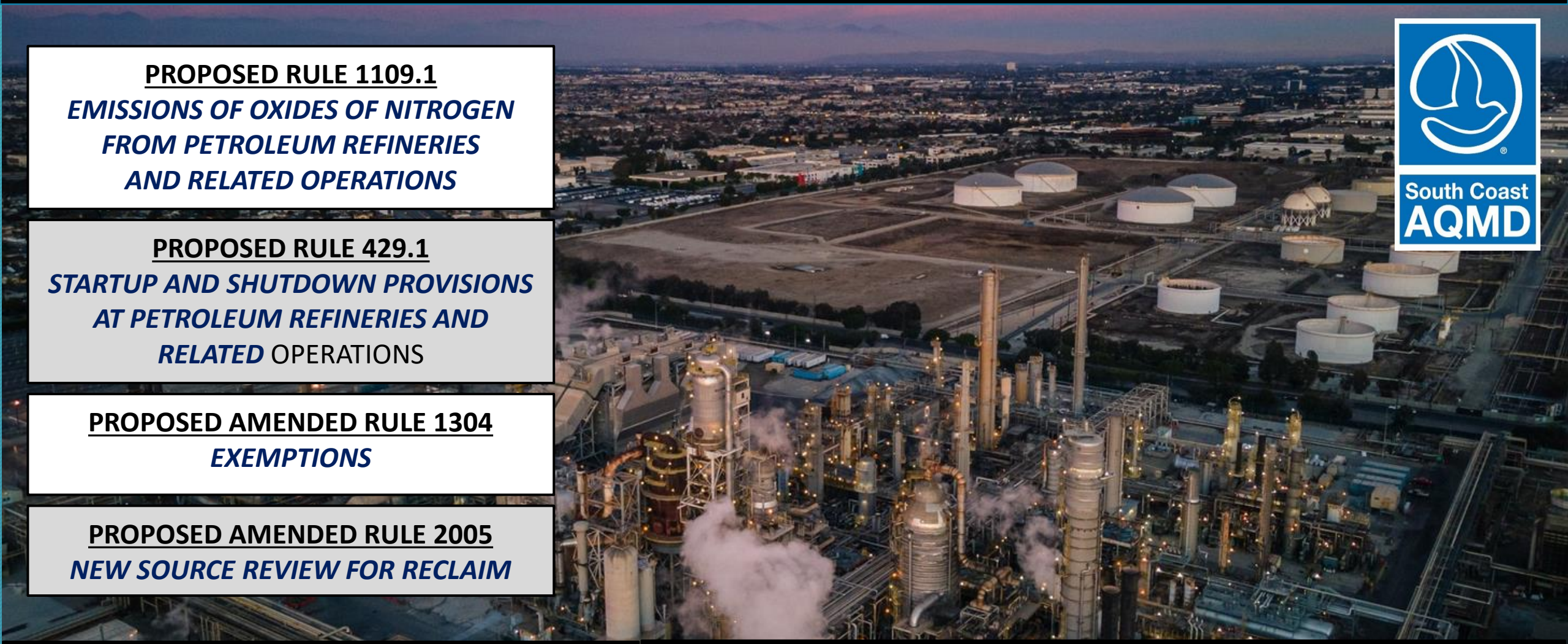

PROPOSED RULE 1109.1
EMISSIONS OF OXIDES OF NITROGEN FROM PETROLEUM REFINERIES AND RELATED OPERATIONS

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

PROPOSED AMENDED RULE 1304
EXEMPTIONS

PROPOSED AMENDED RULE 2005
NEW SOURCE REVIEW FOR RECLAIM

South Coast AQMD

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Working Group Meeting #25

September 15, 2021

Agenda

- Status and Progress Since Working Group Meeting #24
- Proposed Changes to PR 1109.1 Rule Language
- Key Issues and Areas of Further Discussion for PR 1109.1
- Proposed Changes and Comments on PR 429.1
- Additional Considerations for PAR 1304
- Next Steps

Status and Progress Since WGM #24

Status and Progress Since Last WGM

August 20, 2021	• Released Preliminary Draft Rule Language and Staff Report (75-day package)
September 1, 2021	• Held Public Workshop
September 10, 2021	• Held Study Session
Ongoing	• Continued meetings with stakeholders, WSPA, and environmental representatives

Stakeholder Meetings in 2021

5

Chevron

- Feb 19
- Feb 26
- April 1
- May 20
- June 16
- July 14
- Aug 5
- Sep 2
- Sep 10

Marathon

- Jan 27
- Feb 17
- Feb 24
- Mar 9
- Mar 23
- May 13
- July 27
- Aug 4
- Aug 5
- Aug 11
- Aug 18
- Aug 19
- Sept 1
- Sept 8

Phillips 66

- Feb 16
- Mar 4
- Mar 31
- July 15
- July 23
- Aug 12
- Aug 13
- Sep 7

Torrance

- Jan 29
- Feb 12
- Feb 26
- Mar 12
- Mar 24
- Apr 9
- Apr 28
- May 18
- June 1
- June 16
- July 1
- July 13
- July 20
- July 27
- Aug 3
- Aug 10
- Aug 17
- Aug 24
- Aug 31
- Sep 7
- Sep 14

Valero

- Jan 29
- Feb 24
- Apr 16
- May 5
- May 19
- June 2
- July 27
- Aug 4
- Aug 12
- Sept 1

Meetings with Environmental Groups and WSPA

Environmental Groups[1]

