(Adopted TBD)
Revision Date 12-24-20

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

(a) Purpose

The purpose of this rule is to reduce emissions of oxides of nitrogen (NOx), while ~~limiting~~ maintaining carbon monoxide (CO) emissions, from units at petroleum refineries and facilities with related operations to petroleum refineries.

(b) Applicability

The provisions of this rule shall apply to an owner or operator of units at petroleum refineries and facilities with related operations to petroleum refineries~~, including asphalt plants, biofuel plants, hydrogen production plants, petroleum refineries, facilities that operate petroleum coke calciners, sulfuric acid plants, and sulfur recovery plants~~.

(c) Definitions

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

(2) BARCT Compliance Alternative Plan (B-CAP) is a ~~compliance plan~~ facility-specific implementation schedule for facilities with six or more units ~~that identifies the implementation schedule that each unit will be required to meet the~~ subject to the emission limits in Table 1.

(3) B-CAP TARGET is a percentage of the Facility Total.

(~~2~~4) BIOFUEL PLANT means a facility that produces fuel by refining feedstocks including vegetable oil, animal fats, and tallow.

(~~3~~5) BOILER means any unit that is fired with gaseous fuel and used to produce steam. Boiler does not include carbon monoxide boilers (CO boilers).

(~~4~~6) CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) ~~is~~ means the total combined unit and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent (as applicable).

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

(8) FACILITY TOTAL is the sum of the Unit Shares of all the units identified in an approved B-CAP for each facility.

(~~5~~9) FACILITY WITH RELATED OPERATIONS TO PETROLEUM REFINERIES includes asphalt plants, biofuel plants, hydrogen production plants, petroleum coke calcining facilities, sulfuric acid plants, and sulfur recovery plants.

(~~8~~10) FLARE means a combustion device that oxidizes combustible gases or vapors, where the combustible gases or vapors being destroyed are routed directly into the burner without energy recovery, and it is not subject to Rule 1118.

(~~6~~11) FLUIDIZED CATALYTIC CRACKING UNIT (FCCU) ~~is~~means a process unit in which petroleum intermediate ~~derivative~~ feedstock is charged and fractured into smaller molecules in the presence of a catalyst; or reacts with a contact material to improve feedstock quality for additional processing; and the catalyst or contact material is regenerated by burning off coke and other deposits. The unit includes, but is not limited to, the riser, reactor, regenerator, air blowers, spent catalyst, and all equipment for controlling air pollutant emissions and recovering heat. FCCU may include a CO boiler, which is a boiler with an integral waste heat recovery system used to oxidize CO-rich waste gases generated by the FCCU.

(~~7~~12) GAS TURBINE ~~is~~ means an internal-combustion engine in which the expanding combustion gases drive a turbine which then drives a generator to produce electricity. Gas Turbines can be equipped with a cogeneration gas turbine that recovers heat from the gas turbine exhaust and ~~. Gas turbine can be equipped with or without a~~ can include a duct burner~~, which is a device located in the heat recovery steam generator of a gas turbine that combusts fuel and adds heat energy to the turbine exhaust to increase the output of the heat recovery, and fired with gaseous fuel~~.

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

(~~9~~13) HEAT INPUT means the heat of combustion released by burning a fuel source, using the higher heating value of the fuel. This does not include the enthalpy of incoming combustion air.

(~~10~~14) HIGHER HEATING VALUE (HHV) means the total heat liberated per mass of fuel combusted expressed as British thermal units (Btu) per pound

or cubic feet, when fuel and dry air at standard conditions undergo complete combustion and all resulting products are brought to their standard states at standard conditions.

(~~11~~15) HYDROGEN PRODUCTION PLANT is a facility that produces hydrogen by steam methane reforming, partial oxidation of hydrocarbons, or other processes which primarily supplies hydrogen for petroleum refinery processes.

