(A) Before July 1, 2022, submit an application for a B-Plan that includes all units subject to this rule, with the exception of any boiler or process heater less than 40 MMBtu/hour that will meet the NOx limit specified in subparagraph (d)(3)(C) or (d)(4)(C) after the last Compliance Date in Table 6 for the selected I-Plan option, for review and approval pursuant to subdivision (i);

(B) Select an Alternative BARCT NOx Limit for Phase I, Phase II, and Phase III to meet the respective Phase I, Phase II, and Phase III BARCT Equivalent Mass Emissions where the Alternative BARCT NOx Limit shall not exceed:

(i) The Conditional NOx and CO limit in Table 2, for any unit that is meeting a Conditional NOx and CO Emission Limit pursuant to subparagraphs (d)(2)(A) and (d)(2)(B).

(C) Comply with a condition in the Permit to Operate that limits the NOx concentration to the Alternative BARCT NOx Limit Phase I, Phase II, and if applicable Phase III for each unit in the approved B-Plan based on the schedule established in the approved I-Plan;

(D) Not include emission reductions for any unit that is permanently decommissioned; and

(E) Not operate a unit that exceeds the Alternative BARCT NOx Limit, CO emission limit, based on the averaging time in Table 1 or the subdivision (k), whichever is applicable, in an approved B-Plan, based on the implementation schedule in the approved I-Plan.

(2) An owner or operator of a facility with six or more units that elects to meet the NOx and CO emission limits in an approved B-Cap in lieu of meeting Table 1 and Table 2 NOx concentration limits shall:

(A) Before July 1, 2022, submit a B-Cap and an I-Plan that includes all units subject to this rule, with the exception of any boiler or process heater less than 40 MMBtu/hour that will meet the NOx limit specified in subparagraph (d)(3)(C) or (d)(4)(C) after the last Compliance Date in Table 6 for the selected I-Plan option, for review and approval pursuant to subdivision (i);

(B) Select an Alternative BARCT NOx Limit for Phase I, Phase II, and Phase III to meet the respective Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions where the Alternative BARCT NOx Limit shall not exceed;

(i) The Maximum Alternative BARCT NOx Limit for the applicable unit, specified in Table 3; and

(ii) The Conditional NOx and CO limit in Table 2, for any unit that is meeting a Conditional NOx and CO Emission Limit pursuant to subparagraphs (d)(2)(A) or (d)(2)(B).

(C) Comply with a condition in the South Coast AQMD Permit to Operate that limits the NOx concentration to the Alternative BARCT NOx Limit for Phase I, Phase II, and if applicable Phase III for each unit in the approved B-Cap based on the schedule established in the approved I-Plan;

(D) For any unit that is permanently decommissioned, represent the decommissioned unit as Table 1 NOx emissions in the Phase I, Phase II, or Phase III Facility BARCT Emission Target in an approved B-Cap, and for the unit that is decommissioned the owner or operator shall:

(i) Surrender the South Coast AQMD Permit to Operate no later than the compliance date for Phase I in I-Plan Option 4 and no later than the permit submittal date for all other phases in an approved I-Plan;

(ii) Disconnect and blind the fuel line(s) on or before the Permit to Operate is surrendered pursuant to clause (e)(2)(D)(i); and

(iii) Not sell the unit for operation to another entity within the South Coast Air Basin;

(E) Not operate any unit unless the NOx emissions for all units in the approved B-Cap are in aggregate at or below the applicable Phase I, Phase II, or Phase III Facility BARCT Emission Target, based on the schedule in the approved I-Plan; and

(F) Not add a new unit that will be subject to this rule that increases the facility emissions above applicable Phase I, Phase II, or Phase III Facility BARCT Emission Target, unless:

(i) All units in the approved B-Cap meet the Equivalent Mass Emission;

(ii) The new unit is not functionally similar to any unit that was decommissioned in the approved B-Cap;

(iii) The new unit will not increase overall facility throughput; and

(iv) The total amount of NOx emission reductions from units that were decommissioned, represents 15 percent or less of Final Phase Facility BARCT Emission Target in an approved B--Cap.

TABLE 3: MAXIMUM ALTERNATIVE BARCT NOX LIMITS FOR A B-CAP

Unit	Maximum Alternative BARCT NOx Limit	O_2 Correction (%)	Rolling Averaging Time[1]
Boilers and Process Heaters <40 MMBtu/hour	40 ppmv	3	24-day
Boilers and Process Heaters ≥40 MMBtu/hour	50 ppmv	3	24-day
FCCUs	8 ppmv	3	365-day
	16 ppm		7-day
Gas Turbines	5 ppmv	15	24-day
Petroleum Coke Calciners	100 tons/year	N/A	365-day
SRU/TG Incinerators	100 ppmv	3	24-day
Vapor Incinerators	40 ppmv	3	24-day

[1] Averaging times apply to units operating a certified CEMS and shall be calculated pursuant to Attachment A of this rule. Requirements, including averaging times, for units without CEMS are specified in subdivision (k).

(f) Interim Emission Limits

(1) An owner or operator of a facility that elects to comply with the emission limits in Table 1, Table 2, or an approved B-Plan shall not operate a unit that exceeds the applicable interim NOx and CO emission limits based on the measured O_2 correction and the averaging time in Table 4 or subdivision (k), whichever is applicable, until that unit is required to meet another Rule 1109.1 Emission Limit pursuant to the compliance schedule in paragraph (g)(1) or an approved I-Plan.

TABLE 4: INTERIM NOx AND CO EMISSION LIMITS

Unit	NOx (ppmv)	CO (ppmv)	O_2 Correction (%)	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 (f)(2)	400	3	365-day
Flares	105	400	3	365-day
FCCUs	40	500	3	365-day
Gas Turbines fueled with Natural Gas or Other Gaseous Fuel	20	130	15	365-day
Petroleum Coke Calciners	85	2,000	3	365-day
SMR Heaters	20[2]	400	3	365-day
	60[3]			365-day
SMR Heaters with Gas Turbine	5	130	15	365-day
SRU/TG Incinerators	100	400	3	365-day
Sulfuric Acid Furnaces	30	400	3	365-day
Vapor Incinerators	105	400	3	365-day

[1] Averaging times are applicable to units with a CEMS and shall be calculated pursuant to Attachment A of this rule. Requirements, including averaging times, for units without CEMS are specified in subdivision (k).

[2] SMR Heaters equipped with post-combustion air pollution control equipment that was installed before [*DATE OF ADOPTION*].

[3] SMR Heaters not equipped with post-combustion air pollution control equipment as of [*DATE OF ADOPTION*].

(2) Interim NOx emission limits for Boilers and Process Heaters

An owner or operator of a Former RECLAIM Facility shall:

(A) Not exceed the applicable interim NOx emission rate in Table 5, calculated pursuant to Attachment A Section (A-2) of this rule, for all boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour and boilers and process heaters with a rated heat input capacity less than 40 MMBtu/hour that operate with a NOx CEMS.