February 26	June 25	September 3
March 17	July 16	
April 2	July 23	
April 16	July 23	
April 30	July 30	
May 14	August 10	
May 28	August 12	
June 11	August 27	

WSPA

May 20	July 23
June 18	July 30
June 24	August 6
July 1	Sep 10
July 8	
July 16	
July 23	

[1] Biological Diversity, Coalition for Clean Air, Earth Justice, Communities for a Better Environment, Natural Resources Defense Council and East Yard Communities for Environmental Justice

Proposed Revisions to Preliminary Draft Rule 1109.1

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, and 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

Definitions (c)

- Revised several definitions
- Removed phrase "~~for all units subject to this rule~~" from B-Plan and B-Cap definitions because boilers and heaters <40MMBtu/hour that are required to meet the 5 ppm and 9 ppmv NOx limits upon burner replacement might fall outside of the I-Plan schedule

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

(6) BARCT EQUIVALENT MASS CAP PLAN (B-CAP) means a compliance plan that establishes a mass emission cap ~~for all units subject to this rule~~ that, in aggregate, are equivalent to or less than the Final Phase Facility BARCT Emission Target.

Definitions (c) – (*cont.*)

- Corrected the definition of part per million

(30) PARTS PER MILLION BY VOLUME (ppmv) means, for the purpose of this rule, ~~milligram~~ parts per million by volume of a pollutant ~~per liter of~~ corrected to a dry basis ~~combustion exhaust gas~~ at standard conditions.

- Specified the Representative BARCT NOx limits include the oxygen correction in Table 1

(39) REPRESENTATIVE NOx CONCENTRATION means the most representative NOx emissions in the exhaust of the Unit, expressed as ppmv based on the applicable oxygen correction in Table 1, as approved by the Executive Officer and measured by a certified CEMS if the Unit operates with a certified CEMS or the most recent approved source test for units not operating a certified CEMS. The Representative NOx Concentration for units that do not have CEMS or source test emission data will be based on the South Coast AQMD Annual Emission Report default emission factor for that Units.

Conditional NOx Limits (Table 2)

Table 2 Conditional NOx Limits

Unit	NOx (ppmv)	CO (ppmv)	O2 Correction (%)	Rolling Averaging Time[1]
Boilers >110 MMBtu/hour	7.5	400	3	24-hour
FCCU	8	500	3	365-day
	16			7-day
Gas Turbines fueled with Natural Gas	2.5	130	15	24-hour
Process Heaters 40 – 110 MMBtu/hour	18	400	3	24-hour
Process Heaters >110 MMBtu/hour	22	400	3	24-hour
SMR Heaters	7.5	400	3	24-hour
Vapor Incinerators	40	400	3	2-hour

- PR 1109.1 includes Table 2 conditional limits
- Operators *cannot* use Conditional Limits if:
  - Permit to Construct issued on or after December 4, 2015 for post combustion controls
  - Potential NOx reductions is greater than:
    - 10 tons per year for process heaters 40 and 110 MMBtu/hour
    - 20 tons per year for boilers and process heaters ≥110 MMBtu/hour
  - Unit currently has permit limit or is currently performing at or below the applicable Table 1 NOx limit
  - Unit will be decommissioned
- Operators must submit a permit application by June 1, 2022 and meet Table 2 limit 18 months after Permit to Construct is issued
- PR 1109.1 includes provisions for “pre-qualified” units – early permit submittal is not required for pre-qualified units

Table D-1 in Attachment D

- Table D-1 lists the units staff identified as meeting the conditional limits during the BARCT assessment
  - Units are considered “pre-screened”, the owner will have to demonstrate they meet the conditions in (d)(2)(A) and do not have to submit a permit by June 1, 2022 pursuant to (d)(2)(B)
- Units listed in Table D-1 can be included in a B-Plan or a B-Cap
- The preliminary draft rule had a few errors that will be corrected for in the draft rule
  - A few units that do not meet the conditional limits were inadvertently included

ATTACHMENT D

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

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

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

Table D-2 in Attachment D

- Table D-2 lists the "pre-screened" units that can be used by a facility that elects to comply with a B-Cap using I-Plan Option 4
- Facilities are restricted to only elect the conditional limits for units in Table D-2

TABLE D-2: Units That Qualify for Conditional Limits in a B-Cap using I-Plan Option 4

Facility ID	Device ID	Size (MMBtu/hr)
171107	D220	350
171107	D686	304
171109	D429	352
171109	D78	154
171109	D79	154
174655	D250	89
174655	D33	100~~252~~
174655	D419	52
174655	D421	82
174655	D532	255
174655	D539	52
174655	D570	650
181667	D1236	340
181667	D1239	340
181667	D231	60
181667	D232	60
181667	D234	60
181667	D235	60
181667	D920	108
181667	D950	64
800026	D1550	245
800026	D378	128
800026	D429	30
800026	D430	200
800026	D53	68
800026	D6	136
800026	D768	110
800026	D98	57
800030	D453	44
800030	D643	220
800030	D82	315
800030	D83	315
800030	D84	219
800436	D1122	140
800436	D158	204
~~800436~~	~~D250~~	~~89~~
800436	D33	252
800436	D384	48
800436	D385	24
800436	D386	48
800436	D387	71
800436	D388	147
800436	D770	63
800436	D777	146

Pre-qualified Units listed in Attachment D

- PR 1109.1 includes tables in Attachment D with units that have been identified to be pre-qualifying for the conditional limits
- Table D-1 includes the units staff identified during the BARCT assessment
- Table D-2 includes some additional units that were not identified in the BARCT assessment but may qualify