(~~12~~16) MALFUNCTION means any sudden, infrequent, and not reasonably preventable failure of air pollution control, monitoring equipment, process equipment, or a process to operate in a normal manner, which causes, or has the potential to cause, the emission limitations to be exceeded. ~~Breakdowns subject to Rule 430 – Breakdown Provisions or Rule 2004 – Requirements are not Malfunctions.~~

(~~13~~17) 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.

(~~14~~18) PETROLEUM COKE CALCINER is process equipment used to drive off contaminants from green petroleum coke by bringing the coke into contact with heated gas for the purpose of thermal processing. The unit includes, but is not limited to, a kiln, which is a refractory lined cylindrical device that that rotates on its own axis, and a pyroscrubber, which combusts large carbon particles in a stream of waste gas.

(~~15~~19) PETROLEUM REFINERY ~~is~~means a facility identified by the North American Industry Classification System Code 324110, Petroleum Refineries.

(~~16~~20) PROCESS HEATER means any equipment fired with gaseous and/or liquid fuels which transfers heat from combusted gases to water or process streams.

(~~17~~21) RATED HEAT INPUT CAPACITY means the maximum heat input capacity, which is the heat of combustion released by burning a fuel source, as specified by the permit issued by the Executive Officer~~, or if not specified on the permit, as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity specified on the nameplate, the new maximum heat input shall be considered as the Rated Heat Input Capacity.~~

(~~18~~22) ROLLING AVERAGE means the average of a ~~15-minute~~ subset of values ~~CEMS concentrations~~ which is modified by shifting the subset forward, excluding the first ~~number~~ value of the series and including the next value in the subset.

(~~19~~23) SHUTDOWN is the time period that begins when an operator ~~with the intent to shut down a unit,~~ reduces load and for flue gas temperatures to fall below the minimum operating temperature of the emission control equipment, and which ends in a period of zero fuel flow or zero feedstock, unless otherwise defined in the South Coast AQMD permit to operate.

(~~20~~24) STANDARD CONDITIONS are defined as one atmosphere of pressure and a temperature of 68°F or 60°F, provided that one of these temperatures is used throughout the facility.

(~~21~~25) START-UP is the time period that begins when a NOx emitting unit combusts fuel after a period of zero fuel flow or zero feedstock and ~~which~~ ends when the flue gas temperature reaches the minimal operating temperature of the emission control equipment. Start-~~u~~Up does not include the time used to dry refractory if a separate unit is used for the drying process.

(~~22~~26) STEAM METHANE REFORMER (SMR) HEATER means any equipment that is fired with gaseous fuels and transfers heat from the combusted fuel to process tubes that contain catalyst, which converts light hydrocarbons combined with steam to hydrogen. ~~Light hydrocarbons include, but is not limited to, methane, ethane, propane, or a mixture of those hydrocarbons.~~

(~~23~~27) SULFURIC ACID FURNACE means a unit fueled with gaseous fuels and/or hydrogen sulfide gas used to convert elemental sulfur and/or decompose spent sulfuric acid, ~~which is used sulfuric acid which contains multiple impurities, and is partially neutralized.~~ into sulfur dioxide (SO_2) gas.

(~~24~~28) SULFURIC ACID PLANT is a~~ny facility or~~ unit within a petroleum refinery or a separate facility engaged in the production or regeneration of commercial grades of sulfuric acid with a typical ~~at a~~ concentration range~~ing~~ from 93~~-~~ percent to 99~~.2~~ percent.

(~~25~~29) SULFUR RECOVERY PLANT is a ~~facility or processing~~ unit within a petroleum refinery or a separate facility that recovers elemental sulfur or sulfur compounds from sour or acid gases and/or sour water generated by petroleum refineries.~~-~~

(~~26~~30) SULFUR RECOVERY UNITS/TAIL GAS (SRU/TG) INCINERATORS is the thermal or catalytic oxidizer where the residual hydrogen sulfide in the gas exi~~s~~ting the sulfur recovery plant (tail gas) is oxidized to SO_2 before being emitting to the atmosphere.