TABLE 5: INTERIM NOX EMISSION RATES FOR BOILERS AND PROCESS HEATERS ≥40 MMBTU/HOUR

Units	An Owner or Operator that Elects to Comply with an Approved:	Facility NOx Emission Rate (pounds/million Btu)	Rolling Averaging Time
Boilers and Process Heaters: ≥40 MMBtu/Hour and <40 MMBtu/hour |Operating a Certified CEMS	B-Plan using I-Plan Option 3	0.02	365-day
	B-Plan	0.03	365-day

(B) Demonstrate compliance with the applicable interim NOx emission rate in Table 5 until all boilers and process heaters subject to paragraph (f)(2) meet the NOx concentration limits in Table 1, Table 2, or an approved B-Plan.

(3) An owner or operator of a Former RECLAIM Facility that elects to comply with an approved B-Cap shall not operate any unit included in the approved B-Cap unless the NOx emissions for all units in the B-Cap are in aggregate at or below the Baseline Facility Emission.

(g) 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) Before July 1, 2023, submit a complete South Coast AQMD permit application to establish a permit condition that limits the NOx concentration based on the percent O_2 correction and the averaging time in Table 1 or subdivision (k), whichever is applicable, unless the owner or operator has a South Coast AQMD Permit to Construct or a South Coast AQMD Permit to Operate with the NOx concentration limit at the percent O_2 correction, based on the averaging time specified in Table 1; and

(B) Not operate a unit, that exceeds the NOx and CO emission limits based on the percent O_2 correction and the averaging time in Table 1 or subdivision (k), whichever is applicable:

(i) No later than 36 months after a South Coast AQMD Permit to Construct is issued; or

(ii) No later than July 1, 2023 if a permit application was not required as specified in subparagraph (g)(1)(A).

(2) I-Plan Requirements

An owner or operator with six or more units that elects to meet the NOx and CO emission limits using an alternative compliance schedule to paragraph (g)(1) or that elects to comply with an approved B-Plan or B--Cap shall:

(A) Before July 1, 2022, submit an I-Plan pursuant to paragraph (i)(1) that includes all units subject to Table 1 NOx emission limits for review and approval pursuant to paragraph (i)(4), with the exception of any boiler or process heater less than 40 MMBtu/hour that will meet the NOx limit specified in subparagraph (d)(3)(C) or (d)(4)(C) after the last Compliance Date in Table 6 for the selected I-Plan option;

(B) Calculate the Phase I, Phase II, or Phase III Facility BARCT Emission Targets, pursuant to Attachment B of this rule;

(C) For a B-Cap, the Phase I, Phase II, and Phase III Facility BARCT Emission Targets shall incorporate a reduction of 10 percent, pursuant to Attachment B of this rule;

(D) For a B-Plan, calculate the Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions, pursuant to Attachment B of this rule;

(E) For a B-Plan, demonstrate that Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions, are equal to or less than the respective Phase I, Phase II, or Phase III Facility BARCT Emission Target;

(F) For a B-Cap, calculate the Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions, pursuant to Attachment B of this rule;

(G) For a B-Cap, demonstrate that Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions, are equal to or less than the respective Phase I, Phase II, or Phase III Facility BARCT Emission Target;

(H) Based on the schedule in the approved I-Plan, implement emission reduction projects to comply with the emission limits in Table 1 or Table 2 or an approved B-Plan or approved B-Cap, to achieve the Phase I, Phase II, or Phase III Facility BARCT Emission Target; and

(I) For an owner or operator with an approved B-Cap, demonstrate compliance with the emissions requirements and all other requirements no later than the compliance date for Phase I in I-Plan Option 4 and no later 54 months from South Coast AQMD Permit Application Submittal Date for all other phases of the selected I-Plan option in Table 6 to meet the Phase I, Phase II, or Phase III Facility BARCT Emission Targets.

TABLE 6: I-PLAN PERCENT REDUCTION TARGETS AND SCHEDULE[1]

		Phase I	Phase II	Phase III
I-Plan Option 1 for B-Plan Only	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 South Coast AQMD Permit to Construct is issued		N/A
I-Plan Option 2 for B-Plan Only	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 South Coast AQMD Permit to Construct is issued		
I-Plan Option 3 for B-Plan or B-Cap and as allowed pursuant to paragraph (g)(3)	Percent Reduction Targets	50	100	N/A
	Permit Application Submittal Date	January 1, 2025	January 1, 2029	N/A
	Compliance Date	No later than 36 months after a South Coast AQMD Permit to Construct is issued		N/A
I-Plan Option 4 for B-Cap Only	Percent Reduction Targets	50 to 60 (Still in development)	80	100
	Permit Application Submittal Date	N/A	January 1, 2025	January 1, 2028
	Compliance Date	January 1, 2024	No later than 36 months after a South Coast AQMD Permit to Construct is issued	
I-Plan Option 5 for B-Cap Only	Percent Reduction Targets	50	70	100
	Permit Application Submittal Date	July 1, 2022	July 1, 2024	January 1, 2028
	Compliance Date	No later than 36 months after a South Coast AQMD Permit to Construct is issued		

(3) I-Plan Option 3 is only available to an owner or operator of a facility achieving a NOx emission rate of less than 0.02 pound per million BTU of heat input, based on annual emissions for the applicable units as reported in the 2021 Annual Emissions Report and calculated pursuant to Attachment A, for all the boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour based on the maximum rated capacity by [*DATE OF ADOPTION*]; for units firing at less than the maximum rated capacity, mass emissions shall be less than or equal to the quantity that would occur at maximum rated capacity.

(4) An owner or operator of a unit complying with Table 2 conditional emission limits that replaces existing NOx control equipment shall:

(A) Within six months of replacing the existing NOx control equipment, be subject to the applicable Table 1 emission limit;

(B) Apply for a South Coast AQMD permit condition to limit the NOx and CO concentration to the applicable Table 1 emission limit at the corresponding percent O_2 correction and averaging times in Table 1 or subdivision (k), whichever is applicable. Replacement of existing NOx control equipment will be determined as:

(i) Existing post-combustion air pollution control equipment for an FCCU, gas turbine fueled with natural gas, process heater with a rated heat input capacity greater than or equal to 40 MMBtu/hour, 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 and install a comparable new unit; or

(ii) 50 percent or more of the burners in a vapor incinerator, or 50 percent or more of the rated heat input capacity of the burners in a vapor incinerator, are cumulatively replaced after [*DATE OF ADOPTION*].

(5) An owner or operator of unit complying with clauses (d)(2)(B)(i); (d)(3)(C)(i); (d)(4)(C)(i); or subparagraphs (g)(1)(A) or (g)(5)(A) that fails to submit a complete South Coast AQMD permit application by the date specified in causes (d)(2)(B)(i); (d)(3)(C)(i); (d)(4)(C)(i); or subparagraphs (g)(1)(A) or (g)(5)(A), shall meet the applicable Rule 1109.1 Emission Limits no later than 36 months after the South Coast AQMD permit application submittal date pursuant to causes (d)(2)(B)(i), (d)(3)(C)(i), or (d)(4)(C)(i), or subparagraphs (g)(1)(A) or (g)(5)(A).

(6) An owner or operator of a unit exempt from the Table 1 NOx and CO emission limits pursuant to paragraphs (n)(2), (n)(3), (n)(6), (n)(7), (n)(8) or (n)(9) that exceeds the applicable exemptions limitations shall:

(A) Within six months of the exceedance, submit a complete South Coast AQMD permit application to comply with the corresponding Table 1 emission limit; and

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

(h) Time Extensions

(1) An owner or operator of a unit may request one 12--month extension for each unit from the compliance date in paragraph (g)(1) or the Compliance Date in Table 6 provided:

(A) The South Coast AQMD permit application for the unit was submitted on or before the date specified in paragraph (g)(1) or the approved I-Plan; and

(B) There are specific circumstances outside of the control of the owner or operator that necessitate an extension of time.