(C) Notwithstanding the requirements pursuant to subparagraph (d)(2)(A) and the permit submittal deadline pursuant to subparagraph (d)(2)(B), an owner or operator ~~shall meet the~~ may elect to use the applicable Table 2 Conditional NOx ~~and CO~~ Emission Limit~~s~~ ~~in Table 2~~ to establish the Phase I, Phase II, or Phase III BARCT Equivalent Mass Emission Target in lieu of the NOx ~~and CO~~ Emission Limit~~s~~ in Table 1 based on the schedule in an approved I-Plan if:

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

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

Permit Submittal Requirements (d)(2)(B)

- Proposing to move the permit submittal deadline up by one month, as discussed in the next slide
- Clarified clauses (d)(2)(B)(i) and (d)(2)(B)(ii)

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

(i) Before ~~July~~ June 1, 2022, submit a complete South Coast AQMD permit application to apply for a permit condition ~~that limits the NOx emissions~~ not to exceed the applicable NOx emission limits ~~levels~~ specified in Table 2 at the percent O_2 correction and the averaging time specified in Table 2 or paragraph (k)(1), whichever is applicable; and

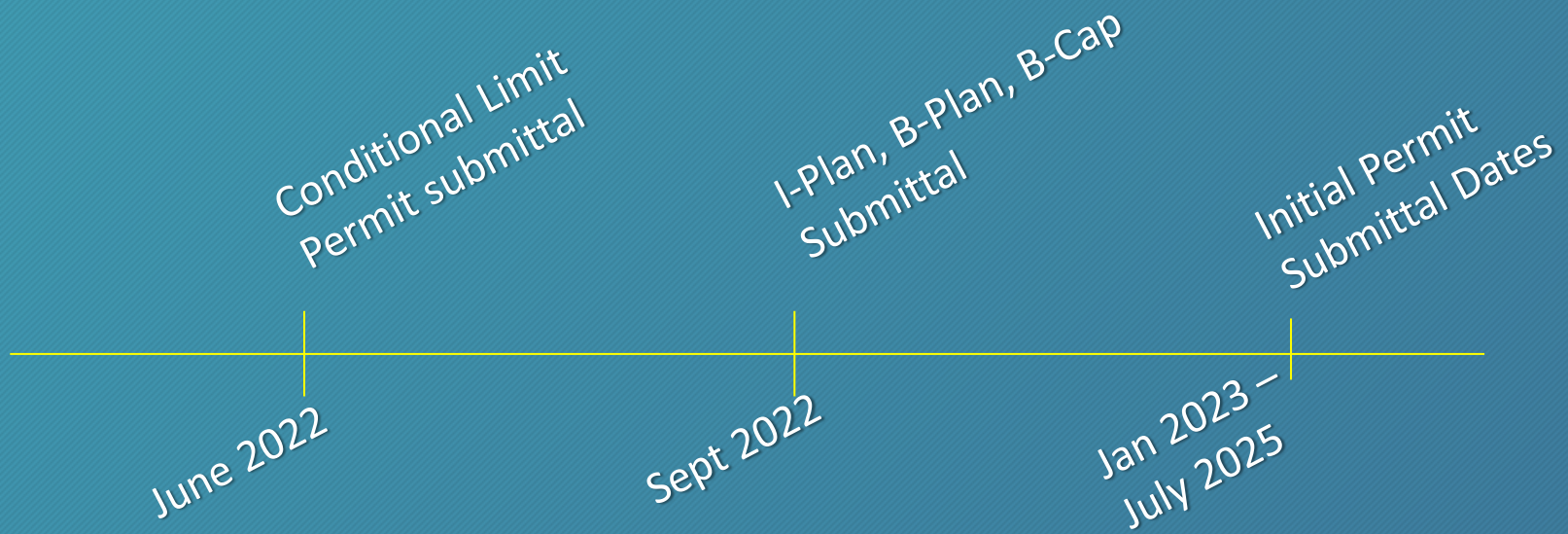
(ii) Not operate a unit, that exceeds the NOx and CO emission limits pursuant to clause (d)(2)(B)(i):

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

(B) No later than July 1, 2022 if a permit application was not required pursuant to clause (d)(2)(B)(i).

Rule Timeline Adjustments

- Staff is proposing to change some of the due dates in the rule
  - Moving up the deadline for permit submittal for conditional limits from July 2022 to June 2022
  - Delaying the deadline for I-Plan, B-Plan, and B-Cap submittal from July 2022 to September 2022
- Staff would like to confirm that units meet the conditions for the conditional limits before reviewing the plans



Emission limits for boilers <40 MMBtu/hour (d)(3)

- Revised the language in (d)(3) to include a permit submittal deadline instead of requiring the units to have a permit with a 40 ppmv permit condition by January 1, 2023
  - Approach is consistent with other rule provisions
- All boilers <40MMBtu/hour achieve 40 ppm or less but several do not have permit limits
- Changed the implementation time from 36 months to 18 months
  - 36-month timelines included in the I-Plans are intended for multiple projects and designed to accommodate turnaround schedules
  - 18 months should be sufficient for individual boilers <40 MMBtu/hour to replace burners