(~~27~~31) UNIT means, for the purpose of this rule, boilers, flares, fluid catalytic cracking units, gas turbines, ~~ground-level flares,~~ petroleum coke calciners, process heaters, steam methane reformer heaters, sulfuric acid furnaces, ~~sulfur recovery units/tail gas incinerators~~SRU/TG incinerators, and vapor incinerators requiring a South Coast AQMD permit and not specifically required to comply with a NOx emission limit by other South Coast AQMD Regulation XI rules.

(32) UNIT SHARE is the fixed NOx emission reduction based on 2017 baseline emissions for each unit identified in an approved B-CAP.

(~~28~~33) VAPOR INCINERATOR means a thermal oxidizer, afterburner, or other device for burning and destroying air toxics, ~~VOCs~~ volatile organic compounds, or other combustible vapors in gas or aerosol form in gas streams.

(d) Emission Limits

(1) ~~On and before [*COMPLIANCE DATE OR COMPLIANCE PLAN*], a~~An owner or operator shall not operate a unit, excluding start-up, ~~and~~ shutdown, and malfunction periods as specified pursuant to subdivision (e), unless the unit meets the applicable NOx and CO emission limits specified in Table 1 ~~as demonstrated with CEMS pursuant to subdivision (f) or a source test pursuant to subdivision (g)~~ within 18 months from when the permit to construct is issued with the exception of:~~.~~

(A) An owner or operator of a unit subject to the schedule in paragraphs (j)(1), (j)(2), or (j)(3);

(B) An owner or operator submitting a B-CAP pursuant to subdivision (k); or

(C) An owner or operator of a boiler <40MMBtu/hour, SMR heater with a gas turbine, or sulfuric acid furnace which is required to submit an application for a permit that limits the NOx and CO emissions to meet applicable limits and permit application submittal deadline in Table 1.

TABLE 1: NOx AND CO EMISSION LIMITS IN PARTS PER MILLION BY VOLUME (ppmv) ON A DRY BASIS

BOILERS				
Rated Heat Input Capacity (MMBtu/hour)	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	3% Oxygen (O_2)			
<40	40	400	2 hours	[*WITHIN 6 MONTHS ~~AFTER DATE~~ OF RULE ADOPTION*]
	5	400		Pursuant to paragraph (j)(1) or subdivision (k)
≥40	2	400	~~8~~24 hours	~~TBD~~July 1, 2022 or pursuant to subdivision (k)
~~GROUND-LEVEL~~ FLARES				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	3% O_2			
~~Ground-Level~~ Flares	20	400	3 hours	~~TBD~~July 1, 2022 or pursuant to subdivision (k)
FLUIDIZED CATALYTIC CRACKING UNITS				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	0% O_2			
FCCU	2	500	365 days	~~TBD~~ July 1, 2022 or
	5	500	7 days	

				pursuant to subdivision (k)
GAS TURBINES				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	15% O_2			
Gas Turbine	2	130	~~8~~24 hours	~~TBD~~ July 1, 2022 or pursuant to subdivision (k)
PETROLEUM COKE CALCINERS				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	3% O_2			
Petroleum Coke Calciner	5	N/A	365 days	~~TBD~~July 1, 2022 or pursuant to subdivision (k)
	10	N/A	7 days	

PROCESS HEATERS				
Rated Heat Input Capacity (MMBtu/hour)	NOx (ppmv) 3% O_2	CO (ppmv) 3% O_2	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
<~~20~~40	40	400	2 hours	~~[6 MONTHS AFTER DATE OF RULE ADOPTION]~~ July 1, 2022 or pursuant to subdivision (k)
	9	400		Pursuant to paragraph (j)(2) or subdivision (k)
~~20 – <40~~	~~30~~	~~400~~	~~2 hours~~	~~TBD~~
	~~9~~	~~400~~		~~Pursuant to paragraph (j)(2)~~
≥40	2	400	~~8~~24 hours	~~TBD~~July 1, 2022 or pursuant to subdivision (k)
SULFUR RECOVERY UNITS/TAIL GAS INCINERATORS				
	NOx (ppmv) 3% O_2	CO (ppmv) 3% O_2	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
SRU/TG Incinerators	30	400	~~8~~24 hours	~~TBD~~ July 1, 2022 or pursuant to subdivision (k)

