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

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

PROPOSED AMENDED RULE 1304
EXEMPTIONS

PROPOSED AMENDED RULE 2005
NEW SOURCE REVIEW FOR RECLAIM

PROPOSED RESCINDED RULE 1109
EMISSIONS OF OXIDES OF NITROGEN FROM BOILERS AND PROCESS HEATERS IN PETROLEUM REFINERIES

South Coast AQMD

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Public Workshop

September 1, 2021

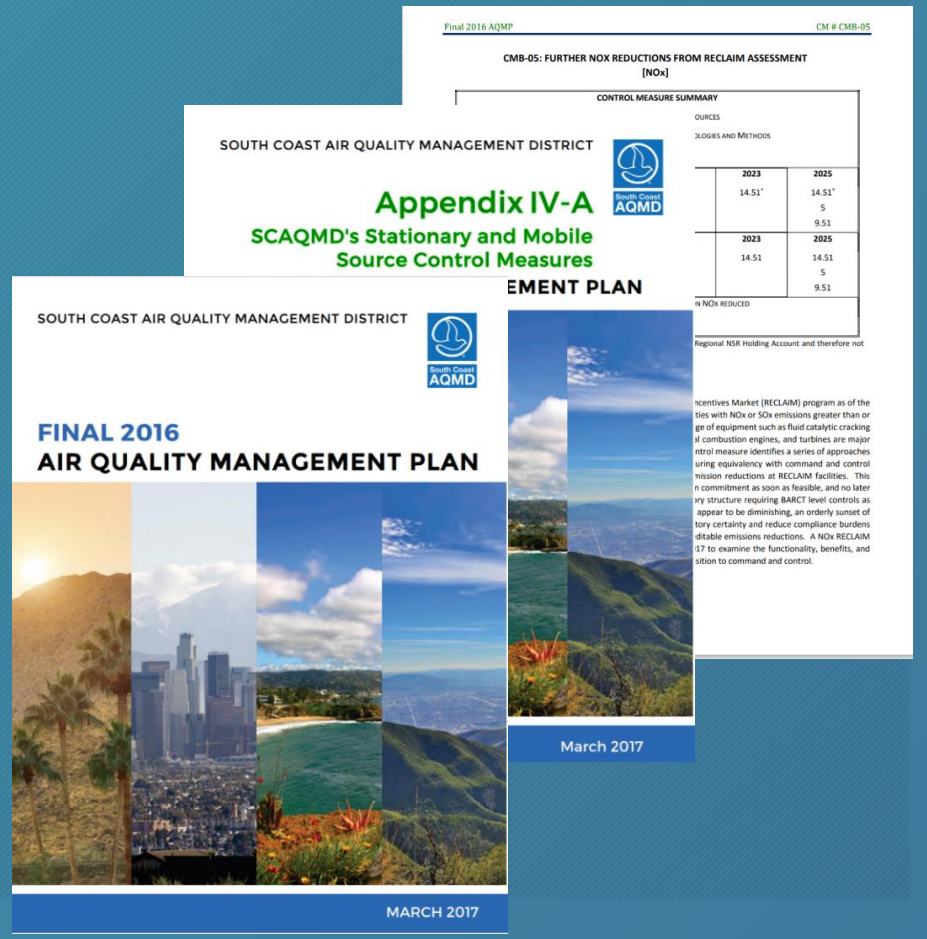
Agenda

- Background and Overview
- Proposed Rule 1109.1
- Proposed Rule 429.1
- Proposed Amended Rules 1304 and 2005
- CEQA Subsequent Environmental Assessment
- Socioeconomic Impact Assessment
- Next Steps

Background and Overview

Background

- 2016 Air Quality Management Plan
  - Adoption Resolution called for further NOx reductions from an assessment of the RECLAIM program, including:
    - 5 tons per day NOx reduction
    - Transitioning RECLAIM to a command-and-control regulatory structure
- 2017 – AB 617
  - Applicable to facilities in the state greenhouse gas cap-and-trade program
  - Requires the highest priority for implementation will be for those sources that "have not modified emissions-related permit conditions the greatest period of time"



Overview of Rulemakings

Proposed Rule 1109.1	Proposed Rescinded Rule 1109	Proposed Rule 429.1	Proposed Amended Rule 1304	Proposed Amended Rule 2005
Establishes NOx and CO emission limits for petroleum refineries and facilities with operations related to petroleum refineries	Existing rule for refinery operations that will be rescinded	Establishes startup and shutdown requirements for PR 1109.1 sources	NSR exemptions for installation of BARCT controls related to the RECLAIM transition	NSR applicability changes for equipment replacements with BARCT controls related to the RECLAIM transition

Proposed Rule 1109.1

Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations

PR 1109.1 Affected Facilities

9 Petroleum Refineries

- Chevron
- Marathon (Carson)
- Marathon (Wilmington)
- Marathon – Calciner
- Marathon – Sulfur Recovery Plant
- Phillips 66 (Carson)
- Phillips 66 (Wilmington)
- Torrance Refining Company
- Ultramar (Valero)

3 Small Refineries

Asphalt Refineries

- Lunday-Thagard DBA World Oil Refining
- Valero Wilmington Asphalt Plant

Biodiesel Refinery

- Alt Air Paramount

4 Related Operations

Hydrogen Plants

- Air Liquide Large Industries
- Air Products and Chemicals (Carson & Wilmington)

Sulfuric Acid Plant

- Eco Services Operations

PR 1109.1 Affected Equipment by Facility

Facility	Process Heater/ SMR Heater/ Boiler	SRU/TG Incinerator	Vapor Incinerator	Gas Turbine	Start-Up Heater/ Boiler	FCCU	Coke Calciner	Flare
Tesoro - Carson	30	2	0	4	1	1	0	0
Tesoro - Wilmington	33	0	0	2	0	0	0	0
Tesoro - Sulfur Recovery Plant	0	2	0	0	0	0	0	0
Tesoro - Coke Calciner	0	0	0	0	0	0	1	0
Torrance	28	2	2	0	1	1	0	0
Chevron	37	4	5	4	1	1	0	0
P66-Carson	10	2	0	0	0	0	0	0
P66-Wilmington	34	2	0	1	2	1	0	0
Ultramar	19	1	0	1	1	1	0	0
AltAir	25	1	4	0	0	0	0	0
Lunday Thagard	5	0	2	0	0	0	0	0
Air Products - Carson	1	0	0	0	0	0	0	0
Air Products - Wilmington	1	0	0	0	0	0	0	0
Air Liquide	1	0	0	0	0	0	0	0
Eco-Services	0	0	0	0	2	0	0	1
Valero Asphalt Plant	4	0	0	0	0	0	0	0
Total	**228**	**16**	**13**	**12**	**8**	**5**	**1**	**1**

PR 1109.1 Preliminary Draft Rule Language

Released 8/20/2021

Rule Structure and Provisions

(a)	Purpose
(b)	Applicability
(c)	Definitions
(d)	Emission Limits
(e)	B-Plan and B-Cap Requirements
(f)	Interim Limits
(g)	Compliance Schedule
(h)	Time Extensions
(i)	I-Plan, B-Plan, & B-Cap Submittal & Approval
(j)	CEMS Requirements
(k)	Source Test Requirements
(l)	Diagnostic Emission Checks
(m)	Monitoring, Recordkeeping, and Reporting
(n)	Exemptions

Rule Attachments	
(Attachment A)	Supplemental Calculations
(Attachment B)	Calculation Methodology for the I-Plan, B-Plan, And B-Cap
(Attachment C)	Facilities Emissions – Baseline and Targets
(Attachment D)	Units Qualify for Conditional Limits in B-Plan and B-Cap

Purpose (a), Applicability (b), and Definitions (c)

Purpose (a)

- To reduce emissions of oxides of nitrogen (NOx), while not increasing carbon monoxide (CO) emissions

Applicability (b)

- Petroleum refineries and facilities with related operations to petroleum refineries
  - Facilities with related operations to petroleum refineries include asphalt plants, biofuels plants, hydrogen production plants, petroleum coke calcining facilities, sulfuric acid plants, and sulfur recovery plants

Definitions (c)