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

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

(A) Before ~~January 1, 2023~~ July 1, 2022, ~~have a~~ submit a complete South Coast AQMD ~~P~~permit application ~~that includes an enforceable emission limit that does not exceed~~ to apply for a permit condition that limits the NOx emissions to 40 ppmv ~~NOx~~ and the CO emissions to 400 ppmv ~~CO~~ at three percent O_2 correction and limits the averaging times to Table 1 or ~~subdivision (k)~~ paragraph (k)(1), whichever is applicable , unless the owner or operator has a South Coast AQMD Permit to Operate with a permit condition that limits the NOx emissions to 40 ppmv and the CO emissions to 400 ppmv at three percent O_2 correction and limits the averaging times to Table 1 or paragraph (k)(1), whichever is applicable;~~.~~

(B) ~~On and after January 1, 2023, not operate a boiler that exceeds 40 ppmv NOx and 400 ppmv CO at three percent O_2 correction as demonstrated pursuant to the averaging times in Table 1 or subdivision (k), whichever is~~ Effective July 1, 2022, Not operate a unit, that exceeds the NOx and CO emission limits pursuant to subparagraph (d)(3)(A)~~applicable~~; and

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

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

(ii) Meet the emission limits pursuant to clause (d)(3)(C)(i) no later than ~~36~~18 months after a South Coast AQMD Permit to Construct is issued.

Emission limits for heaters <40 MMBtu/hour (d)(4)

- Revised the language in (d)(4) similar to (d)(3) with permit submittal deadline and 18-month installation timeline
- Including a provision for <40 MMBtu/hr that currently do not meet 40 ppmv by allowing:
  - Units to be included in the I-Plan, B-Plan, or B-Cap instead of complying with schedule in (d)(4)
  - Providing a longer implementation schedule (36 months) for an owner that retrofits a heater to achieve the 9 ppm limit in lieu of the 40 ppm limit

(4) Process Heaters with Rated Heat Input Less Than 40 MMBtu/hour An owner or operator of a process heater with a rated heat input capacity less than 40 MMBtu/hour shall:

(A) Unless the unit is included in an approved I-Plan with either an approved B-Plan or an approved B-Cap, bBefore ~~January 1, 2023~~July 1, 2023, ~~have a~~ submit a complete South Coast AQMD Ppermit ~~that includes an enforceable emission limit that does not exceed~~ application to apply for a permit condition that limits the NOx emissions to 40 ppmv ~~NOx~~ and the CO emissions to 400 ppmv ~~CO~~ at three percent O_2 correction and limits the averaging times to Table 1 or ~~subdivision (k)~~ paragraph (k)(1), whichever is applicable, unless the owner or operator has a South Coast AQMD Permit to Operate with a permit condition that limits the NOx emissions to 40 ppmv and the CO emissions to 400 ppmv at three percent O_2 correction and limits the averaging times to Table 1 or paragraph (k)(1), whichever is applicable;

(B) ~~On and after January 1, 2023, not operate a process heater that exceeds 40 ppmv NOx and 400 ppmv CO at three percent O_2 correction as demonstrated pursuant to the averaging times in Table 1 or subdivision (k), whichever is~~ Not operate a unit, that exceeds the NOx and CO emission limits pursuant to subparagraph (d)(4)(A):

(i) No later than 18 months after a South Coast AQMD Permit to Construct is issued; or

(ii) No later than July 1, 2023 if a permit application was not required pursuant to subparagraph (d)(4)(A).~~applicable4~~;

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

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

(ii) Meet the emission limits pursuant to clause (d)(4)(~~C~~D)(i) no later than ~~36~~ 18 months after a South Coast AQMD Permit to Construct is issued.

(D) An owner or operator of a process heater that elects to meet the 9 ppmv NOx emission limit and 400 ppmv CO emission limits in lieu of the 40 ppmv NOx emission limits in (d)(4)(A) sooner than the effective date in (d)(4)(C) shall:

(i) Before July 1, 2023, submit a complete South Coast AQMD permit application to impose a 9 ppmv NOx emission limit and a 400 ppmv CO emission limit at three percent O_2 correction and limits the averaging times to Table 1 or paragraph (k)(1), whichever is applicable; and

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

Requirements for B-Cap Option 4 (e)(2)(D)

- The following provision was added to the B-Cap requirements
  - Requirement was included in the Preliminary Draft Staff Report but was not clear in the rule language

(D) For an owner or operator that elects to comply with a B-CAP using the alternative compliance schedule I-Plan Option 4 in Table 6, shall only designate units listed in Table D-2 in Attachment D of this rule as qualifying for Table 2 conditional limits when establishing the Phase I, Phase II, and Phase III Facility BARCT Emission Target;

Table 3: Maximum Alternative BARCT NOx Limits for a B-Cap

- Corrected the omission of SMR Heaters in Table 3
- Fixed the typographical errors in the table

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

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

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

Interim Emission Limits (f)(1)

- Included "Former RECLAIM Facility" to paragraph (f)(1)
- Interim limits only apply after a facility exits the RECLAIM program
- Changed all references in the rule for averaging times for units without CEMS to paragraph (k)(1) to be more specific

(f) Interim Emission Limits

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

Interim Emission Limits (f)(2)

- Clarified that the interim emission rate limit for boilers and process heaters:
  - Must include all boilers and heater ≥40 MMBtu/hour and
  - May include boilers and heaters <40 MMBtu/hour that operate a certified CEMS
- Owners and operators have the option to meet the 40 ppmv interim limits for boilers and heaters <40 MMBtu/hour

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

An owner or operator of a Former RECLAIM Facility shall:

(A) Not exceed the applicable interim NOx emission rate in Table 5, calculated pursuant to Attachment A Section (A-2) of this rule, for:

(i) A ~~a~~ll boilers and process heaters with a rated heat input capacity greater than or equal to 40 MMBtu/hour; and

(ii) May include any boilers and process heaters with a rated heat input capacity less than 40 MMBtu/hour that operate with a NOx CEMS.