STEAM METHANE REFORMER HEATERS				
Equipment Category	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	3% O_2			
SMR Heater	5	400	~~8~~24 hours	~~TBD~~July 1, 2022 or pursuant to subdivision (k)
STEAM METHANE REFORMER HEATERS WITH GAS TURBINE				
Equipment Category	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	15~~3~~% O_2			
SMR Heater with Gas Turbine	5	130	~~8~~24 hours	~~TBD~~[*WITHIN 6 MONTHS OF DATE OF RULE ADOPTION*]
SULFURIC ACID FURNACES				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance Date~~Permit Application Submittal Deadline
	3% O_2			
Furnace	30	400	365 day	[~~6~~*WITHIN 12 MONTHS ~~AFTER DATE~~ OF RULE ADOPTION*]
VAPOR INCINERATORS				
	NOx (ppmv)	CO (ppmv)	Averaging Time (Rolling Average)	~~Compliance date~~Permit Application Submittal Deadline
	3% O_2			
Vapor Incinerators	20	400	3 hours	~~TBD~~ July 1, 2022 or

				pursuant to subdivision (k)

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

(3) Notwithstanding the CO emission limits in Table 1, an owner or operator of a unit installed prior to [*DATE OF RULE ADOPTION*] may retain the CO limit specified on a South Coast AQMD permit as of [*DATE OF RULE ADOPTION*].

(4) An owner or operator of a unit shall calculate the rolling averaging times in Table 1 based on:

(A) One-hour subsets of data for units with an averaging time of 24 hours or less; and

(B) 24-hour subsets of data for units with an averaging time greater than 24 hours.

(e) Start-up, Shutdown, and Malfunction

(1) An owner or operator of a unit ~~with post-combustion controls that requires a minimum temperature to reduce NOx emissions~~ is exempt from the applicable Table 1 NOx and CO emission limits ~~in paragraph (d)(1)~~ during start-up, shutdown, or malfunction of a unit ~~only~~ for the time periods specified in Table 2 which is required to reach minimum operating temperature of the post-combustion control, if applicable; or ~~a lesser~~ the time ~~if~~ specified in a~~n~~ South Coast AQMD permit, whichever occurs sooner.

TABLE 2: START-UP, SHUTDOWN, MALFUNCTION ALLOWANCES

Unit	Not to Exceed per Start-up, Shutdown, or Malfunction Event (hours)
• Boilers and Process Heaters <40MMBtu/hour • Gas Turbines • Flares • Vapor Incinerators	2
• Sulfuric Acid Furnace	24
• Boilers~~,~~ and Process Heaters ≥40MMBtu/hour~~,~~ • ~~or~~ Steam Methane Reformer Heaters	48
• Steam Methane Reformer with Gas Turbine	60
• FCCUs~~,~~ • Petroleum Coke Calciner~~,~~ • ~~or~~ SRU/TG Incinerators	120

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

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

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

(~~3~~2) An owner or operator of a unit with a start-up, shutdown, or malfunction event that exceeds the applicable Table 1 NOx and CO emissions limit ~~specified in paragraph (d)(1)~~ shall~~:~~ implement best engineering practices such that the unit meets the Table 1 NOx and CO emissions as quickly as feasible.

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

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

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

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

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

(3) An owner or operator of a unit complying with the provisions in subdivision (d), may exclude emissions measurements pursuant to paragraph (e)(1) allowances during the start-up, shutdown, and malfunction events when calculating the applicable Table 1 rolling average NOx and CO emissions.