(2) An owner or operator of a unit with an approved I-Plan may request a time extension from the Compliance Date in Table 6 for a unit provided:

(A) The South Coast AQMD permit application for the unit was submitted on or before the date specified in the approved I-Plan;

(B) The month and year for the unit's scheduled turnaround and the month and year for the unit's subsequent turnaround is submitted in writing at the time of South Coast AQMD permit application submittal; and

(C) One or more of the following occurred:

(i) The South Coast AQMD Permit to Construct for the unit was issued after the scheduled turnaround date or the South Coast AQMD Permit to Construct for the unit was issued more than 24 months after the South Coast AQMD permit application was submitted, and either:

(ii) The subsequent scheduled turnaround for the unit will not occur until 12 months after the Compliance Date in the approved I-Plan; or

(iii) The subsequent scheduled turnaround for the unit will occur more than 48 months after the South Coast AQMD Permit to Construct was issued.

(3) An owner or operator that requests a time extension pursuant to paragraphs (h)(1) or (h)(2) shall submit the request in writing to the Executive Officer no later than 90 days prior to the Compliance Date in paragraph (g)(1) or the approved I-Plan for the unit. The time extension request shall include:

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

(B) The date the South Coast AQMD permit application was submitted;

(C) The additional time needed to complete the emission reduction project;

(D) Specify if the time extension request is for paragraph (h)(1) or (h)(2);

(E) For time extension requests for paragraph (h)(2), provide the month and year of the scheduled turnaround, and the subsequent turnaround, if applicable, for the unit; and

(F) The reason(s) a time extension is requested.

(4) The Executive Officer will review the request for the time extension and act on the request within 60 days of receipt provided an owner or operator:

(A) Meets the requirements of paragraph (h)(1) or (h)(2), as applicable;

(B) Submitted the written request within the timeframe and includes the applicable information specified in paragraphs (h)(1) and (h)(2); and

(C) For a time extension request pursuant to paragraphs (h)(1) and (h)(2), the owner or operator shall at a minimum:

(i) For delays due to missed milestones, provide information on schedules and/or construction plans documenting the key milestones and which key milestone(s) were delayed with an

explanation actions the operator took to ensure milestones were met and why the delay necessitates additional time;

(ii) For delays related to other agency approvals, provide information to substantiate that the submittal of information to the agency was timely, the date when application was the approval was requested, and documentation from the agency of reason for the delay;

(iii) For delays related to the delivery of parts or equipment, provide purchase orders, invoices, and communications from vendors that demonstrate that equipment was ordered in a timely fashion and delays are outside of the control of the operator; and

(iv) For delays related to contract workers, source testers, installers, or other services, provide an explanation of the service, when the service was requested, the response time, and information to substantiate why the delay necessitates additional time.

(D) For a time extension request allowed under paragraphs (h)(2), the owner or operator shall provide documentation to substantiate that one of the provisions under subparagraph (h)(2)(C) have been met.

(5) If the Executive Officer requests additional information to substantiate the time extension request, the owner or operator shall provide that information within the timeframe specified by the Executive Officer.

(6) If the Executive Officer notifies the owner or operator of approval 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 timeframe in the approval, and the approval represents an amendment to the I-Plan.

(7) 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 or pursuant to the compliance schedule in paragraph (g)(1) or the schedule in an approved I-Plan.

(i) I-Plan, B-Plan, and B-Cap Submittal and Approval Requirements

(1) I-Plan Submittal Requirements

An owner or operator that elects to implement an I-Plan pursuant to paragraph (g)(2) to meet the Alternative BARCT NOx Limits in an approved B-Plan or approved B-Cap shall submit an I-Plan to the Executive Officer for review and approval that:

(A) Identifies each unit subject to the rule by device identification number with a description of each unit, with the exception of any boiler or process heater less than 40 MMBtu/hour that will meet the NOx limit specified in subparagraph (d)(3)(C) or (d)(4)(C) after the last Compliance Date in Table 6 for the selected I-Plan option;

(B) For facilities to use the time extension pursuant to paragraph (h)(2), identifies the anticipated start and end date (month and year) of the turnaround schedule for each unit;

(C) Specifies either I-Plan Option 1 (for a B-Plan only), I-Plan Option (for a B-Plan only) 2, I-Plan Option 3 (for a B-Plan or B-Cap), I--Plan Option 4 (for a B-Cap only), or I-Plan Option 5 (for a B-Cap only) in Table 6;

(D) Calculates the Phase I, Phase II, or Phase III Facility BARCT Emission Target, pursuant to Attachment B of this rule;

(E) For a B-Plan, identifies each unit that meets the requirements under subparagraph (d)(2)(A) for use of a conditional NOx emission limit in Table 2 and the owner or operator submitted a complete South Coast AQMD permit application pursuant to clause (d)(2)(B)(i);

(F) For the selected I-Plan option specified pursuant to subparagraph (i)(1)(B), calculates the Phase I, Phase II, or Phase III Facility BARCT Emission Target, pursuant to Attachment B of this rule; and

(G) Identifies each unit by device identification number with a description of each unit, that cumulatively meets Phase I, Phase II, or Phase III Facility BARCT Emission Target.

(2) B-Plan Submittal Requirements

An owner or operator that elects to meet Alternative BARCT NOx Limits in an approved B-Plan pursuant to paragraph (e)(1), shall submit a B-Plan to the Executive Officer for review that:

(A) Identifies for each unit subject to the rule by device identification number with a description of each unit, with the exception of any boiler or process heater less than 40 MMBtu/hour that will meet the NOx limit specified in subparagraph (d)(3)(C) or (d)(4)(C) after the last Compliance Date in Table 6 for the selected I-Plan option;

(B) Specifies the Alternative BARCT NOx Limit for Phase I, Phase II, and if applicable Phase III of the approved I-Plan;

(C) Calculates the Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions using the Alternative BARCT NOx Limits identified in subparagraph (g)(2)(B), as calculated pursuant to Attachment B of this rule; and

(D) Demonstrates that Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions are less than the respective Phase I, Phase II, or Phase III Facility BARCT Emission Target.