Table 5: Interim NOx Emission Rate for Boilers and Heaters

- Removed the 0.02 pound/million Btu interim emission rate for a facility that elects to comply with a B-Plan using I-Plan Option 3
- Retained the requirement for a facility to demonstrate the emissions are less than 0.02 pounds/million Btu to elect to comply with the schedule in I-Plan Option 3
  - One time demonstration based on 2021 emissions data
  - Decommissioned units could impact overall emission rate for all boilers and process heaters

TABLE 5: INTERIM NO~~X~~x 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 Emission Limits (f)(3)

- Clarified that the interim limit for the B-Cap only applied until the Phase I Compliance date

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

(A) T~~t~~he Baseline Facility Emission if the facility is complying with I-Plan Option 3;

(B) ~~and~~The Baseline Facility Emissions if the facility is complying with I-Plan Option 4 and receives a Final Determination Notification before January 1, 2024; or

(C) The Phase I Facility BARCT Emission Target if the facility is complying with I-Plan Option 4 and receives a Final Determination Notification after January 1, 2024 and before July 2, 2029.

Revised I-Plan Timelines

- I-Plan emission reduction targets were changed to accommodate earlier emissions reduction
- Based on the earlier reduction commitments, the I-Plans will allow for a longer implementation period for some plans

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

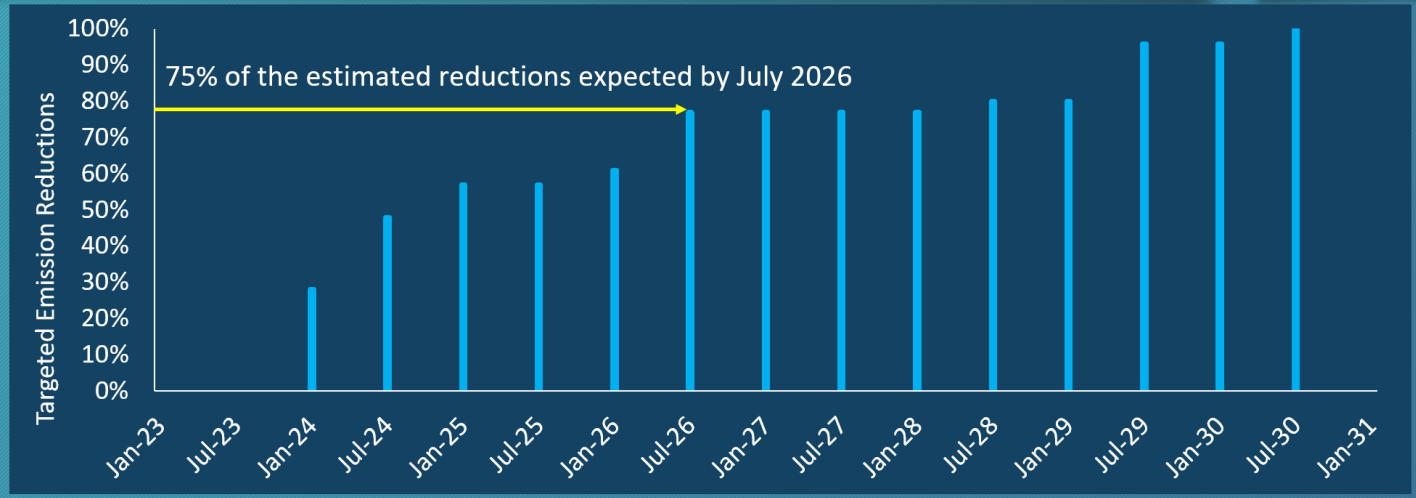
		Phase I	Phase II	Phase III
I-Plan Option 1 for B-Plan Only	Percent Reduction Targets	~~70~~80	100	N/A
	Permit Application Submittal Date	~~July~~ January 1, 2023	January 1, ~~2027~~2031	N/A
	Compliance Date	No later than 36 months after a South Coast AQMD Permit to Construct is issued		N/A
I-Plan Option 2 for B-Plan Only and as allowed pursuant to paragraph (g)(3)	Percent Reduction Targets	~~60~~65	~~80~~100	~~100~~N/A
	Permit Application Submittal Date	July 1, ~~2023~~2024	January 1, ~~2025~~2030	~~January 1, 2028~~N/A
	Compliance Date	No later than 36 months after a South Coast AQMD Permit to Construct is issued		N/A
I-Plan Option 3 for B-Plan or B-Cap and as allowed pursuant to paragraph (g)(3)	Percent Reduction Targets	50	100	N/A
	Permit Application Submittal Date	January 1, 2025	January 1, 2029	N/A
	Compliance Date	No later than 36 months after a South Coast AQMD Permit to Construct is issued		N/A
I-Plan Option 4 for B-Cap Only	Percent Reduction Targets	50 to 60 (Still in development)	80	100
	Permit Application Submittal Date	N/A	January 1, 2025	January 1, 2028
	Compliance Date	January 1, 2024	No later than 36 months after a South Coast AQMD Permit to Construct is issued	
I-Plan Option 5 for ~~B-Cap Only~~ B-Plan Only	Percent Reduction Targets	50	70	100
	Permit Application Submittal Date	~~July 1, 2022~~ January 1, 2023	~~July 1, 2024~~ January 1, 2025	~~January~~ July1, 2028
	Compliance Date	No later than 36 months after a South Coast AQMD Permit to Construct is issued		