- Definitions are incorporated to define equipment, fuels, and other rule terms
  - Refer to rule for the complete list of definitions

Table 1: NOx and CO Emission Limits (d)(1)

- Table 1 lists the NOx and CO emission limits, averaging times, and oxygen correction
- Averaging times apply to units with a certified CEMS and shall comply with based on a 24 hour rolling
- Units not operating a certified CEMS must demonstrate compliance based on a source test pursuant to subdivision (k)
- Operators can meet CO limits established in a Permit to Operate before date of adoption, in lieu of the CO limit in Table 1 (d)(7)

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

Table 2: Conditional NOx and CO Emission Limits (d)(2)

- Table 2 lists Conditional NOx and CO emission limits, averaging times, and oxygen correction
- Averaging times listed in Table 1 apply to units with a certified CEMS shall comply with based on a 24 hour rolling
- Units not operating a certified CEMS will demonstrate compliance based on a source test pursuant to subdivision (k)
- Operators can meet CO limits established in a Permit to Operate before date of adoption, in lieu of the CO limit in Table 2 (d)(7)

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 – ≤110 MMBtu/hour	18	400	3	24-hour
Process Heaters >110 MMBtu/hour	22	400	3	24-hour
SMR Heaters	7.5	400	3	24-hour
Vapor Incinerators	40	400	3	24-hour

Conditions for Use of Conditional Limits (d)(2)

- Units that meet the following conditions are required to submit a permit application by July 1, 2022 and meet the limit within 18 months of permit to construct issuance
  - Have not received a Permit to Operate after December 4, 2015 for post-combustion control equipment
  - Potential emission reduction to achieve Table 1 limits cannot be greater than:
    - 10 tons per year for process heaters between 40 – 110 MMBtu/hour
    - 20 tons per year for boilers or process heaters greater than 110 MMBtu/hour
  - Unit does not have a permit limit at the applicable Table 1 NOx emission limit
  - The representative NOx is not currently achieving the applicable Table 1 NOx emission limit
  - The units is not identified as being decommissioned in a B-Cap
- Attachment D lists units that are “pre-qualified” as eligible to meet conditional limits
  - Units are not required to submit a permit application by July 1, 2022
  - Must establish an Alternative NOx limit for units B-Plan and B-Cap

Emission Limits for Boilers and Process Heaters < 40 MMBtu/hour (d)(3) and (d)(4)

Unit	Initial Implementation		Final Implementation	
	NOx Limit	Compliance Date	NOx Limit	Compliance Date
Boilers < 40 MMBtu/hr	40 ppmv	Established in Permit to Operate on or before January 1, 2023	5 ppmv	When 50% or more of the burners or 50% or more of the heat input are cumulatively replaced, where the cumulative replacement begins from July 1, 2022
Process Heaters < 40 MMBtu/hr	40 ppmv	Established in Permit to Operate on or before January 1, 2023	9 ppmv	Ten years after rule adoption*, when 50% or more of the burners or 50% or more of the heat input are cumulatively replaced, where the cumulative replacement begins from five years from rule adoption

* Ten-year timeframe because the 9 ppmv limit relies on emerging technologies

Emission Limits (d) – (*cont.*)

Gas Turbines (d)(5)

- NOx limits for Gas Turbines during natural gas curtailment periods:
- Should not exceed 5 ppmv NOx corrected to 15% O2 on a 24-hour rolling average where there is a shortage in the supply of pipeline natural gas due:
  - Solely supply limitations or restrictions in distribution pipelines by the utility supplying the gas, and not due to the cost of natural gas
- A daily gas turbine operating record should be maintained and available to the South Coast AQMD staff for at least five years from the date of entry

Combined Stacks (d)(6)

- Units with combined stacks are subject to the most stringent Table 1 or Table 2 NOx and CO limit at the percent oxygen correction based on the averaging time in Table 1 or subdivision (k)

Commissioning Period (d)(8) and (d)(9)

Commissioning Period for Units with Averaging Time < 365 Days (d)(8)

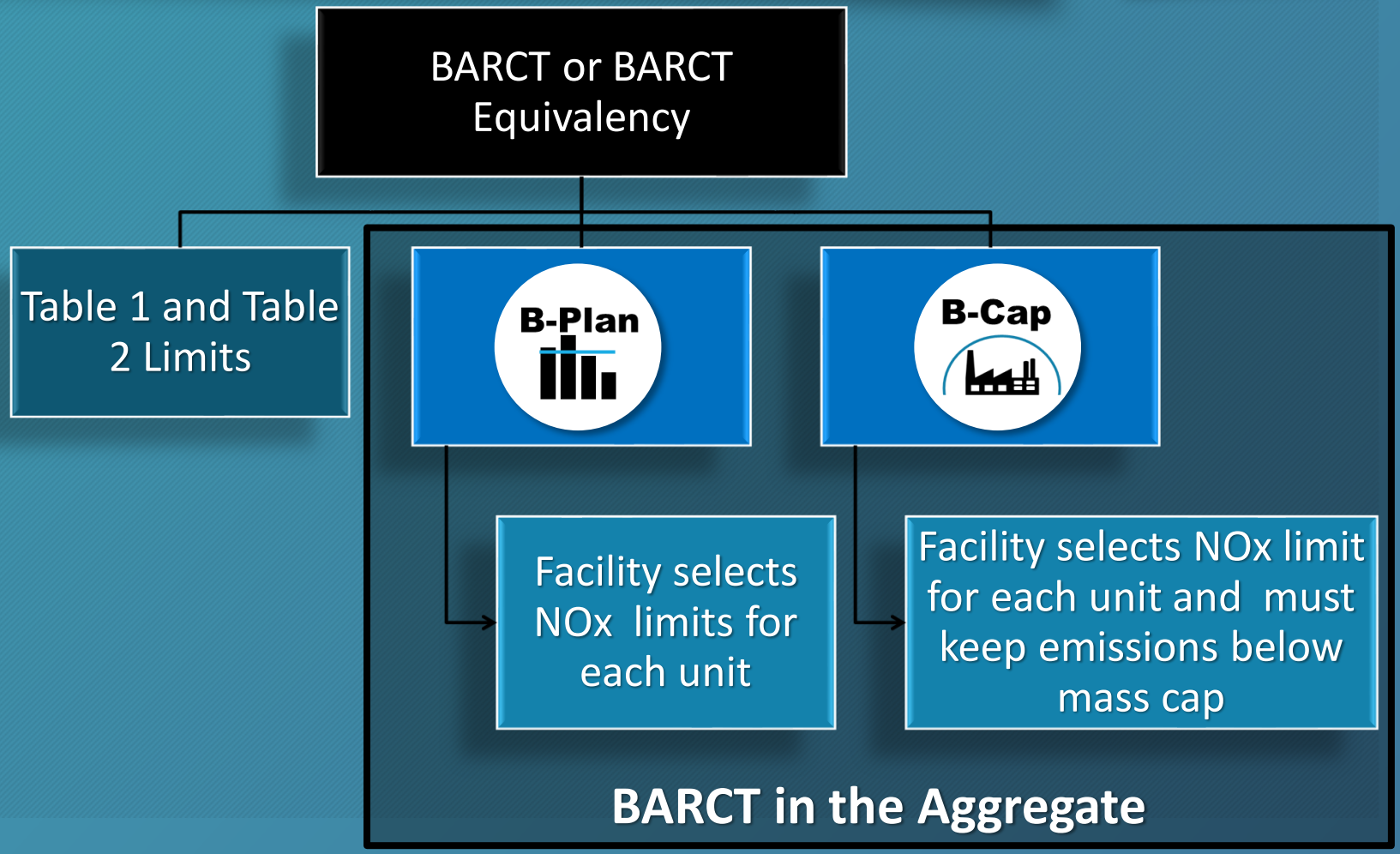
- Units with averaging time less than 365-day in Table 1 or Table 2 with CEMS must meet the limit either six months after the sooner of the:
  - Issuance of the Permit to Operate issuance date
  - 36 months after the date the Permit to Construct is issued, or
  - Date the compliance demonstration source test was completed

Commissioning Period for Units with 365-day Rolling Average (d)(9)