(3) B-Cap Submittal Requirements

An owner or operator that elects to meet the Alternative BARCT NOx Limits in an approved B-Cap pursuant to paragraph (e)(2), shall submit a B-Cap to the Executive Officer for review that:

(A) Identifies each unit subject to the rule by the device identification number with a description of the unit, with the exception of any boiler or process heater less than 40 MMBtu/hour that will meet the NOx limit specified in subparagraph (d)(3)(C) or (d)(4)(C) after the last Compliance Date in Table 6 for the selected I-Plan option, and:

(B) Specifies the Alternative BARCT NOx Limit that is at or below Maximum Alternative BARCT NOx Limit in Table 3;

(C) Identifies any unit that will be decommissioned for each phase of the approved I-Plan;

(D) Identifies any unit that will have a reduction in throughput for each phase of the approved I-Plan;

(E) Calculates the Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions using the emission reduction strategies identified in subparagraph (g)(3)(B); as calculated pursuant to Attachment B of this rule; and

(F) Demonstrates that Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions, are less than the respective Phase I, Phase II, or Phase III Facility BARCT Emission Target that incorporates a 10 percent reduction pursuant to subparagraph (g)(2)(C);

(4) I-Plan, B-Plan, and B-Cap Review and Approval Process

(A) The Executive Officer will notify the owner or operator in writing whether the I-Plan, B-Plan, or B-Cap is approved or disapproved based on the following criteria:

(i) The I-Plan contains information required in paragraph (i)(1), the B-Plan contains information required in paragraph (i)(2), and the B-Cap contains information required in paragraph (i)(3);

(ii) The owner or operator demonstrates that the requirements of subparagraphs (d)(2)(A) and (d)(2)(B) have been met for any unit that is meeting a Table 2 conditional NOx emission limit, in lieu of a Table 1 NOx emission limit;

(iii) For a B-Plan, the Phase I, Phase II, or Phase III Equivalent BARCT Emissions are less than or equal to the respective Phase I, Phase II, or Phase III Facility BARCT Emission Target as required in subparagraph (g)(2)(B);

(iv) For a B-Cap, the Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions are less than or equal to the respective Phase I, Phase II, or Phase III Facility BARCT Emission Target that incorporates a 10 percent reductions pursuant to subparagraph (g)(2)(C);

(v) For a B-Cap, the NOx concentration limit for any unit does not exceed the Maximum Alternative BARCT NOx Limits in Table 3.

(B) Within 30 days of receiving written notification from Executive Officer that the I-Plan, B-Plan, or B-Cap is disapproved, the owner or operator shall correct any deficiencies and re-submit the I-Plan, B-Plan, or B-Cap.

(C) Upon receiving written notification from the Executive Officer that the I-Plan, B-Plan, or B-Cap re-submitted pursuant to subparagraph (i)(4)(B) is disapproved, the owner or operator shall comply with the compliance schedule pursuant to paragraph (g)(1).

(5) Modifications to an Approved I-Plan, an Approved B-Plan, and an Approved B-Cap

(A) An owner or operator that seeks approval to modify an approved I-Plan, an approved B-Plan, or an approved B-Cap shall submit a request in writing to the Executive Officer to modify an Approved I-Plan, an Approved B-Plan, and an Approved B-Cap.

(B) The modification request submitted pursuant to subparagraph (i)(5)(A) shall include all the plan submittal requirements pursuant to paragraph (i)(1) for an approved I-Plan, paragraph (i)(2) for a modification of an approved B-Plan, or paragraph (i)(3) for a modification of an approved B-Plan;

(C) An owner or operator shall modify an approved I-Plan, B-Plan, or B-Cap if:

(i) A unit identified as meeting Table 2 no longer meets the requirements of subparagraph (d)(2)(A) or (d)(2)(B);

(ii) A unit in an approved B-Cap or B-Plan, identified as meeting Table 2 for establishing the Phase I, Phase II, or Phase III BARCT Facility Emission Target, is decommissioned;

(iii) A higher Alternative BARCT NOx Limit will be proposed in the South Coast AQMD permit application than the Alternative BARCT NOx Limit for that unit in the currently approved I-Plan, B-Plan, or B-Cap;

(iv) Any emission reduction project is moved to a later implementation phase, any emission reduction project is moved between phases, or any emission reduction project is removed from a phase; or

(v) The owner or operator receives written notification from the Executive Officer that modifications to the I-Plan, B-Plan, or B-Cap are needed.

(D) Review and approval of any modifications to an I-Plan, B-Plan, or B-Cap shall conducted in accordance with the review and approval process pursuant to paragraph (i)(4).

(6) Notification of Pending Approval of an I-Plan, B-Plan, or B-Cap

The Executive Officer will make the I-Plan, B-Plan, or B-Cap or modifications to an approved I-Plan, B-Plan, or B-Cap available to the public on the South Coast AQMD website 30 days prior to approval.

(7) Plan Fees

The review and approval of an I-Plan, B-Plan, and B-Cap, or review and approval of a modification of an approved I-Plan, B-Plan, and B-Cap shall be subject to applicable plan fees as specified in Rule 306 – Plan Fees.

(j) CEMS Requirements

(1) An owner or operator of a Former RECLAIM Facility with a unit with a rated heat input capacity of greater than or equal to 40 MMBtu/hour shall install, certify, operate, and maintain a CEMS to measure NOx and O_2 pursuant to the applicable Rule 218.2 and Rule 218.3 requirements to demonstrate compliance with NOx emission limits at the corresponding percent O_2 correction and averaging times.

(2) An owner or operator of a Former RECLAIM Facility with a sulfuric acid furnace subject to the emission limits in Table 1, Table 4, an approved B-Plan or an approved B-Cap shall:

(i) Install, certify, operate, and maintain a CEMS to measure NOx pursuant to the applicable Rules 218.2 and 218.3 requirements to demonstrate compliance with the Rule 1109.1 Emissions Limits; and

(ii) Within 12 months from [*DATE OF ADOPTION*] shall install, certify, operate, and maintain a CEMS that complies with the Rules 218.2 and 218.3 requirements to measure O_2 and demonstrate compliance with the Rule 1109.1 Emission Limits at the corresponding percent O_2 correction.

(3) An owner or operator of a unit with a CEMS that measures CO at [*DATE OF ADOPTION*] must operate and maintain the CO CEMS pursuant to the applicable Rules 218.2 and 218.3 requirements to demonstrate compliance with the Table 1, Table 2, or Table 3 CO emissions limits and certify the CEMS within 12 months of [*DATE OF ADOPTION*] pursuant to the applicable Rules 218.2 and 218.3 requirements.

(4) 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.

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

An owner or operator of a unit with an approved B-Cap with a non-operational 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.

(k) Source Test Requirements

(1) An owner or operator of a unit that is not required to install and operate a CEMS pursuant to subdivision (i) shall be required to conduct a source test, with a duration of at least 15 minutes but no longer than two hours, to demonstrate compliance with Rule 1109.1 Emission Limits pursuant to the source test schedule in either Table 7 or Table 8.

(2) Source Test Schedule for Units without Ammonia Emissions in the Exhaust

An owner or operator of a unit that is not required to install and operate a CEMS pursuant to subdivision (i) and does not vent to post-combustion air pollution control equipment with ammonia injection, shall demonstrate compliance with the applicable Rule 1109.1 Emission Limits by conducting source tests according to the schedule in Table 7.