(4) An owner or operator of a unit with a CEMS that measures ~~zero~~ NOx emissions zero or less during a shutdown shall exclude those measurements when calculating the applicable Table 1 rolling average NOx and CO emissions ~~pursuant to paragraph (d)(1)~~.

(f) CEMS Requirements

(1) An owner or operator of the following units that have a rated heat input capacity of 40 MMBtu/hour or greater: ~~a~~ boiler, ~~with a rated heat input capacity greater than 40 MMBtu/hour;~~ FCCU, gas turbine~~;~~, ~~FCCU;~~ petroleum coke calciner~~;~~, process heater ~~with a rated heat input capacity greater than 40 MMBtu/hour;~~, SMR heater~~;~~, SMR heater with a gas turbine~~;~~ , ~~or~~ and SRU/TG incinerator ~~sulfuric acid furnace and subject to paragraph (d)(1)~~ shall install, certify, operate, and maintain a CEMS~~, or an equivalent verification system,~~ to measure NOx~~, CO,~~ and O_2~~,~~ in a manner that complies with the applicable Rule 218 series to demonstrate compliance with the Table 1 NOx emissions limits ~~of this rule~~.

(2) An owner or operator of a sulfuric acid furnace subject to paragraph (d)(1) shall install, certify, operate, and maintain a CEMS to measure NOx in a manner that complies with the applicable Rule 218 series to demonstrate compliance with the Table 1 NOx emissions limits, and within 12 months from [*DATE OF RULE ADOPTION*] shall install, certify, operate, and maintain a CEMS that complies with the applicable Rule 218 series to measure O_2 and demonstrate compliance with Table 1 NOx emissions limits at the applicable percent of O_2.

(3) An owner or operator of a unit with a CEMS that measures CO at [*DATE OF RULE ADOPTION*] must certify, operate, and maintain the CO CEMS in a manner that complies with the applicable Rule 218 series to demonstrate compliance with the Table 1 CO emissions limits.

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

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

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

(~~3~~4) Emissions determined to exceed any limits established by this rule through the use of a certified CEMS~~, and data generated pursuant to paragraph (f)(2),~~ shall constitute a violation of the rule.

(g) Source Test Requirements

(1) An owner or operator of a unit that is not required to demonstrate compliance with an emission limit in subdivision (d) with a ~~install and operate a~~ CEMS pursuant to ~~paragraph (f)(1)~~subdivision (f), shall demonstrate compliance with the applicable Table 1 NOx and CO emission limits and percent of O_2 ~~in paragraph (d)(1)~~ by conducting a source test according to Table 3.

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

TABLE 3: SOURCE TESTING SCHEDULE

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

(3) An owner or operator of a new or modified unit shall conduct the initial source test within 6 months from ~~installation~~commencing operation.

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

(A) ~~6~~Six months from [*DATE OF RULE ADOPTION*] for units 20 MMBtu/hour to <40 MMBtu/hour~~;~~.

(B) 12 months from [*DATE OF RULE ADOPTION*] for units <20 MMBtu/hour.

(5) An owner or operator of a unit shall submit a source test protocol for approval no later than 60 days prior to a scheduled source test date unless otherwise approved by the Executive Officer, and conduct the source test within 90 days after a written approval of the source test protocol by the Executive Officer is distributed.~~; and~~

(6) At least one week prior to conducting a source test, an owner or operator of a unit shall notify the Executive Officer, in writing, of the intent to conduct source testing.