- Units subject to a 365-day rolling average shall demonstrate compliance with the emission limits beginning 14 months after whichever date is sooner:
  - The South Coast AQMD Permit to Operate is issued,
  - 36 months after Permit to Construct is issued, or
  - Completion of a compliance demonstration source test

Alternative BARCT Compliance Plans

- In addition to Table 1 and Table 2, facilities have the option to comply with an alternative emission reduction compliance plan
- The B-Plan and B-Cap are designed to achieve the same emission reductions as meeting the NOx limits in Table 1 and Table 2



B-Plan and B-CAP Requirements (e)

- The B-Plan and B-Cap would be implemented through an alternative implementation schedule called an I-Plan
- B-Plan and B-Cap provides options to achieve BARCT in the aggregate
- Both alternative compliance options requires each unit to have an enforceable permit limit

- I-Plan is a phased implementation schedule
- Allows operators to tailor the implementation schedule to meet NOx limits to minimize operational disruptions

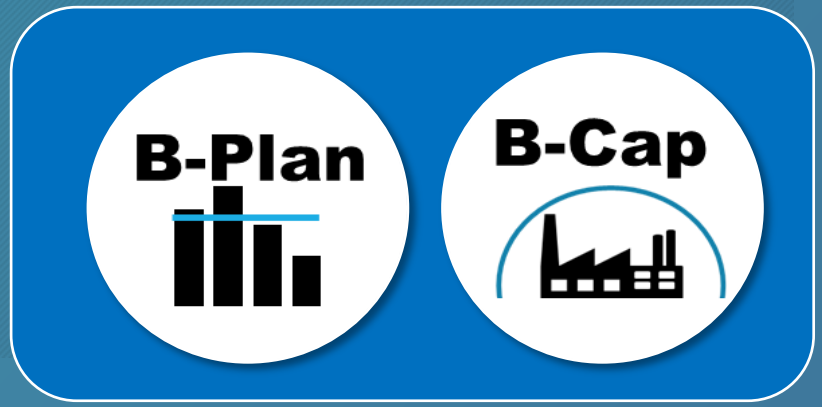
- B-Plan is a BARCT equivalent concentration plan
- Allows operators to select a NOx concentration limits that are equivalent BARCT in aggregate

- B-Cap is a BARCT equivalent mass cap
- Requires operators to accept a NOx emission limit for each unit
- Allows facilities to take credit for equipment shutdowns and throughput reductions

B-Plan and B-CAP Requirements (e) – (*cont.*)

B-Plan or B-Cap Requirements (e)(1) and (e)(2)

- B-Plans and B-Caps requirements include:
  - Plan submittal by July 1, 2022
  - Plans must include all units other than boilers and process heaters <40 MMBtu/hour
    - Boilers and process heaters are required to meet lower NOx concentrations upon burner replacement which could be beyond the timeline of the I-Plan
  - Select Alternative BARCT NOx Limits
  - Comply with the Alternative BARCT NOx Limits



B-Plan and B-CAP Requirements (e) – (*cont.*)

B-Cap Requirements (e)(2)

- B-Cap includes the following additional requirements:
  - Alternative BARCT NOx limit cannot exceed Table 3 Maximum Alternative NOx Limits
  - Emission reductions from decommissioned units are allow under a B-Cap provided:
    - Permit is surrendered
    - Fuel lines are blinded
    - Units are not sold to another entity for continued operation in the South Coast AQMD
  - A new unit added to a facility must keep the total mass emissions at the facility under mass cap unless:
    - All units meet the equivalent mass emissions
    - New unit is not functionally similar to a decommissioned unit
    - New unit does not increase the overall facility throughput
    - Total NOx reduction for units that were decommissioned represent 15 percent or less of the total emission reductions

Table 3: Maximum Alternative BARCT NOx Limit for B-CAP

- Table 3 lists the Maximum Alternative BARCT NOx for the B-Cap
- Maximum limits only apply to the B-Cap, not B-Plan
  - Ensures unit shutdown does not allow other units in B-Cap to exceed Table 3 Limits

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-hour
Boilers and Process Heaters ≥40 MMBtu/hour	50 ppmv	3	24-hour
FCCUs	8 ppmv	3	365-day
	16 ppm		7-day
Gas Turbines	5 ppmv	15	24-hour
Petroleum Coke Calciners	100 tons/year	N/A	365-day
SMR Heaters	12 ppm	3	24-hour
SRU/TG Incinerators	100 ppmv	3	24-hour
Vapor Incinerators	40 ppmv	3	24-hour

Interim Limits (f)

Interim NOx and CO Emission Limits (f)

- Interim limits are:
  - Included in landing rules that have longer implementation dates
  - Intended to prevent emission increases when the facilities exit RECLAIM and become a former RECLAIM facility
- PR 1109.1 establishes several interim limits:
  - Concentration limits set at concentration where units are performing
  - A pound per MMBtu for combined boilers and process heaters at a facility
  - A mass emission cap for facilities that elect to meet the requirements for a B-Cap

Table 4: Interim NOx and CO Emission Limit

- Table 4 lists the interim limits concentration limits for units other than boilers and process heaters greater than or equal to 40 MMBtu/hour

TABLE 4: INTERIM NOx AND CO EMISSION LIMITS

Unit	NOx (ppmv)	CO (ppmv)	O2 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*].

Table 5: Interim NOx Emission Rates For Boilers and Process Heaters ≥40 MMBtu/hour

- Boilers and process heaters ≥40 MMBtu/hour or boilers and process heaters <40 MMBtu/hour that operate with a certified CEMS have an Interim facility-wide NOx emission rate
  - Facilities that elect to comply with the B-Plan using I-Plan option 3 must meet an emission rate of 0.02 pound per million BTU
  - All other facilities must meet an emission rate of of 0.03 pound per million BTU

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

Interim Limits (f) – (*cont.*)

Interim emission Limits for B-Cap (f)(3)

- For a facility that elects to comply with a B-Cap, PR 1109.1 establishes a facility-wide NOx mass cap that all units at the facility are in the aggregate, at or below the Baseline facility emissions
- Baseline facility emissions are based on the 2017 Annual Emission Reports, or another representative year, as approved by the Executive Officer
- The 30-day draft version will include a provision that interim mass cap for a facility complying with a B-Cap only applies until the Phase I compliance date

Compliance Schedule (g)

- Two implementation paths:
  - Path 1: Permit application submittal by July 1, 2023 with compliance 36 months after Permit to Construct is issued
  - Path 2: Alternative implementation schedule under an I-Plan
- Facilities with less than six units must comply with Path 1
- Facilities with six or more units can elect to comply through either Path 1 or Path 2