TABLE 7: SOURCE TESTING SCHEDULE
FOR UNITS WITHOUT AMMONIA EMISSIONS IN THE EXHAUST

Combustion Equipment	Source Test Schedule
Vapor Incinerators less than 40MMBtu/hr, Flares	• Conduct source test simultaneously for NOx and CO within 36 months from previous source test and every 36 months thereafter
All Other Units	
Units Operating without NOx or CO CEMS	• Conduct source test simultaneously for NOx and CO within 12 months of being subject to Rule 1109.1 Emission Limit and quarterly thereafter • Source tests may be conducted annually after the first 12 months of being subject to Rule 1109.1 Emission Limit if four consecutive quarterly source tests demonstrate compliance with the NOx and CO emission limits • If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the NOx and CO emission limits prior to resuming annual source tests
Units operating with NOx CEMS and without CO CEMS	• Conduct source test for CO within 12 months from previous source test and every 12 months thereafter
Units operating without NOx CEMS and with CO CEMS	• Conduct source test for NOx during the first 12 months of being subject to Rule 1109.1 Emission Limit and quarterly thereafter • Source tests may be conducted annually after the first 12 months of being subject to Rule 1109.1 Emission Limit if four consecutive quarterly source tests demonstrate compliance with the NOx and CO emission limits • If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the NOx emissions limits prior to resuming annual source tests

(3) Source Test Schedule for Units with Ammonia Emissions in the Exhaust

An owner or operator of a unit with post-combustion air pollution control equipment that requires ammonia injection shall demonstrate compliance with the applicable Rule 1109.1 Emission Limit and ammonia South Coast AQMD permit limit by conducting a source test according to the schedule in Table 8.

TABLE 8: SOURCE TESTING SCHEDULE
FOR UNITS WITH AMMONIA EMISSIONS IN THE EXHAUST

Combustion Equipment	Source Test Schedule
Units operating without NOx, CO, or ammonia CEMS	• Conduct source test simultaneously for NOx, CO, and ammonia quarterly during the first 12 months of being subject to Rule 1109.1 Emission Limit or ammonia South Coast AQMD permit limit and quarterly thereafter • Source tests may be conducted annually after the first 12 months of being subject to Rule 1109.1 Emission Limit or ammonia South Coast AQMD permit limit if four consecutive quarterly source tests demonstrate compliance with the CO, NOx, and ammonia emission limit • If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the NOx, CO, and ammonia emissions limits prior to resuming annual source tests

Combustion Equipment	Source Test Schedule
Units operating with NOx CEMS and without CO and ammonia CEMS	• Conduct source test for CO and ammonia quarterly during the first 12 months of being subject to Rule 1109.1 Emission Limit or ammonia South Coast AQMD permit limit and quarterly thereafter • Source tests may be conducted annually after the first 12 months of being subject to Rule 1109.1 Emission Limit or ammonia South Coast AQMD permit limit if four consecutive quarterly source tests demonstrate compliance with the CO and ammonia emission limit • If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the CO and ammonia emissions limits prior to resuming annual source tests
Units operating with NOx and CO CEMS and without ammonia CEMS	• Conduct source test for ammonia quarterly during the first 12 months of being subject to an ammonia South Coast AQMD permit limit and quarterly thereafter • Source tests may be conducted annually after the first 12 months of being subject to an ammonia South Coast AQMD permit limit 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 and ammonia CEMS and without CO CEMS	• Conduct source test for CO within 12 months from previous source test and every 12 months thereafter
Units operating with ammonia CEMS and without NOx or CO CEMS	• Conduct source tests to determine compliance with NOx and CO emission limits pursuant to Table 7

(4) An owner or operator that elects to install and operate a CEMS to demonstrate compliance with the applicable Rule 1109.1 Emission Limits or ammonia South Coast AQMD permit limit at the corresponding percent O_2 correction shall meet the CEMS requirements under subdivision (j).

(5) An owner or operator of with a unit subject to a Rule 1109.1 Emission Limit or ammonia South Coast AQMD permit limit, that is not required to install and operate a CEMS pursuant to subdivision (i) and has not conducted a source test within the schedule in Table 7 or Table 8, shall conduct a source test within:

(A) Six months from being subject to the Rule 1109.1 Emission Limit for units with a rated heat input capacity greater than or equal to 20 MMBtu/hour.

(B) 12 months from being subject to the Rule 1109.1 Emission Limit for units with a rated heat input capacity less than 20 MMBtu/hour.

(6) An owner or operator of a new or modified unit shall conduct the initial source tests within six months from commencing operation.

(7) An owner or operator of a unit required to conduct a source test pursuant to subdivision (k) shall:

(A) For units that receive a South Coast AQMD Permit to Construct to comply with Rule 1109.1 Emission Limit, submit a source test protocol, that includes an averaging time of at least 2 hours, for approval within 60 days after the Permit to Construct was issued unless otherwise approved by the Executive Officer;

(B) For units that receive a South Coast AQMD permit condition that limits NOx or CO to a Rule 1109.1 Emission Limit, submit a source test protocol, that includes an averaging time of at least 2 hours, for approval within 60 days after being subject to a Rule 1109.1 Emission limit, unless otherwise approved by the Executive Officer, and

(C) Conduct the source test within 90 days after a written approval of the source test protocol by the Executive Officer is distributed.

(8) 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 of the intent to conduct source testing and shall provide:

(A) Facility name and identification number;

(B) Device identification number; and

(C) Date when source test will be conducted.

(9) Unless requested by the Executive Officer, after the approval of the initial source test protocol pursuant to paragraph (k)(7), an owner or operator is not required to resubmit a source test protocol for approval pursuant to paragraph (k)(7) if:

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

(B) Rule or South Coast AQMD permit emission limits have not become more stringent since the previous source test;

(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 representative of the operation and configuration of the unit.

(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:

(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);

(iii) South Coast AQMD Source Test Method 207.1 for Determination of Ammonia Emissions from Stationary Sources; or

(iv) Any other test method determined to be equivalent and approved by the Executive Officer, and either the California Air Resources Board or the U. S. Environmental Protection Agency, as applicable.

(C) During operation other than startup and shutdown; and

(D) In as-found operating condition.

(11) 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.

(12) Emissions determined to exceed any limits established by this rule by any of the reference test methods in subparagraph (k)(9)(B) shall constitute a violation of the rule.

(13) An owner or operator of a unit that exceeds any limits established by this rule by any of the reference test methods in subparagraph (k)(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.

(l) Diagnostic Emission Checks

(1) An owner or operator of a unit required to perform a source test every 36 months pursuant to subdivision (k) 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 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.

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

(C) Conduct the diagnostic test every 365 days or every 8760 operating hours, whichever occurs earlier.

(2) A diagnostic emissions check that finds the emissions in excess of those allowed by this rule or a South Coast AQMD 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, 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 South Coast AQMD permit condition shall be a violation.

(m) Monitoring, Recordkeeping, and Reporting Requirements

(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 Executive Officer:

(A) Time and duration of startup and shutdown events;

(B) Total hours of operation;

(C) Quantity of fuel; and

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

(2) An owner or operator of a facility that elects to meet the NOx emission limits in an approved B-Cap pursuant to paragraph (e)(2) shall:

(A) Maintain CEMS for all applicable equipment or an enforceable method approved by the Executive Officer to determine daily mass emissions for those units without CEMS;

(B) Maintain daily records of mass emissions, in pounds (lbs) per day, from all units included in an approved B-Cap including:

(i) Emissions during start-ups, shutdowns, and maintenance;

(ii) CEMS data identified as invalid and justification;

(iii) Data substituted for missing data pursuant to paragraph (j)(5);

(C) Demonstrate compliance with the Facility BARCT Emission Target in the B-Cap on a daily basis from 365-day rolling average;

(3) An owner or operator subject to the interim emission rate pursuant to paragraph (f)(2) shall maintain the following daily records for each unit, in a manner approved by the Executive Officer:

(A) Actual daily mass emissions, in lbs., for all boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour;

(B) Combined maximum rated heat input for all boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour; and

(C) Calculated interim NOx emission rate pursuant to Attachment A Section (A-2) of this rule.