Revised Cumulative NOx Reductions from Major Petroleum Refineries Based on I-Plans

- Study session chart on cumulative emission reductions did not accurately characterize the emission reductions based on the I-Plan schedules in the Preliminary Draft Rule
- The following two slides address the corrected emission reduction estimates

Study Session Slide #27

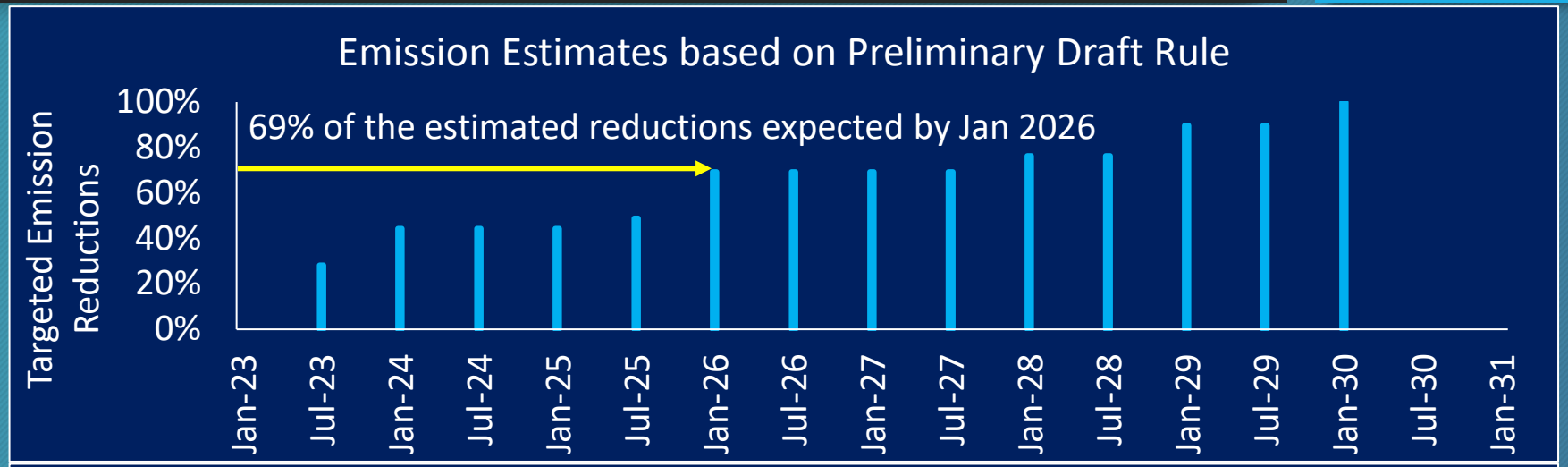
Cumulative NOx Reductions from Major Petroleum Refineries Based on I-Plans

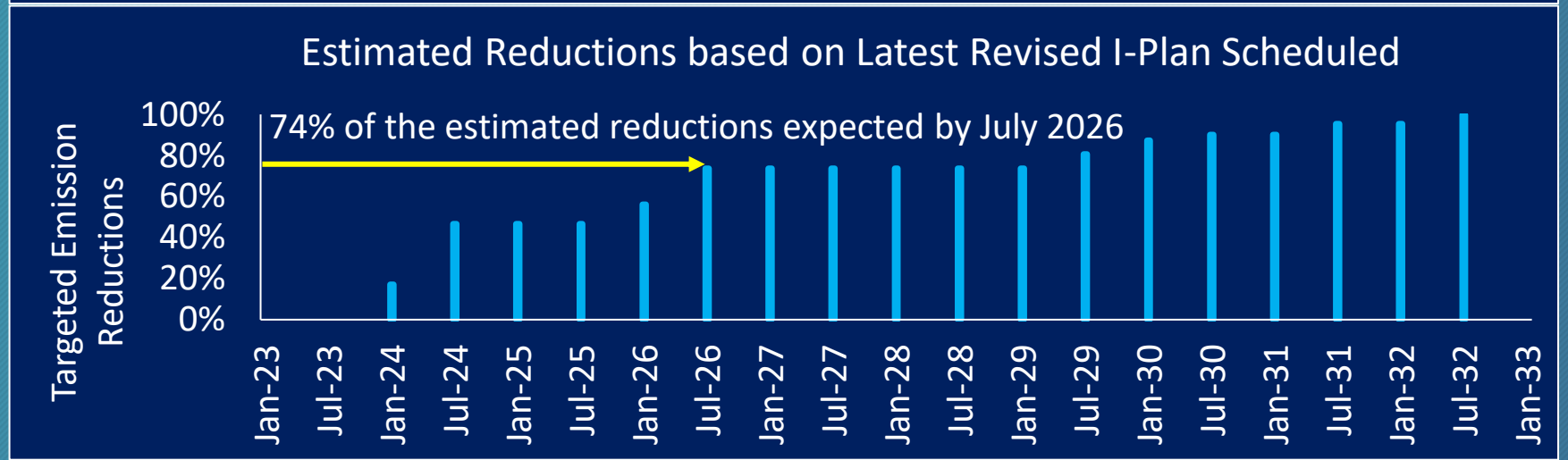


- Bars represent the estimated start of the emission reduction projects (18 months from permit submittal deadline)
- Facilities have 36 months from issuance of Permit to Construct to demonstrate compliance