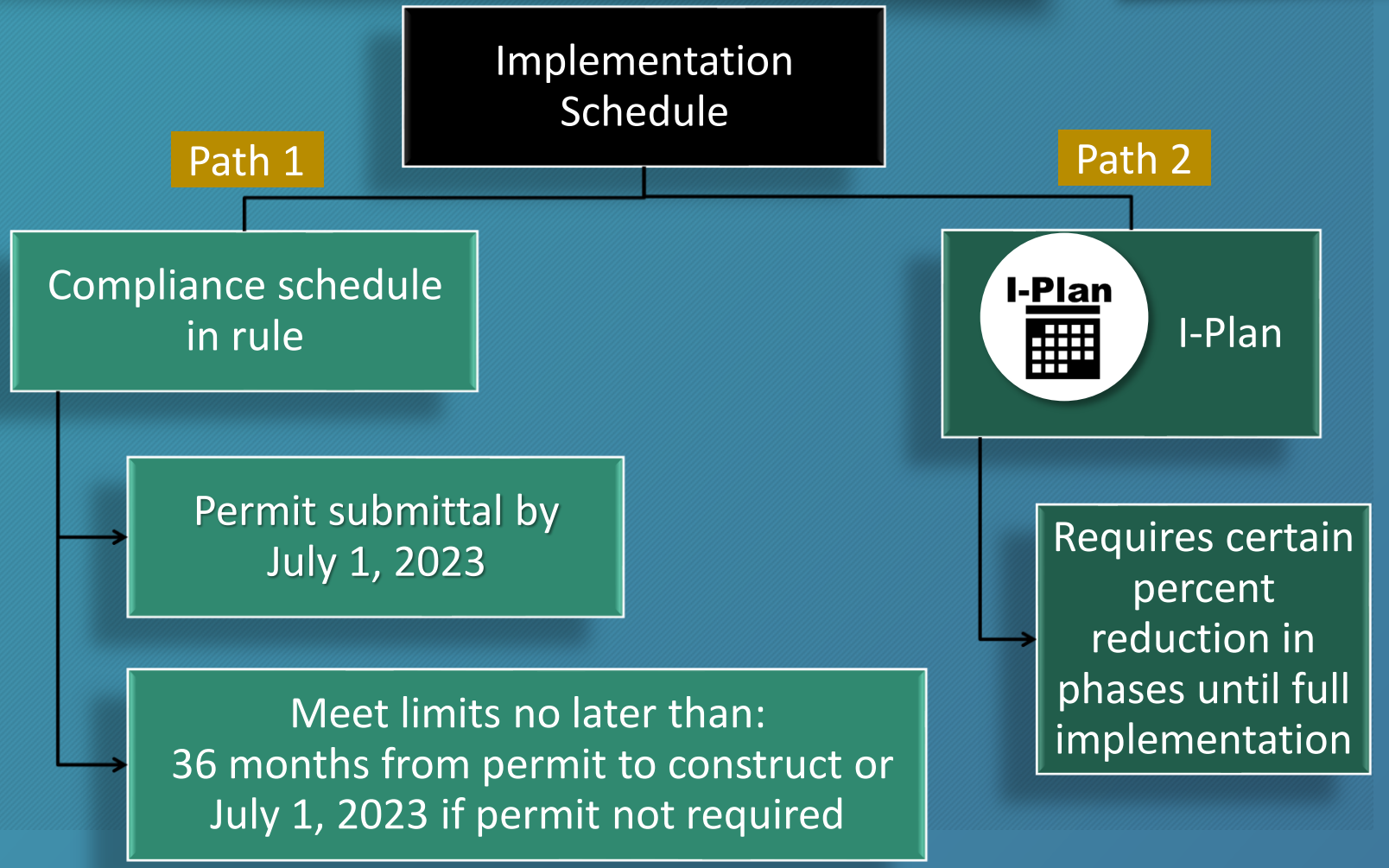


Table 6: I-Plan Targets and Schedule

- PR 1109.1 includes five I-Plan Options
- Some I-Plans are limited to the type of BARCT Compliance Plan
- I-Plan Option 3 has an additional condition that the facility must be achieving a NOx emission rate less than 0.02 pound per million BTU of heat input

Table 6 – I-Plan Targets and Schedule(1)

		Phase I	Phase II	Phase III
I-Plan Option 1 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 Permit to Construct is issued		NA
I-Plan Option 2 B-Plan Only	**Percent Reduction Targets**	**60**	**80**	**100**
	Permit Application Submittal Date	July 1, 2023	January 1, 2025	January 1, 2028
	Compliance Date	later than 36 months after a Permit to Construct is issued		
I-Plan Option 3 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 Permit to Construct is issued		N/A
I-Plan Option 4 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 B-Plan 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		

1 Percent Reduction Targets represent refinery-wide emission reductions including Facilities with Same Ownership.

I-Plan Requirements (g)(2)

- Facilities with six or more units may elect to meet an alternative schedule in an I-Plan
- Requirements for the I-Plan include:
  - Submit I-Plan before July 1, 2022
  - Demonstrate compliance with the I-Plan Option no later than the dates in Table 6

For B-Plan:

- Calculate Facility BARCT Emission Targets or BARCT Equivalent Mass Emissions for each phase
- Demonstrate BARCT Equivalent Mass Emissions are equal to or less than the Facility BARCT Emission Targets for each phase

For B-Cap:

- Facility BARCT Emission Targets shall incorporate an additional 10 percent reduction
- Calculate BARCT B-Cap Annual Emissions for each phase
- Demonstrate BARCT B-Cap Annual Emissions are equal to or less than the BARCT Emission Targets for each phase

Other Compliance Provisions

Existing Units Meeting with Table 2 Conditional Limits (g)(4)

- Operators complying with Table 2 conditional limits will be subject to Table 1 limits if the existing NOx control equipment is replaced[1]

Late Permit Application (g)(5)

- Operators that fail to submit a permit application by the applicable date, must meet the emission limits no later than 36 months after the permit application is submitted

Late Permit Application (g)(6)

- Units exempt from Table 1 NOx limits that exceed the exemption limitations must submit a permit application to meet Table 1 limits within six months of the exceedance, and meet the NOx limit within 36 months after Permit to Construct is issued

[1] 50 percent of the fixed capital cost of a new post-combustion control equipment or 50 percent of more burners)

Time Extensions (h)

PR 1109.1 allows two types of time extensions:

12-Month Extension (h)(1)

- 12-month time extension is to address specific circumstances outside of the control of the owner or operator

Time Extensions for Turnaround Provision s(h)(2)

- Addresses following situations where an emission reduction project falls outside of the scheduled turnaround window
  - Permit to construct was issued after the scheduled turnaround
  - Permit to construct was issued more than 24 months from permit application submittal which causes the emission reduction project to fall outside of the turnaround window

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

Plan Requirements (i)(1) – (i)(4)

- I-Plan Submittal Requirements include:
  - Identifies the units in the I-Plan
  - Selects the I-Plan Option
  - Calculates the targets based on the Table 1 or Table 2 emission limits
- B-Plan and B-Cap Submittal Requirements includes:
  - Selects the Alternative BARCT NOx limit for each unit
  - Calculates the equivalent mass emissions and demonstrates they are beneath
- I-Plan, B-Plan, and B-Cap Review and Approval Process
  - If a plan is disapproved by the Executive Officer , Rule 1109.1 considers a 30-day period to correct any deficiencies and resubmit a corrected I-Plan, B-Plan, or B-Cap
  - Upon disapproval of any resubmitted plan by the Executive Officer, the owner or operator will be required to comply with the compliance schedule in paragraph (g)(1)

I-Plan, B-Plan, and B-Cap Modifications (i)(5)

Plan Requirements (i)(5)

- Provisions includes the procedure to modify an Approved I-Plan, an Approved B-Plan, or an Approved B-Cap
- Modification are allowed under the following situations:
  - A unit no longer meets the conditional limits
  - A unit is decommissioned
  - A higher Alternative BARCT NOx Limit is included in the South Coast AQMD permit application than the Alternative BARCT NOx Limit
  - An emission reduction project is moved to a different phase
  - Modifications to the I-Plan, B-Plan, or B-Cap are deemed necessary by the Executive Officer

I-Plan, B-Plan, and B-Cap Public Review and Plan Fees (i)(6) and (i)(7)

Public Review of I-Plan, B-Plan, or B-Cap (i)(6)

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

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

Plan Fees (i)(7)

- Plan fees pursuant to Rule 306 will apply to the review and approval of the I-Plan, B-Plan, and B-Cap

CEMS Provisions (j)

CEMS Requirements (j)(1) – (j)(5)

- CEMS will be required for all units ≥40 MMBtu/hour
- Once facilities exit RECLAIM, they will have to comply with:
  - Rule 218.2 – Continuous Emission Monitoring System: General Provisions; and
  - Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications
- CO CEMS will not be required on all units but units with an existing CO CEMS will be required to maintain it
- Missing data procedures will apply to facilities complying with a B-Cap

Source Test Provisions (k)

Source Test Requirements and Schedule (k)(1) – (k)(4)

- Units that do not operate CEMS, compliance will be demonstrated by conducting a source test with a duration of at least 15 minutes but no longer than 2 hours
- Source Tests shall be conducted according to the schedule in Table 7 or Table 8
  - Table 7 applies to units that do not vent to air pollution control equipment with ammonia injection
  - Table 8 applies to units that do vent to air pollution control equipment with ammonia injection
- For units without CEMS, source test must be conducted simultaneously for NOx, CO, and ammonia (if applicable)
  - Table 7 and Table 8 include a matrix that describes the source test schedule for units that do not have CEMS for any of the pollutants and for units that have CEMS for one or more of the pollutants

Source Test Provisions (k) – (*cont.*)