(4) An owner or operator of a unit shall keep and maintain 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 startups, shutdowns, and breakdowns, all maintenance, service and tuning records, and any other information required by this rule.

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

(A) Within 90 days of [*DATE OF 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 ADOPTION*], each non-resettable totalizing time meter or a fuel meter required under subparagraph (m)(4)(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 (m)(4)(A) may only be shut off for maintenance or safety.

(D) Within 90 days of [*DATE OF 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 ADOPTION*], the next calibration shall be conducted within one year of anniversary date of the prior calibration.

(E) Monitor and maintain hours of operation records as follows:

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

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

(6) An owner or operator of a vapor incinerator that is exempt from the applicable Table 1 NOx emission limits pursuant to paragraph (n)(9) shall record:

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

(B) Emissions using a source test pursuant to subdivision (k) or by using a default emission factor approved in writing by the Executive Officer.

(7) An owner or operator of a unit subject to the compliance schedule in subparagraphs (d)(3)(B), (d)(4)(B), and (g)(3)(B) shall maintain records of burner replacement, including number of burners and date of installation.

(8) An owner or operator of a unit subject to the compliance schedule in subparagraph (g)(3)(A) shall maintain records of the date the existing post-combustion control equipment was installed or replaced.

(n) Exemptions

(1) Boilers or Process Heater with a Rated Heat Input Capacity 2 MMBtu/hour or less

The provisions of this rule shall not apply to an owner or operator of a boiler or process heater with a rated heat input capacity 2 MMBtu/hour or less that are fired with liquid and/or gaseous fuel and used exclusively for space or water heating and are subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters.

(2) Low-Use Boilers with a Rated Heat Capacity of less than 40 MMBtu/hour

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:

(A) Subdivisions (d) provided:

(i) 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

(ii) The boiler operates in compliance with the permit conditions pursuant to clause (n)(2)(A)(ii).

(B) Subdivisions (k) and (l) provided the unit is not included in an approved B-Cap.

(3) Low-Use Process Heater with a rated heat input capacity greater than or equal to 40 MMBtu/hour

An owner or operator of a process heater with a rated heat input capacity greater than or equal to 40 MMBtu/hour that is fired at less than 15 percent of the rated heat input capacity on an annual basis, shall be exempt from the applicable emission limits in Table 1, Table 2, and an approved B-Plan.

(4) 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 applicable Rule 1109.1 Emission Limits during the required boiler inspections.

(5) FCCU Startup Heater

An owner or operator of a process heater which is used only for startup of a FCCU and that process heater is operated for 200 hours or less per calendar year shall be exempt from the requirements in:

(A) Subdivisions (d) provided:

(i) 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

(ii) The process heater or boiler operates in compliance with the permit condition pursuant to clause (n)(5)(A)(i).

(B) Subdivisions (k) and (l) provided the unit is not included in an approved B-Cap.

(6) Startup or Shutdown Boilers at Sulfuric Acid Plants

An owner or operator of a process heater used for startup or a boiler used during startup or shutdown at a sulfuric acid plant that does not exceed 90,000 MMBtu of annual heat input per calendar year shall be exempt from the requirements in subdivisions (d), (i), (j), and (k) 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 (n)(6)(A).

(7) Boiler or Process Heater Operating Only the Pilot

An owner or operator of a boiler or process heater operating only the pilot prior to startup or after shutdown shall be exempt from the emission limits in paragraphs (d)(3), (d)(4), 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 of this rule.

(8) Flares

(A) An owner or operator of a flare that emits less than or equal to 550 pounds of NOx or less per year shall be exempt from the requirements in subdivisions (d), (g) and (k), provided:

(i) The flare has enforceable South Coast AQMD permit conditions that limits the emissions to not exceed 550 pounds of NOx per year; and

(ii) The flare is in compliance with the permit condition pursuant to clause (n)(8)(A)(i).

(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 (k).

(9) Vapor Incinerators

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

(A) Has 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; and

(B) Operates in compliance with the permit condition pursuant to subparagraph (n)(9)(A).

ATTACHMENT A

SUPPLEMENTAL CALCULATIONS

(A-1) Rolling Average Calculation for Emission Data Averaging

$$C_{Avg} = \sum_{i=t}^{t+N-1} C_i \Big/ N$$

Where:

C_{Avg} = The average emission concentration at time t

t = Time of average concentration (hours)

C_i = The measured or calculated concentration for a unit with a CEMS at the i^{th} subset of data; one-hour for a unit with an averaging time of 24 hours or less and 24-hour for a unit with an averaging time of greater than 24 hours

N = Averaging time (hours).

(A-2) Interim NOx Emission Rate Calculation

An owner of operator shall calculate interim NOx emission rates as follows:

(A-2.1) Hourly Mass Emissions (lbs/hour)

Sum the actual annual mass emissions of all boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour and any boilers and process heaters with a rated heat input capacity less than 40 MMBtu/hour that operate a certified CEMS, and divide by 8760 hours for lbs per hour.

(A-2.2) Combined Maximum Heat Input (MMBtu/hour)

Sum the combined maximum rated heat input for all boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour and any boilers and process heaters with a rated heat input capacity less than 40 MMBtu/hour that operate a certified CEMS.

(A-2.3) Interim Facility Wide NOx Emission Rate (lbs/MMBtu)

Divide the Hourly Mass Emissions in Section (A-2.1) by the combined Maximum Heat Input in Section (A-2.2) to determine the interim NOx emission rate.

ATTACHMENT B

CALCULATION METHODOLOGY FOR THE I-PLAN, B-PLAN, AND B-CAP

The purpose of this attachment is to provide details regarding how key elements of the I-Plan, B-Plan, and B-Cap are calculated. Key calculations provided in this attachment include: Baseline Unit Emissions and Baseline Facility Emissions; Final Phase Facility BARCT Emission Target; Total Facility NOx Emission Reductions; Phase I, Phase II, or Phase III Facility BARCT Emission Target; Phase I, Phase II or Phase III BARCT Equivalent Mass Emissions for a B-Plan; and Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions for a B-Cap.

(B-1) Baseline Unit Emissions and Baseline Facility Emissions

Baseline Unit Emissions shall be determined by the Executive Officer based on the applicable 2017 NOx Annual Emissions Reporting data, or another representative year, as approved by the Executive Officer, expressed in pounds per year. Baseline Facility Emissions are the sum of all the Baseline Unit Emissions subject to this rule and shall not include Baseline Unit Emissions for units that are operational on and after [*DATE OF ADOPTION*].

(B-2) Final Phase Facility BARCT Emission Target

The Final Phase Facility BARCT Emission Target is the Phase II Facility BARCT Emission Target for an I-Plan option with two phases or the Phase III Facility BARCT Emission Target for an I-Plan option with three phases. The Final Phase Facility BARCT Emission Target is used to establish the Phase II or Phase III BARCT Emission Target for a B-Cap. To establish the Final Phase Facility BARCT Emission Target, the owner or operator must select if the basis of the emission target for each unit will be based on Table 1 or Table 2 NOx concentration limits. The owner or operator shall only select Table 2 NOx concentration limits if the requirements of subparagraphs (d)(2)(A) and (d)(2)(B) for the Conditional NOx Limits are met or if the unit is identified in Attachment D. For all other units, the owner or operator shall use NOx limits from Table 1 as the basis of the Facility BARCT Emission Target. To calculate the Final Phase Facility BARCT Emission Target for B-Cap, the owner or operator shall use NOx concentration limit of Table 1 for the units that will be decommissioned.