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

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

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

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

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

(8) 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 ~~(March 1989)~~; or

(ii) South Coast AQMD Source Test Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources ~~(March 1989)~~ and South Coast AQMD Source Test Method 10.1 – Carbon Monoxide and Carbon Dioxide by Gas Chromatograph/Non-Dispersive Infrared Detector ~~(GC/NDIR) –~~ – Oxygen by Gas Chromatograph-Thermal Conductivity (GC/TCD) ~~(March 1989)~~; or

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

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

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

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

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

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

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

~~(B) South Coast AQMD Source Test Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources (March 1989) and South Coast AQMD Source Test Method 10.1 – Carbon Monoxide and Carbon Dioxide by Gas Chromatograph/Non-Dispersive Infrared Detector (GC/NDIR) – Oxygen by Gas Chromatograph Thermal Conductivity (GC/TCD) (March 1989); or~~

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

(~~11~~10) Emissions determined to exceed any limits established by this rule by any of the reference test methods in subparagraph ~~(g)(8)~~(g)(8)(B) shall constitute a violation of the rule.

(~~12~~11) An owner or operator of a unit that exceeds any limits established by this rule by any of the reference test methods in subparagraph ~~(g)(8)~~(g)(8)(B) shall inform the Executive Officer within 72 hours from the time an owner or operator knew of excess emissions, or reasonably should have known.

(h) Diagnostic Emission Checks

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

(A) Perform diagnostic emissions checks of NOx, CO, and O_2 emissions, ~~,~~ with a portable NOx, CO, and O_2 analyzer that is calibrated, maintained and operated in accordance with manufacturers specifications and recommendations ~~and~~ of the South Coast AQMD Combustion Gas Periodic Monitoring Protocol for the Periodic Monitoring of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Combustion Sources Subject to Rules 1110.2, 1146 and 1146.1; and

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

(2) An owner or operator shall perform diagnostic emission checks pursuant to paragraph (h)(1) at least every ~~31 days or 744 operating hours, whichever~~

~~occurs later~~. ~~If the unit complies for three consecutive diagnostic emission checks, without any adjustments to the O_2 sensor set points, then the unit may be checked every~~ 90 days or every 2,000 operating hours, whichever occurs later~~, until the resulting diagnostic emission check exceeds the applicable limit at which time unit must be checked at least every 31 days or 744 operating hours, whichever occurs later~~.

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

(i) Monitoring, Recordkeeping, and Reporting Requirements

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

(2) Operating Log

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

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

(B) Total hours of operation;

(C) Quantity of fuel; and

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

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

(A) CEMS data;

(B) S~~s~~ource tests reports;

(C) D~~d~~iagnostic emission checks; and

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

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

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

(4) An owner or operator of a process heater or boiler that is exempt from the applicable Table 1 emission limits pursuant to paragraph (l)(2), or an owner or operator of a flare that is exempt from the applicable Table 1 emission limits pursuant to subparagraph (l)(8)(A) shall:

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

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

(D) Within 90 days of [*DATE OF RULE ADOPTION*], ensure that each non-resettable totalizing time meter or fuel meter is calibrated, and recalibrate the meter annually thereafter, based on the manufacturer's recommended procedures or an alternative calibration method approved in writing by the Executive Officer. If the non-resettable totalizing time or fuel meter was calibrated within one year prior to [*DATE OF RULE ADOPTION*], the next

calibration shall be conducted within the one year of anniversary date of the prior calibration.

(4<u>5</u>) An owner or operator of a process heater or boiler that is exempt from the applicable Table 1 NOx emission limit~~s in paragraph (d)(1)~~ pursuant to paragraph (l)(2)<u>,</u> or an owner or operator of a ground flare that is exempt from the applicable Table 1 NOx emission limit~~s in paragraph (d)(1)~~ pursuant to subparagraph (l)(4<u>8</u>)(A) shall monitor and maintain hours of operation records as follows:

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

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

(~~5~~6) An owner or operator of a vapor incinerator that is exempt from the applicable Table 1 NOx emission limits ~~in paragraph (d)(1)~~ pursuant to paragraph (l)(~~5~~9) shall monitor and maintain emissions records as follows:

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

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

(~~6~~7) An owner or operator of a unit subject to the compliance schedule in paragraphs (j)(1) and (j)(2) shall maintain records of burner replacement, including number of burners and date of installation.