Source Test Requirements and Schedule (k)(1) – (k)(4)

- A unit that has not conducted a source test within the schedule in either Table 7 or Table 8 shall conduct a source test within:
  - 6 months from being subject to a PR 1109.1 emission limit for units greater than or equal to 20 MMBtu/hour
  - 12 months from being subject to a PR 1109.1 emission limit for units less than 20 MMBtu/hour
- New or modified units will be required to source test within 6 months
- Subdivision (k) also includes:
  - Requirements and schedule for submitting the source test protocol
  - List of test methods
  - Requirements to submit source test results
  - Provision that states a source test that demonstrates a PR 1109.1 limit is exceeded constitutes a violation and a requirement to inform the Executive Officer of the exceedance

Source Test Provisions (k) – (*cont.*)

Units Without a Recent Source Test (k)(5)

- A unit that has not conducted a source test within the schedule in either Table 7 or Table 8 shall conduct a source test within:
  - 6 months from being subject to a PR 1109.1 emission limit for units greater than or equal to 20 MMBtu/hour
  - 12 months from being subject to a PR 1109.1 emission limit for units less than 20 MMBtu/hour

New or Modified Units (k)(6)

- New or modified units will be required to source test within 6 months

Diagnostic Emission Checks (l)

Diagnostic Emission Check (l)(1) – (l)(2)

- PR 1109.1 requires diagnostic emission checks to be conducted for NOx, CO, and O_2
  - In accordance with the South Coast AQMD Protocol
  - By a person who had completed an appropriate training program approved by the South Coast AQMD
  - At least every 365 days or every 8760 operating hours, whichever occurs later, for units that require a source test every 36 months
- Diagnostic emissions checks that find emissions in excess of those allowed by PR 1109.1 shall not be considered a violation if the problem is corrected and another diagnostic test demonstrates compliance with 72 hours

Monitoring, Recordkeeping and Reporting (MRR) Requirements (m)

MRR Requirements (m)(1) – (m)(8)

- PR 1109.1 includes eight MMR provisions which include:
  - Operating logs of startup and shutdown on events
  - B-Cap requirements
  - Emission rate requirements for the pound per million Btu interim limit
  - Five-year record retention requirement
  - Time meters or fuel meter requirements
  - Burner replacement recordkeeping
  - Post-combustion control equipment recordkeeping

Exemptions (n)

- PR 1109.1 includes nine exemptions that
  - Address units that were not cost-effective to retrofit due to low-use or low-emissions

Exemptions (n)(1) – (n)(3)

- Small boilers or heaters (≤2 MMBtu/hour) that will be subject to Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters
- Low-Use boilers that operate less than 200 hours per year
- Low-Use process heaters that operate at less than 15 percent capacity of the rated heat input capacity

Exemptions (n) – (*cont.*)

Exemptions (n)(4) – (n)(9)

- Limited exemption for a FCCU that must bypass the post-combustion air pollution control equipment during boiler inspections required under California Code of Regulations, Title 8, Section 770(b)
- Startup heaters for FCCU provided they operate for 200 hours or less per year
- Startup or shutdown boilers at sulfuric acid plants provided they do not exceed 90,000 MMBtu or annual heat input per calendar year
- Boilers or process heaters operating only the pilot
- Flares that emit less than or equal to 550 pounds of NOx per calendar year
- Vapor incinerators that emit less than 100 pounds of NOx per calendar year

PR 1109.1 – Attachments

- Attachment A contains the approach to calculate
  - Rolling average concentrations for units with CEMS
  - NOx emission rate for boilers and heaters used as interim limit and condition for allowing I-Plan Option 3
- Attachment B
  - Contains calculation methodology for the I-Plan, B-Plan, And B-Cap
- Attachment C
  - Includes a table of the baseline mass emissions for facilities with six or more units that will be subject to PR 1109.1
- Attachment D
  - Includes two tables with units that qualify for conditional limits in B-Plan and B-Cap

PR 1109.1 Cost-Effectiveness, Incremental Cost-Effectiveness and Estimated Emission Reductions

Cost-Effectiveness and Incremental Cost-Effectiveness

- California Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements
- The cost-effectiveness of a control technology is measured in terms of the control cost in dollars per ton of air pollutant reduced for each class and category of equipment
- The incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option
- For some equipment categories the proposed NOx limit was based only on the cost-effectiveness and the incremental cost-effectiveness was not calculated because either:
  - There was not another potential control option that achieves the emission reduction objective of PR 1109.1
  - There was not a progressively more stringent potential control option as compared to the next less expensive control option

Cost-Effectiveness and Incremental Cost-Effectiveness Analysis of Table 1 NOx Limits

Equipment Category	Table 1 NOx Limit	Cost-Effectiveness	Incremental Cost-Effectiveness ($/ton of NOx Reduced)		Is Table 1 Limit Cost-Effective and Incrementally Cost-Effective?
Boilers (≥40 - ≤110 MMBtu/hour)	5 ppmv	$25,000	5 ppmv to 2 ppmv	$656,000	Yes
Boilers (>110 MMBtu/hour)	5 ppmv	$11,000	5 ppmv to 2 ppmv	$159,000	Yes
Process Heaters (≥40 - ≤110 MMBtu/hour)	5 ppmv	$50,000	5 ppmv to 2 ppmv	$293,000	Yes
Process Heaters (>110 MMBtu/hour)	5 ppmv	$50,000	5 ppmv to 2 ppmv	$400,000	Yes
Gas Turbines Other Fuels	3 ppmv	$19,300	3 ppmv to 2 ppmv	$74,300	Yes

Cost-Effectiveness of Table 1 NOx Limits (Units Where the Incremental Cost-Effectiveness Could Not be Calculated)

Equipment Category	Table 1 NOx Limit	Cost-Effectiveness	Is Table 1 Limit Cost-Effective ?
FCCUs	2 ppmv	$24,000	Yes
Gas Turbines Natural Gas	2 ppmv	$15,400	Yes
Petroleum Coke Calciners	5 ppmv	$10,000	Yes
Sulfur Recovery Units/Tail Gas Treating Units	30 ppmv	$39,000	Yes
SMR Heaters	5 ppmv	$17,000	Yes
Vapor Incinerators	30 ppmv	$35,000	Yes

Incremental cost-effectiveness was not calculated because there was not another potential control option that achieves the emission reduction objective of PR 1109.1 or there was not a progressively more stringent potential control option as compared to the next less expensive control option

Cost-Effectiveness of Table 2 Conditional Limits

Unit	Conditional Limit (ppmv)	Cost-Effectiveness ($/Ton of NOx Reduced)
Boilers (>110 MMBtu/hr)	7.5	$0
FCCUs	8	$12,000
Gas Turbines w/Natural Gas	2.5	$0
Process Heaters (≥40 - ≤110 MMBtu/hour)	18	$48,000
Process Heaters (>110 MMBtu/hour)	22	$50,000
SMR Heaters	7.5	$0
Vapor Incinerators	40	$0

Estimated NOx Reductions

- Based on an initial estimation, staff estimates that implementation of PR 1109.1 is expected to achieve NOx reductions between 6.5 to 8 tons per day
- The range of NOx reductions are based on the number of units that can meet the requirements to use the Conditional NOx Limits in Table 2
- Staff will continue to refine emission calculations
- PR 1109.1 seeks to achieve early NOx emission reductions through:
  - Requirements for facilities that elect to use a B-Plan to submit permit applications by July 1, 2022 for units that will achieve Table 2 Conditional NOx limits
  - Implementation of I-Plan Option 5 for B-Cap operators that will require a 50 percent reduction of the required reductions by January 1, 2024

Proposed Rescinded Rule 1109

Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries

Proposed Rescinded Rule 1109

- Rule 1109 - Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries
  - Adopted on November 1, 1985, last amended on August 5, 1988
  - Applicable to all boilers and process heaters in petroleum refineries
- Once RECLAIM was adopted in 1993, all facilities that were subject to Rule 1109 elected to comply with RECLAIM
- Staff is proposing to rescind Rule 1109 upon adoption of Rule 1109.1