(B-2.1) The Final Phase Facility BARCT Emission Target for a facility complying with NOx emission limits in Table 1, an approved B-Plan or an approved B-Cap shall be calculated using the following equation:

$$\text{Final Phase Facility BARCT Emission Target} = \sum_{i=1}^{N} \left(\frac{C_{\text{Table 1 or Table 2}}}{C_{\text{Baseline}}} \times \text{Baseline Unit Emissions} \right)_i$$

Where:

N = Number of included units in B-Plan or B-Cap

$C_{\text{Table 1 or Table 2}}$ = The applicable NOx concentration limit for each unit i included in B-Plan or B-Cap

C_{Baseline} = Representative NOx Concentration as defined in subdivision (c) for unit i included in B-Plan

Baseline Unit Emissions = Baseline Unit Emissions for unit i as defined in subdivision (c) and included in the I-Plan, B-Plan or B-Cap as determined pursuant to section (B-1).

(B-3) Calculating Total Facility NOx Emission Reductions

Total Facility NOx Emission Reductions is the total reduction in NOx mass emissions per facility or facilities with the same ownership that would have been achieved if all units met the NOx concentration limits in Table 1 or Table 2 of this rule based on the Baseline Facility Emissions.

(B-3.1) For a facility complying with NOx emission limits in Table 1 or Table 2, an approved B-Plan or an approved B-Cap, the Total NOx Emission Reductions is the difference between Baseline Facility Emissions and the Final Phase Facility BARCT Emission Target.

$$\text{Total Facility NOx Emission Reductions} = \text{Baseline Facility Emissions} - \text{Final Phase Facility BARCT Emission Target}$$

(B-4) Calculating Phase I, Phase II, or Phase III Facility BARCT Emission Target

The Phase I, Phase II, or Phase III Facility BARCT Emission Targets are the total NOx mass emissions per facility based on the Total Facility NOx Emission Reductions and the Percent Reduction Target of Phase I, Phase II or Phase III of an I-Plan option in Table 6. For a B-Cap, each phase Facility BARCT Emission Targets shall be reduced by 10 percent.

(B-4.1) For the B-Plan, the Phase I Facility BARCT Emission Target represents the level of NOx emissions that must be achieved based on taking the difference between the Baseline Facility Emissions and applying the selected I-Plan Phase I Percent Reduction Target from Table 6 to the Total NOx Emission Reductions.

$$\text{Phase I Facility BARCT Emission Target}_{\text{B-Plan}} = \text{Baseline Emissions} - (\text{Phase I Percent Reduction Target} \times \text{Total Facility NOx Emission Reductions})$$

(B-4.2) For the B-Cap, the Phase I Facility BARCT Emission Target represents the level of NOx emissions that must be achieved based on taking the difference between the Baseline Facility Emissions and applying the selected I-Plan Phase I Percent Reduction Target from Table 6 to the Total NOx Emission Reductions, less 10 percent.

$$\text{Phase I Facility BARCT Emission Target}_{\text{B-Cap}} = [\text{Baseline Emissions} - (\text{Phase I Percent Reduction Target} \times \text{Total Facility NOx Emission Reductions})] \times 0.9$$

(B-4.3) For the B-Plan, if Phase II is not final phase, Phase II Facility BARCT Emission Target represents the level of NOx emissions that must be achieved based on taking the difference between the Baseline Emissions and applying the selected I-Plan Phase II Percent Reduction Target from Table 6 to the Total NOx Emission Reductions.

$$\text{Phase II Facility BARCT Emission Target}_{\text{B-Plan}} = \text{Baseline Emissions} - (\text{Phase II Percent Reduction Target} \times \text{Total NOx Emission Reductions})$$

(B-4.4) For a B-Cap, if Phase II is not final phase, Phase II Facility BARCT Emission Target represents the level of NOx emissions that must be achieved based on taking the difference between the Baseline Emissions and applying the selected I-Plan Phase II Percent Reduction Target from Table 6 to the Total NOx Emission Reductions.

$$\text{Phase II Facility BARCT Emission Target}_{\text{B-Cap}} = [\text{Baseline Emissions} - (\text{Phase II Percent Reduction Target} \times \text{Total Facility NOx Emission Reductions})] \times 0.9$$

(B-4.5) For a B-Plan, for the final phase, Phase II for the two phase I-Plan or Phase III for the three phase I-Plan, the Phase II or Phase III Final Facility BARCT is the Final Phase Facility BARCT Target as calculated in Section B-2.1.

$$\text{Phase II or Phase III Facility BARCT Emission Target}_{\text{B-Plan}} = \text{Final Phase Facility BARCT Emission Target}$$

(B-4.6) For a B-Cap, for the final phase, Phase II for the two phase I-Plan or Phase III for the three phase I-Plan, the Phase II or Phase III Final Facility BARCT is the Final Phase Facility BARCT Target as calculated in Section B-2.1.

$$\text{Phase II or Phase III Facility BARCT Emission Target}_{\text{B-Cap}} = (\text{Final Phase Facility BARCT Emission Target}) \times 0.9$$

(B-5) Calculating Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions for a B-Plan

The Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions are the total remaining NOx mass emissions per facility that incorporates emission reduction strategies designed to meet Phase I, Phase II, or Phase III target reductions in an I-Plan. The Phase I, Phase II, or Phase III BARCT Equivalent Mass Emissions incorporate the Alternative BARCT NOx Limit for Phase I, Phase II, or Phase III each of the units included in different phases of the I-Plan. The Alternative BARCT NOx Limits are the unit specific NOx concentration limit that are selected by the owner or operator in the B-Plan to achieve the Facility BARCT Emission Targets in the aggregate, where the NOx and CO concentration limits will include the corresponding percent O_2 correction based on the averaging time pursuant to Table 1 or subdivision (k), whichever is applicable. For the B-Plan, decommissioned units shall be removed from the Baseline Facility Emissions and the Facility BARCT Emission Targets.

(B-5.1) For a B-Plan, the Phase I BARCT Equivalent Mass Emissions for all units included in a B-Plan shall be calculated using the following equation:

$$\text{Phase I BARCT Equivalent Mass Emissions}_{\text{B-Plan}} = \sum_{i=1}^{N} \left(\frac{C_{\text{Phase I Alternative BARCT Emission Limit}}}{C_{\text{Baseline}}} \times \text{Baseline Unit Emissions} \right)_i$$

Where:

N = Number of included units in B-Plan under Phase I

$C_{\text{Phase I Alternative BARCT Emission Limit}}$ = The applicable Alternative BARCT NOx Limit in an approved B-Plan for unit i included in the B-Plan

C_{Baseline} = Representative NOx Concentration as defined in subdivision (c) for unit i included in the B-Plan

Baseline Unit Emissions = Baseline Unit Emissions for unit i as defined in subdivision (c) and included in the B-Plan.

(B-5.2) For a B-Plan, the Phase II and if applicable, Phase III Equivalent Mass Emissions for each unit included in a B-Plan shall be calculated using the equation for Section B-5.1, with the use of the Alternative BARCT NOx Limit for Phase II and Phase III, if applicable.