(~~7~~8) An owner or operator of a unit subject to the compliance schedule in paragraph (j)(3) shall maintain records of post-combustion control equipment including the date the existing post-combustion control equipment was installed and the date it is replaced.

(j) Compliance Schedule

(1) An owner or operator of a boiler with a rated heat input capacity less than 40 MMBtu/hour must comply with the 5 ppmv NOx ~~limit~~ and 400 ppmv CO limits in Table 1 ~~at replacement pursuant to paragraph (d)(1) by [TEN~~

~~YEARS AFTER RULE ADOPTION] or~~ when 50 percent or more of the unit's burners are replaced~~, whichever is earlier~~.

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

(3) An owner or operator of a process heater with a rated heat input capacity ~~less than or equal to~~ of 40 MMBtu/hour or greater exempt from the applicable Table 1 emission limits ~~in paragraph (d)(1)~~ pursuant to ~~sub~~paragraph (l)(~~4~~5)~~(B)~~, must comply with the 2 ppmv Table 1 emission limit~~s in paragraph (d)(1)~~ according to the following schedule:

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

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

(4) An owner or operator of a process heater exempt from the Table 1 emission limits pursuant to paragraphs (l)(2) or (l)(4) that exceeds the applicable exemptions limitations must submit a permit application to comply with the Table 1 emission limit within six months of the exceedance.

(~~4~~5) A unit is not subject to this subdivision if an owner or operator identified that unit in an approved B-CAP pursuant to paragraph (k)(1).

(k) BARCT Compliance Alternative Plan (B-CAP)

(1) B-CAP Submittal

No later than [*SIX MONTHS AFTER THE RULE ADOPTION*], an owner or operator shall submit a B-CAP that:

(A) Identifies the device identification number and description of each unit that will cumulatively meet the B-CAP Targets in Table 4;

(B) Identifies the unit(s) that meets or exceeds the B-CAP Targets for each Phase in Table 4 pursuant to the B-CAP Calculation under paragraph (k)(2); and

(C) Identifies units(s) subject to subdivision (j) that will be included in the B-CAP implementation schedule in lieu of complying with the compliance schedule in subdivision (j).

TABLE 4: B-CAP TARGETS

Phase I	Phase II	Phase III
50 Percent	75 Percent	100 Percent

(2) B-CAP Calculations

(A) B-CAP Targets specified in paragraph (k)(1) are the sum of the Unit Shares as calculated pursuant to subparagraph (k)(2)(B) divided by the Facility Total as calculated pursuant to subparagraph (k)(2)(C) where:

(i) B-CAP Phase I Target: is the sum of the Unit Shares for Phase I divided by the Facility Total;

(ii) B-CAP Phase II Target: is the sum of the Unit Shares for Phase I and II divided by the Facility Total; and

(iii) B-CAP Phase III Target: is the sum of the Unit Shares for Phase I, II, and III divided by the Facility Total.

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

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

Where:

$C_{\text{Table 1}}$ = The applicable Table 1 NOx concentration limit for each unit.

C_{Baseline} = The NOx concentration in the flue gas ~~based on the annual CEMS data~~ for each unit as determined pursuant to subparagraph (k)(2)(D).

Baseline Emissions = The 2017 NOx baseline emissions for each unit as determined pursuant to subparagraph (k)(2)(~~D~~E).

(C) The Facility Total is the sum of all Unit Shares as calculated pursuant to subparagraph (k)(2)(B) for units identified in the B-CAP.

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

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

(F) The unit share for a unit that is replaced or removed in lieu of being retrofit to meet the Table 1 emission limits, shall maintain the unit share pursuant to subparagraph (k)(2)(B).

(3) B-CAP Review Process

(A) The Executive Officer shall notify the owner or operator in writing whether the B-CAP is approved or disapproved. Approval of the B-CAP shall be based on submittal of information that satisfies the requirements in paragraph (k)(1).