Proposed Rule 429.1

Startup and Shutdown Provisions at Petroleum Refineries and Related Operations

Background

- Proposed Rule 429.1 (PR 429.1) is a companion rule to PR 1109.1
- PR 429.1 is designed to exempt PR 1109.1 facilities from the NOx and CO emission limits during startup, shutdown, and catalyst maintenance activities
- PR 429.1 is needed during startup and shutdown events as units cannot achieve proposed NOx and CO concentration limits under PR 1109.1 when:
  - Unit is not at steady-state conditions
  - Temperature is not optimal for pollution control equipment such as SCR
- Although some units have permit requirements for startup and shutdown, U.S. EPA commented that startup and shutdown provisions must be addressed in the rule

Distinction Between RECLAIM and Command-and-Control

- RECLAIM program accounts for startup and shutdown emissions differently than a command-and-control regulatory structure
  - RECLAIM is based on mass emissions as compared to PR 1109.1 which is based on concentration limits
  - RECLAIM facilities are required to hold RTCs for all emissions*, including emissions during startup and shutdown events
- Approach for PR 429.1
  - Concentration based limits may be exceeded during startup, shutdown, and catalyst maintenance events
  - Command-and-control rules do not give facilities the option to use RTCs to account for these emissions
  - Establish startup, shutdown, and catalyst maintenance duration limits
  - Limit the number of scheduled startups

*Required RTC holdings do not include emissions from breakdowns as specified in Rule 2004

Approach for Establishing Startup and Shutdown Duration Limits

Step 1: Assessment of duration limits in existing permits

Step 2: Established initial duration limits needed for each equipment category based on existing permits

Step 3: Evaluated individual startup and shutdown data for units that were longer than duration limits in Step 2

Step 4: Based on evaluation of information received in Step 3

- Created a subcategory; or
- Extended the time for the overall equipment category

PR 429.1 Preliminary Draft Rule Language

Purpose and Applicability

- Purpose
  - To limit emissions of oxides of nitrogen (NOx) and carbon monoxide (CO) emissions during startup and shutdown
  - Staff will be clarifying that PR 429.1 also will include certain catalyst maintenance activities
- Applicability
  - Units that are regulated under PR 1109.1

Units Regulated Under PR 1109.1
Boilers
Process Heaters
FCCUs
Flares
Gas Turbines
Petroleum Coke Calciners
Sulfur Recovery Unit/Tail Gas (SRU/TG) Incinerators
Steam Methane Reformer Heaters
Steam Methane Reformer with Gas Turbine
Sulfuric Acid Furnaces
Vapor Incinerators

Key Definitions

Shutdown

- Begins: Load or heat input to a unit is reduced, and flue gas temperature falls below the minimum operating temperature of the NOx post-combustion control equipment, if applicable
- Ends: Zero fuel flow or zero feedstock, or when combustion/circulation air flow ends if the unit does not use fuel for combustion

Stable Conditions

- The following are consistent and allow for normal operations:
  - Fuel flow
  - Fuel composition
  - Feedstock to a unit
  - Combustion/circulation air if the unit does not use fuel for combustion

Startup

- Begins: Unit combusts fuel after a period of zero fuel flow or zero feedstock, or when combustion/circulation air is introduced if the unit does not use fuel for combustion
- Ends: Flue gas temperature reaches the minimum operating temperature of the NOx post-combustion control equipment and reaches stable conditions, or when the time limit specified in Table 1 is reached, whichever is sooner

Exemption from PR 1109.1 Emission Limits (d)(1)

- An owner or operator is not subject to PR 1109.1 NOx or CO emission limits and applicable rolling average provisions during
  - Startup
  - Shutdown
  - Catalyst maintenance
- Paragraph (d)(1) applies to all units upon rule adoption as operators meet the emission limits in PR 1109.1 under Table 1, Table, 2, or in an approved B-Plan or B-Cap

Startup and Shutdown Duration Limits (d)(2)

- Table 1 provides startup duration limits and shutdown duration limits after a facility becomes a former RECLAIM petroleum refinery
- Time is counted towards Table 1 duration limits only when emissions from the unit exceed PR 1109.1 NOx or CO limits
- Startup durations are further limited by (d)(2)(A) based on the time to achieve
  - Stable conditions; and
  - The minimum operating temperature of the NOx post-combustion control equipment, if applicable
- Longer duration times reflect larger and/or more complex systems that require multiple steps to startup or shutdown properly

Table 1 from PR 429.1

Unit Type	Time Allowed (Hours)*
• Boilers and Process Heaters without NOx Post-Combustion Controls • Gas Turbines • Flares • Vapor Incinerators without NOx Post-Combustion Control Equipment or without Castable Refractory	2
• Vapor Incinerators with NOx Post-Combustion Control Equipment • Vapor Incinerators with Castable Refractory	20
• Boilers and Process Heaters with NOx Post-Combustion Controls • Steam Methane Reformer Heaters • Sulfuric Acid Furnaces	48
• Steam Methane Reformers with Gas Turbine	60
• FCCUs • Petroleum Coke Calciners • SRU/TG Incinerators	120

*When emissions exceed Rule 1109.1 emission limits

Maximum Scheduled Startups (d)(3) and (d)(4)

Unit Type		Maximum Annual[1] Scheduled Startups for Each Unit
• Boiler • Flare • Gas Turbine • Process Heater	• Steam Methane Reformer Heater • Sulfuric Acid Furnace • Vapor incinerator	10
• FCCU • Petroleum Coke Calciner • SRU/TG Incinerator		3

[1] Based on a calendar year

- PR 429.1 limits the number of scheduled startups after a facility becomes a former RECLAIM petroleum refinery
- Limitation on scheduled startups applies after the facility transitions out of RECLAIM
- Scheduled startups do not include
  - Response to demand
  - Unscheduled maintenance
  - Equipment failure
  - Breakdowns or malfunctions

Efforts to Minimize Emissions During Startup and Shutdown Events (d)(5)

During startup and shutdown, operators shall take all reasonable and prudent steps to minimize emissions

- Paragraph (d)(5) applies to owners or operators of a unit at a former RECLAIM petroleum refinery or a new petroleum refinery
- Reasonable and prudent steps to minimize emissions include equipment repairs and adjusting temperatures of post-combustion controls

Requirements for Units with NOx Post-Combustion Control Equipment (d)(6) and (d)(7)

After a facility becomes a former RECLAIM petroleum refinery, the operator is subject to requirements for units with NOx post-combustion control equipment

Install Temperature Measuring Device (d)(6)

- An annually calibrated temperature measuring device required at the inlet of the NOx post-combustion control
- Temperature measuring device includes a temperature gauge or thermocouple

Operate NOx Post-Combustion Control Equipment (d)(7)

- Operate control equipment if the temperature of the exhaust gas to the inlet of the NOx post-combustion control equipment is ≥ the minimum operating temperature
- MINIMUM OPERATING TEMPERATURE means the minimum operating temperature specified by the manufacturer, unless otherwise defined in the South Coast AQMD permit to operate

Catalyst Maintenance Provision (d)(8)

- Paragraph (d)(8) only applies to
  - An owner or operator of a unit at a former RECLAIM petroleum refinery or a new petroleum refinery
  - Units with a bypass stack or ducting that exists prior to the date of rule adoption
  - Units with turnaround schedules of 5 years or longer
- This provision is limited to conditioning, repairing, or replacing the catalyst in NOx post-combustion control equipment

Hour Limit	Operate at Minimum Rate
Limited to 200 hours in a rolling three-year cycle	Unit is required to be operated at the minimum safe operating rate

Additional Requirements for Catalyst Maintenance Provision (d)(8)

Report Minimum Operating Rate

- Submit documentation from the manufacturer of the minimum safe operating rate

Notification

- Required to notify by calling 1-800-CUT-SMOG at least 24 hours prior
- Notification requires the date and estimated time and duration

Monitoring

- Continuously monitor NOx and CO emissions
- Required to monitor emissions using a certified Continuous Emissions Monitoring System or a contractor approved under the South Coast AQMD Laboratory Approval Program

Notification (e)

- After a facility becomes a former RECLAIM petroleum refinery, the operator is subject to notification requirements
  - Notification is required least 24 hours prior to a scheduled startup by calling 1-800-CUT-SMOG
  - The notification must contain the date and time that the scheduled startup will begin