Revised Cumulative NOx Reductions from Major Petroleum Refineries Based on I-Plans (*cont.*)

- Emission reductions based on Preliminary Draft Rule
- Emission reductions based on latest revised I-Plan schedules
- Percent reductions do not include the 10 percent environmental benefit for both scenarios





Compliance Schedule (g)(1)

- Clarified that the compliance schedule in (g)(1) does not apply to boilers and heaters subject to the compliance schedule in paragraphs (d)(3) or (d)(4)

(g) Compliance Schedule

(1) An owner or operator of a unit that is required to meet the NOx and CO concentration limits specified in Table 1, with the exception of boilers and process heaters less than 40 MMBtu/hour subject to the emission limits and compliance schedule pursuant to paragraphs (d)(3) or (d)(4), shall:

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

Unit Complying with Table 2 (g)(4)

- Clause (g)(4)(B)(i) requires units complying with Table 2 limits to meet Table 1 limits if existing post-combustion control equipment is replaced
- Replacement is determined based on fixed capital cost of new "unit"
- Corrected language from "unit" to "post-combustion air pollution control equipment"

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

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

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

(i) Existing post-combustion air pollution control equipment for an FCCU, gas turbine fueled with natural gas, process heater with a rated heat input capacity greater than or equal to 40 MMBtu/hour, or SMR Heater is replaced such that the fixed capital cost of the new components for the post-combustion air pollution control equipment exceeds 50 percent of the fixed capital cost that would be required to construct and install a comparable new ~~unit~~ post-combustion air pollution control equipment; or

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

Compliance Schedule (g)(6)

- Paragraph (g)(6) required units to meet the Table 1 emission limits if they exceed the applicable exemption levels
- Similar to the changes in (d)(3) and (d)(4) reducing the implementation time in provision (g)(6) from 36 months to 18 months from the date permit to construct is issued
  - 36 months is more appropriate for I-Plan schedule with multiple projects
  - 18 months should be sufficient for individual units

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

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

(B) Meet the emission limits specified on Table 1 no later than ~~36~~ 18 months after a South Coast AQMD Permit to Construct is issued.

Time Extensions (h)(1) and ((h)(2)

- Clarifying that the (h)(1) and (h)(2) time extensions also apply to the B-Cap reductions

(h) Time Extensions

(1) An owner or operator of a unit may request one 12-month extension for each unit from the compliance date in paragraph (g)(1), ~~or~~ the Compliance Date in Table 6, or the B-Cap emission reduction pursuant to (g)(2)(I) provided:

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

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

(2) An owner or operator of a unit with an approved I-Plan may request a time extension from the Compliance Date in Table 6 or the B-Cap emission reduction pursuant to (g)(2)(I) ~~for a unit~~ provided:

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

(B) The month and year for the unit's scheduled turnaround and the month and year for the unit's subsequent turnaround is submitted in

Source Test Requirements (k)

- Based on comments on the proposed averaging times for units that do not require a CEMS, tightened the averaging time to 60 minutes to 120 minutes
- Mirrored the language in the paragraph regarding the source test protocol

(k) Source Test Requirements

(1) An owner or operator of a unit that is not required to install and operate a CEMS pursuant to subdivision (i) shall be required to conduct a source test, with a duration of at least ~~15~~ 60 minutes but no longer than ~~two hours~~120 minutes, to demonstrate compliance with Rule 1109.1 Emission Limits pursuant to the source test schedule in either Table 7 or Table 8.

(~~7~~8) An owner or operator of a unit required to conduct a source test pursuant to subdivision (k) shall:

(A) For units that receive a South Coast AQMD Permit to Construct to comply with Rule 1109.1 Emission Limit, submit a source test protocol, that includes ~~an averaging time~~ duration of at least 60 minutes but no longer than ~~2 hours~~120 minutes, for approval within 60 days after the Permit to Construct was issued unless otherwise approved by the Executive Officer;

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

- Changed source test schedule in Table 7 and Table 8 from every 12 months to an annual requirement
- New conditions for the annual source test included in paragraph (k)(4)
- Allows operators some flexibility to schedule source tests as PR 1109.1 requires increased source testing requirements

(4) An owner or operator that is required to conduct an annual source test pursuant to Table 7 or Table 8 shall:

(A) Conduct the source test every calendar year, but no earlier than 6 calendar months after the previous source test; or

(B) For a unit that has not operated for at least 6 consecutive calendar months, conduct a source test no later than 90 days after the date of resumed operation and maintain monthly fuel usage using a non-resettable fuel meter to demonstrate that the unit has not been operated for at least 6 consecutive calendar months.

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

- Included language to address the initial source test requirement for units with 24-hour or greater averaging times
  - Concern was raised how those units would comply with the initial source test compliance demonstration

(~~6~~7) An owner or operator of a new or modified unit shall demonstrate compliance:

(A) Through an ~~conduct the~~ initial source test~~s~~ conducted within six months from commencing operation for a unit with an averaging time less than 120 minutes pursuant to paragraph (k)(1);

(B) With a certified CEMS for units with an averaging time greater than 120 minutes pursuant to Table 1 or Table 2; or

(C) Through CEMS recertification pursuant to the applicable Rule 218.2 and Rule 218.3 requirements for units that are required to adjust NOx span range.