(B) If disapproved, the owner or operator shall:

(i) Resubmit the B-CAP within 30 calendar days after receipt of notification of disapproval of the plan; and

(ii) Include any information necessary to address deficiencies identified in the disapproval letter in the resubmitted B-CAP.

(4) B-CAP Implementation Schedule

(A) An owner or operator shall meet the emission limits in Table 1 for the units identified in the approved B-CAP pursuant to the Implementation Schedule in Table 4.

TABLE 4: B-CAP IMPLEMENTATION SCHEDULE

	Phase I	Phase II	Phase III
Permit Application Submittal Deadline	~~January 1, 2022~~ July 1, 2022	~~July 1, 2023~~ July 1, 2024	~~January 1, 2025~~ July 1, 2026
Implementation and Final Compliance Date	~~24~~30 months after a Permit to Construct is issued	~~18~~24 months after a Permit to Construct is issued	~~18~~24 months after a Permit to Construct is issued

(B) An owner or operator that elects to replace a unit in a B-CAP, shall meet the emission limit in Table 1 six months from the Implementation and Final Compliance Date in Table 4 for the applicable phase.

(5) B-CAP Time Extensions

(A) An owner or operator of a facility complying with an approved B-CAP may submit a request to the Executive Officer for one six-month extension per unit from the applicable Implementation and Final Compliance Date in Table 4. The request shall be made in writing at least 60 days prior to the implementation deadline. The time extension request shall include:

(i) The phase and unit seeking the extension;

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

(iii) Increments of progress completed and increments of progress yet to be completed, and anticipated time needed to complete each increment; and

(iv) The length of time requested.

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

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

(ii) The owner or operator demonstrates to the Executive Officer that there are specific circumstances that necessitate the additional time requested to comply with scheduled

deadlines. Such a demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, permit applications, purchase orders, economic burden, and technical infeasibility.

(6) B-CAP Modifications

An owner or operator complying with an approved B-CAP can move the units between phases provided:

(A) A revised B-CAP is submitted no later than 90 days before the Permit Application Submittal Deadline in Table 4;

(B) The B-CAP Targets in Table 4 are met; and

(C) The revised B-CAP is approved by the Executive Officer pursuant to paragraph (k)(3).

(7) B-CAP Fees

The review and approval of the B-CAP shall be subject to plan fees as specified in Rule 306 – Plan Fees.

(l) Exemptions

(1) The provisions of this rule shall not apply to owners or operators of:

(A) Boilers that are unfired; and

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

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

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

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

(3) An owner or operator of a FCCU shall be exempt from the Table 1 emission limits during boiler inspections required under California Code of Regulations, Title 8, Section 770(b) and may exclude the resulting

emissions from the applicable rolling average calculation pursuant to paragraph (d)(4).

(~~3~~4) An owner or operator of a process heater used for start-up or boiler used during start-up or shutdown at a sulfuric acid plant that does not exceed 90,000 MMBtu of annual heat input per calendar year ~~and~~ shall be exempt from the requirements in subdivisions (d), (f), ~~and~~ (g), 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.

(~~4~~5) An owner or operator of a process heater with a rated heat input capacity of 40 MMBtu/hour or greater shall be exempt from the applicable ~~provisions in subdivision (d)~~Table 1 emission limits for the time period specified in paragraph (j)(3) provided:

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

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

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

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

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

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

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

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

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

(B) The boiler has a South Coast AQMD permit that includes a condition limiting the NOx concentration to 9 ppmv NOx or less at three percent O2 on a dry basis; and

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

(~~6~~7) An owner or operator of a boiler or process heater operating only the pilot during start-up or shutdown shall be exempt from the emission limits in subdivision (d) and may exclude those emission from the rolling average calculation pursuant to paragraph (d)(4).

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

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

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

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

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

(~~6~~9) Vapor Incinerators

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

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

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