Recordkeeping (f)

- After a facility becomes a former RECLAIM petroleum refinery, the operator is subject to recordkeeping requirements
- All records are required to maintained and made available to the South Coast AQMD upon request
- Required to maintain documentation of the minimum operating temperature of the NOx post-combustion control equipment
- The following records are required to be maintained for 5 years

Operating Log

- Needed for startup, shutdown, refractory dryout, catalyst maintenance, catalyst regeneration activities, initial commissioning of a unit, and initial commissioning of NOx post-combustion control equipment
- Must contain date, time, duration, and reason for each event

List of Scheduled Startups

A List of Planned Maintenance Shutdowns for the Next 5 Years for Units Equipped with a Bypass Prior to Rule Adoption

NOx and CO Emissions Data from Use of Bypass to Conduct Catalyst Maintenance

Exemptions (g)

- After a facility becomes a former RECLAIM petroleum refinery, exemptions in PR 429.1 become applicable
- Units are exempt from the startup and shutdown duration limits in paragraph (d)(2) during
  - Refractory dryout
  - Catalyst regeneration activities
  - Initial commissioning of a unit
  - Initial commissioning of NOx post-combustion control equipment
- Units with a permit condition before rule adoption which allows the use of a bypass to conduct maintenance are exempt from the requirements in paragraph (d)(8)

PR 429.1 Impact Assessments

PR 429.1 Costs, Emission Reductions, Cost-Effectiveness, Incremental Cost-Effectiveness

Costs

- The provisions in PR 429.1 are not expected to impose any additional costs

Emission Reductions

- No additional emission reductions from PR 429.1
- Emission reductions for these units are a result of PR 1109.1

Cost-Effectiveness

- H&SC Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements
- PR 429.1 does not include new BARCT requirements, so this provision does not apply

Incremental Cost-Effectiveness

- H&SC Section 40920.6 requires an incremental cost-effectiveness analysis for BARCT rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments, relative to ozone, CO, SOx, NOx, and their precursors
- PR 429.1 does not include new BARCT requirements, so this provision does not apply

Proposed Amended Rules 1304 and 2005

PAR 1304 – Exemptions

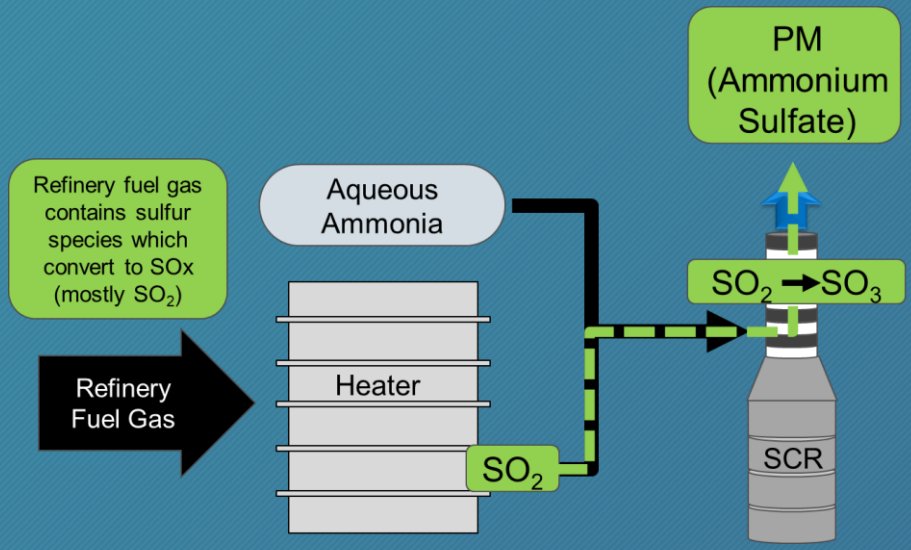
PAR 2005 – New Source Review for RECLAIM

NSR Background

- South Coast AQMD has two New Source Review (NSR) programs for nonattainment pollutants
  - Rule 2005 – New Source Review for RECLAIM
  - Regulation XIII – New Source Review
- Rule 2005 establishes the NSR requirements for NOx and SOx emission increases at RECLAIM facilities
- Regulation XIII establishes the NSR requirements for emission increases of nonattainment criteria pollutants and their precursors, ammonia, and ozone depleting compounds at any facility
- For RECLAIM facilities, Reg XIII only applies to pollutants not specifically regulated by Regulation XX
- Emission increases of PM_{10} and SOx associated with SCR installations or modifications and basic equipment replacements at RECLAIM facilities could trigger BACT requirements for PM_{10} under Regulation XIII and BACT requirements for SOx under Rule 2005

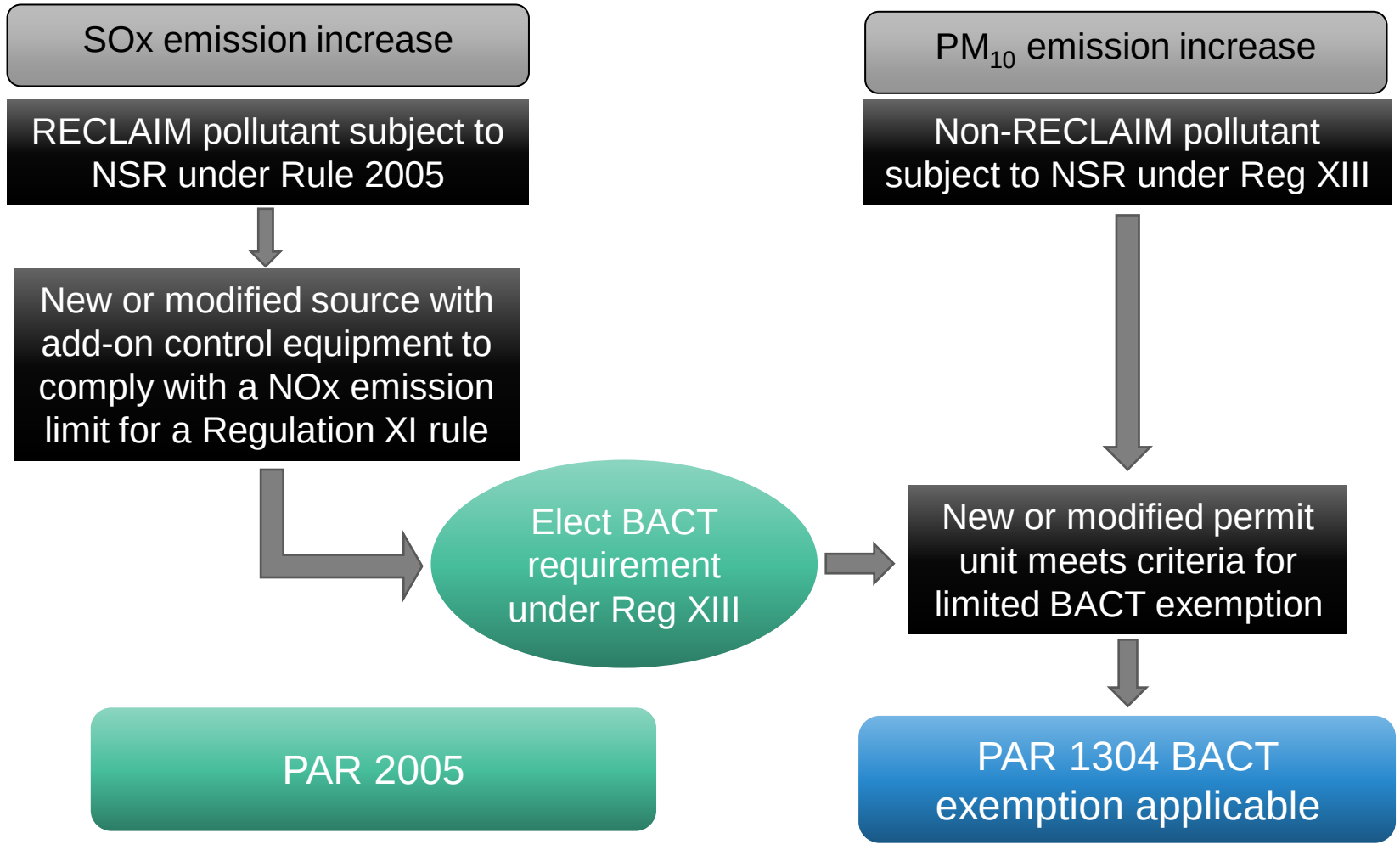
Need for Narrow BACT Exemption

- During the development of PR 1109.1, a co-pollutant issue was identified where installation of SCR systems can potentially trigger NSR requirements, requiring operators to reduce the sulfur content in refinery fuel gas
  - SCR installations to control NOx emissions from a refinery boiler or heater can result in an increase in particulate matter (PM)
- Under Regulation XIII, emission increases exceeding one pound per day would require BACT, modeling, and offsetting for PM_{10}
- Staff is proposing a narrow BACT exemption for PM emission increases associated with air pollution control equipment installations to comply with NOx BARCT