(B-6) Calculating Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions for a B-Cap

The Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions are the total remaining NOx mass emissions per facility that incorporates emission reduction strategies. The Phase I, Phase II, and Phase III BARCT B-Cap Annual Emissions must be at or below the respective Phase I, Phase II, or Phase III Facility BARCT Emission Targets an I-Plan. Under the B-Cap, there are three emission reduction strategies that can be used to meet the Facility BARCT Emission Targets: Establishing an Alternative BARCT NOx Limit, Decommission Units, and Reducing Throughput for Units. The Phase I, Phase II, or Phase III BARCT B-Cap Annual Emissions calculation for the B-Cap acknowledges the three emission reduction strategies for each phase of the I-Plan. The Alternative BARCT NOx Limits are the unit specific NOx concentration limits that are selected by the owner or operator in the B-Cap to achieve the Final Phase Facility BARCT Emission Target in the aggregate, where the NOx concentration limit will include the corresponding percent O_2 correction, CO emission limit, and averaging time per Table1. The emission reductions from Decommission Units shall be incorporated in B-Cap pursuant to section (B-2.2). Other reductions in mass emission reductions to demonstrate that the BARCT B-Cap Annual Emissions include emission reductions from reduced throughput, efficiency, reduced capacity, and any other strategy to reduce mass emissions.

(B-6.1) The Phase I BARCT B-Cap Annual Emissions for each unit included in a B-Cap shall be calculated using the following equation where the Unit Throughput Reductions calculated pursuant to Section B-7.

$$\text{Phase I BARCT B} - \text{Cap Annual Emissions}_{\text{B-Cap}} = \sum_{i=1}^{N} \left(\frac{C_{\text{Phase I Alternative BARCT Emission Limit}}}{C_{\text{Baseline}}} \times \text{Baseline Unit Emissions} \right)_i + (0_{\text{Decommissioned Units}})_i - (\text{Throughput or Other Reductions})$$

Where:

N = Number of included units in B-Cap under Phase I

$C_{\text{Phase I Alternative BARCT Emission Limit}}$ = The applicable Alternative BARCT NOx Limit in an approved B-Cap for unit i included in the B-Cap

C_{Baseline} = Representative NOx Concentration as defined in subdivision (c) for unit i included in the B-Cap

Baseline Unit Emissions = Baseline Unit Emissions as defined in subdivision (c) and for unit i included in the B-Cap

Throughput or Other Reductions = Emission reductions occurred from other than reducing the concentration limit.

(B-6.2) For a B-Cap, the emission reductions the Phase II and if applicable, Phase III BARCT B-Cap Annual Emissions for each unit included in a B-Cap shall be calculated using the equation for Section B-6.1, with the use of three emission reduction strategies for Phase II and Phase III, if applicable.

(B-7) Emissions Reductions from Decommissioned Unit

For a B-Cap, emission reductions from decommissioned units can be used to meet a Phase I, Phase II, or Phase III Facility BARCT Emission Target. The

amount of emission reductions from a decommissioned unit shall be determined using the equation below.

$$\text{Emission Reductions from Decommissioned Units} = \sum_{i=1}^{N} \left(\frac{C_{\text{Table 1}}}{C_{\text{Baseline}}} \times \text{Baseline Unit Emissions} \right)_i$$

Where:

N	=	Number of decommissioned units in B-Cap
$C_{\text{Table 1}}$	=	Table 1 NOx concentration limit for unit i
C_{Baseline}	=	Representative NOx Concentration as defined in subdivision (c) for unit i included in an approved B-Cap
Baseline Unit Emissions	=	Baseline Unit Emissions for unit i as defined in subdivision (c) and included in an approved B-Cap.

(B-8) Unit Reductions for Conditional NOx and CO Limits in Table 2

An owner or operator of a unit in a B-Plan that is demonstrating that the Unit Reduction is less than the thresholds specified in clauses (d)(2)(A)(i) or (d)(2)(A)(ii) shall calculate the Unit Reduction using the following equation:

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

Where:

$C_{\text{Table 1}}$	=	The applicable Table 1 NOx concentration limit the unit
C_{Baseline}	=	Representative NOx Concentration for the unit
Baseline Unit Emissions	=	Baseline Unit Emissions.

ATTACHMENT C

FACILITIES EMISSIONS – BASELINE AND TARGETS

(C-1) Baseline Facility Emissions

Table C-1 provides the Baseline Mass Emissions for Facilities with six or more units. Baseline Facility Emissions in Table C-1 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 C-1: Baseline Mass Emissions for Facilities with Six or More Units

Facility	Facility ID	Baseline Facility Emissions (2017) (tons/year)
AltAir Paramount, LLC	187165	28
Chevron Products Co.	800030	701
Lunday-Thagard Co. DBA World Oil Refining	800080	26
Phillips 66 Company/Los Angeles Refinery	171109	386
Phillips 66 Co/LA Refinery Wilmington PL	171107	462
Tesoro Refining and Marketing Co., LLC – Carson	174655	636
Tesoro Refining and Marketing Co., LLC – Wilmington	800436	674
Tesoro Refining and Marketing Co., LLC – Sulfur Recovery Plant	151798	8
Tesoro Refining and Marketing Co., LLC, Calciner	174591	261
Torrance Refining Company LLC	181667	899
Ultramar Inc.	800026	248
Valero Wilmington Asphalt Plant	800393	5

ATTACHMENT D

UNITS QUALIFY FOR CONDITIONAL LIMITS IN B-PLAN AND B-CAP

TABLE D-1: Units That Qualify for Conditional Limits in B-Plan

Facility ID	Device ID	Size (MMBtu/hr)
171109	D429	352
171109	D78	154
174655	D1465	427
174655	D419	52
174655	D532	255
174655	D63	300
181667	D1236	340
181667	D1239	340
181667	D231	60
181667	D232	60
181667	D234	60
181667	D235	60
181667	D950	64
800026	D1550	245
800026	D6	136
800026	D768	110
800030	D159	176
800030	D160	176
800030	D161	176
800030	D643	220
800030	D82	315
800030	D83	315
800030	D84	219
800436	D1122	140
800436	D384	48
800436	D385	24
800436	D388	147
800436	D388	147
800436	D770	63
800436	D777	146

TABLE D-2: Units That Qualify for Conditional Limits in B-Cap

Facility ID	Device ID	Size (MMBtu/hr)
171107	D220	350
171107	D686	304
171109	D429	352
171109	D78	154
171109	D79	154
174655	D33	252
174655	D419	52
174655	D421	82
174655	D532	255
174655	D539	52
174655	D570	650
181667	D1236	340
181667	D1239	340
181667	D231	60
181667	D232	60
181667	D234	60
181667	D235	60
181667	D920	108
181667	D950	64
800026	D1550	245
800026	D378	128
800026	D429	30
800026	D430	200
800026	D53	68
800026	D6	136
800026	D768	110
800026	D98	57
800030	D453	44
800030	D643	220
800030	D82	315
800030	D83	315
800030	D84	219
800436	D1122	140
800436	D158	204
800436	D250	89
800436	D33	252
800436	D384	48
800436	D385	24
800436	D386	48
800436	D387	71
800436	D388	147
800436	D770	63
800436	D777	146