PAR 1304 and PAR 2005

- PAR 1304 and 2005 are needed to ensure NOx reductions can be achieved under PR 1109.1 to address:
  - PM_{10} emissions increases when the project involves the installation or modification of an SCR for an existing unit; and
  - Both PM_{10} and SOx emission increases if a unit replacement is combined with the SCR project



PAR 2005 Preliminary Draft Rule Language

Proposed Amended Rule 2005

- Currently, new or modified sources at a RECLAIM facility with an emission increase of a RECLAIM pollutant are subject to BACT under Rule 2005
- PAR 2005 paragraph (c)(5) is proposing to allow a RECLAIM facility to use the BACT requirement for a SOx emission increase under Rule 1303 instead of BACT under Rule 2005 for new sources with add-on air pollution control equipment to comply with a NOx emission limit for a Regulation XI rule
- RECLAIM facilities electing to meet the BACT requirements under Rule 1303 can use the limited BACT exemption in PAR 1304 if the new or modified source meets the criteria specified in PAR 1304 subparagraph (f)(1)(A) through (E)

PAR 1304 Preliminary Draft Rule Language

BACT Exemption Applicability – (f)(1)

- PAR 1304 paragraph (f)(1) limits the proposed BACT exemption to new or modified permit units with PM_{10} and/or SOx emission increases associated with the:
  - Installation or modification of add-on air pollution control equipment; or
  - Replacement of basic equipment that is combined with the installation or modification of add-on air pollution control equipment
- Proposed BACT exemption is limited to new or modified permit units at RECLAIM or former RECLAIM facilities installed or modified to comply with a NOx BARCT rule to transition the NOx RECLAIM program to command-and-control regulatory structure
- NOx BARCT limits in command-and control rule must have been initially established before December 31, 2023

BACT Exemption Limitations – (f)(1)(A) through (E)

- Proposed BACT exemption is limited to projects that:
  - Are associated with the installation or modification of add-on air pollution control equipment
  - Have no increase in the cumulative total maximum rated capacity
  - An equipment replacement must serve the same purpose as the unit being replaced
  - Do not have an increase in the physical or operation design capacity for the facility[1]
  - Do not trigger Federal major NSR
- Emissions from the new or modified unit shall not cause a National Ambient Air Quality Standard as demonstrated through modeling required as required in Rule 1303 paragraph (b)(1)
- Federal NSR applicability will be determined according to the federal definitions for Major Stationary Source or Major Modification as defined in 40 CFR 51.165 (for nonattainment pollutants) and 40 CFR 52.21 (attainment pollutants)
  - Appendix included in the staff report provides additional information and a general guideline to implement the federal major NSR applicability test

[1] An increase in efficiency is not an increase in the physical and operational design capacity

Estimating PM Emissions for Federal Major NSR Applicability – (f)(1)(E)

- For the purpose of determining federal major NSR applicability, PM emission increases will be estimated using the table below
- U.S. EPA confirmed that this approach is acceptable for determining NSR applicability

Firing Rate (MMBTU/hr) at Varying Total Sulfur ppm Required to Exceed Federal PM threshold (10 Tons per Year)				
SO_2 to SO_3 Oxidation Rate	40 ppm sulfur	110 ppm sulfur	150 ppm sulfur	179 ppm sulfur
0.5%	39,152	14,237	10,441	8,749
1.0%	19,576	7,119	5,220	4,375
1.5%	13,051	4,746	3,480	2,916
2.0%	9,788	3,559	2,610	2,187
2.5%	7,830	2,847	2,088	1,750
3.0%	6,525	2,373	1,740	1,458
3.5%	5,593	2,034	1,492	1,250
4.0%	4,894	1,780	1,305	1,094
4.5%	4,350	1,582	1,160	972
5.0%	3,915	1,424	1,044	875

PAR 1304 Paragraph (f)(2)

- New or modified permit units that qualify for the BACT exemption are still subject to all other requirements of Regulation XIII, including but not limited to, permit conditions limiting monthly maximum emissions as required in Rule 1313 – Permits to Operate
  - Permits must have conditions limiting monthly maximum emissions pursuant to Rule 1313
- Existing PM limits will need to be evaluated on a case-by-case basis
- Separate PM limits might be needed to:
  - Account for the emission increases associated with this exemption
  - Reflect the assumptions used to determine that a unit did not exceed the federal NSR thresholds or trigger other regulatory requirements
    - Such as sulfur content in refinery fuel gas and SO_2 to SO_3 conversion rates of the SCR

PAR 2005 and 1304 Costs, Emission Reductions, Cost-Effectiveness, Incremental Cost-Effectiveness

Costs

- The provisions in PAR 2005 and 1304 are not expected to impose any additional costs

Emission Reductions

- No additional emission reductions from PAR 2005 or 1304
- Emission reductions for these units are a result of PR 1109.1

Cost-Effectiveness

- H&SC Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements
- PAR 2005 and 1304 do not include new BARCT requirements, so this provision does not apply

Incremental Cost-Effectiveness

- H&SC Section 40920.6 requires an incremental cost-effectiveness analysis for BARCT rules when there is more than one control option which would achieve the emission reduction objective
- PAR 2005 and 1304 do not include new BARCT requirements, so this provision does not apply

California Environmental Quality Act (CEQA)

California Environmental Quality Act (CEQA)

- Staff is preparing a Draft Subsequent Environmental Assessment which tiers off the December 2015 Program Environmental Assessment for NOx RECLAIM and the March 2017 Program Environmental Impact Report for the 2016 AQMP
  - Will include PR 1109.1, PR 429.1, PAR 1304, PAR 2005, and rescind Rule 1109
  - Potential significant impact areas include air quality and greenhouse gases, hazards and hazardous materials, and hydrology
- Staff has met with stakeholders who provided updated data which is being incorporated into the Draft Subsequent Environmental Assessment
- Targeting release on September 3 for a 45-day public review and comment period ending on October 19, 2021

Socioeconomic Assessment

Legal Requirements California Health & Safety Code Sections 40440.8(a) and (b)

- Socioeconomic Impact Assessment (SIA) considers:
  - Type of affected industries, including small businesses
  - Availability and cost effectiveness of alternatives
  - Range of probable costs, including costs to industry or business
  - Impact on employment and the regional economy
  - Socioeconomic impacts of CEQA Alternatives
- Governing Board shall:
  - Actively consider socioeconomic impacts
  - Make a good faith effort to minimize adverse socioeconomic impacts

Additional Analyses, External Review, and Timeline

- Socioeconomic Impact Assessment will include a report on the estimated pass-through of PR 1109.1 compliance costs onto gasoline prices
  - Conducted by Dr. Erich Muehlegger (Associate Professor, UC Davis)
- Socioeconomic Impact Assessment to include estimated public health benefits resulting from projected changes in NOx and NH3 emissions
- Third-party reviews will be conducted for:
  - Draft SIA (Kleinhenz Economics)
  - Public Health Benefits (Industrial Economics/IEc)
- Draft Socioeconomic Impact Assessment expected to be released approximately 60 days prior to Public Hearing

Next Steps

Study Session on Rules
September 10, 2021

Working Group Meeting
Mid-September

Close of Comment Period:
September 17, 2021

Stationary Source Committee:
September 17, 2021

Set Hearing: October 1, 2021

Public Hearing: November 5, 2021

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