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

- Included a provision that allows vapor incinerators to be source tested based on the emissions solely from the burner
  - Any additional emissions from waste stream is outside the control of the operator
  - NOx emissions from vapor incinerators are controlled by the installation of best available burner technology and should be demonstrated based only on emissions from the burners

(12) An owner or operator of a vapor incinerator may demonstrate the unit meets the Rule 1109.1 Emission Limits based on the NOx emission from only the burner, without the waste stream being directed to the unit.

Exemptions (n)

- Included an additional exemption for vapor incinerators to address the high cost of unit replacement

(9) Vapor Incinerators

An owner or operator of a vapor incinerator with a Rated Heat Input Capacity 2 MMBtu/hour or less that emits:

(A) -L~~l~~ess than 100 pounds of NOx per calendar year shall be exempt from the requirements in subdivision (d) provided the vapor incinerator:

(~~A~~i) Has enforceable South Coast AQMD permit conditions that limit NOx emissions to less than 100 pounds of NOx per year through operating hours or annual throughput; and

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

(B) Less than 1,000 pounds of NOx per calendar year shall be exempt from the requirements in subdivision (d) until the unit is replaced or [*TEN YEARS AFTER DATE OF ADOPTION*], whichever is sooner, provided the vapor incinerator:

(i) Has enforceable South Coast AQMD permit conditions that limit NOx emissions to less than 1,000 pounds of NOx per year through operating hours or annual throughput; and

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

Rolling Average Calculation Attachment (A)

- Attachment A will reference Rule 218.3 for how to determine the one-hour and 24-hour blocks that used for the rolling average calculation
  - 365-day rolling averages will “roll” based on a 24-hour value
  - 24-hour rolling averages will “roll” based on a 1-hour value
- PR 1109.1 will reference Rule 218.3 for how to calculate the hourly and daily averages

Key Issues:
Comments Not Address in Revised Language

Comment

- BARCT for FCCUs is too small of universe to have both Table 1 and Table 2 limits
- Staff is “picking and choosing controls in order to maximize total reductions”
- Any division of the category places some facilities at a disadvantage
- Modify I-Plan Option 3 to allow time to implement controls for the FCCU

Response

- BARCT analysis conducted consistent with state law
  - Cost-effectiveness for FCCU with SCR to meet the Table 1 limit of 2 ppmv is >$100,000/ton
  - Cost-effectiveness for an FCCU without SCR to meet the Table 1 limit of 2 ppmv is $24,000/ton
- Since an SCR will achieve 90 to 95% reduction, the unit will achieve 2 ppmv
  - Units that do not have SCR, would install SCR to achieve 8 ppmv
- PR 1109.1 excludes units that are installing SCR from using the Conditional Limits as most of these units will achieve Table 1 NOx
  - Changing this approach for one FCCU could potentially allow many units to only reduce to Table 2 Conditional Limits instead of Table 1 NOx limits
  - This would be a substantial weakening of PR 1109.1
- Staff will meet with the facility to discuss the I-Plan Option 3

Key Issues:
Comments Not Address in Revised Language (*cont.*)

Comment	Response
• Staff's methodology for establishing BARCT limits should include costs incurred when a refinery purchased RTCs which helped subsidize another facilities' installation of pollution controls • A facility that chose to purchase RTCs under RECLAIM in lieu of installing pollution controls is at an economic disadvantage compared to other refineries	• The cost-effectiveness analysis focuses on the capital costs, and the operating and maintenance costs associated with achieving the proposed NOx limit • Costs associated with purchasing RTCs are not considered in the BARCT analysis since those costs are associated with RECLAIM and not applicable to or not allowed in PR 1109.1 • BARCT analysis accounts for existing pollution controls at the facility for each equipment category analyzed • It would be inappropriate for the BARCT analysis to account for emission reductions that occurred at a facility unrelated to PR 1109.1 for a completely different equipment category

Key Issues:
Comments Not Address in Revised Language (*cont.*)

Comment	Response
• Allow facilities to retain the 68°F standard condition as allowed under RECLAIM	• Staff wants to transition all facilities to the existing 60°F standard conditions for consistency

Key Issues: Ongoing Area of Discussions

10% Environmental Benefit

Stakeholder commented the 10% benefit should consider other pollutant reductions and not just target NOx reductions

Staff is in discussions with the U.S. EPA

Unit <40 MMBtu/hour with a permit limit pursuant to Rule 2012

Several units include a 36 ppmv NOx limits based on a 1-hour average

Do those permit limits satisfy the 40 ppmv PR 1109.1 limit based on the 24-hour average for those units?

I-Plan Option 3

Staff is still working to resolve the I-Plan Option 3 schedule and emission reduction targets

Proposed Rule 429.1

Responses to Comments

Comment	Response
Refractory dryout, catalyst regeneration activities, and initial commissioning need to be exempt from PR 1109.1 NOx and CO emission limits and applicable rolling average provisions	• Refractory dryout and catalyst regeneration activities fall under the definition of startup • Staff recognizes that there are some time periods during initial commissioning that would not fall under the definitions of startup or shutdown • Paragraph (d)(1) was updated to include initial commissioning
The exemption for pilots that was included in the pre-preliminary draft rule language is missing from the preliminary draft rule language	• Staff removed the exemption from PR 429.1 initially because PR 1109.1 added an exemption for boilers and process heaters operating only the pilot • Staff recognizes that an exemption for pilots from PR 429.1 duration limits and certain recordkeeping requirements is still needed and added the exemption back into PR 429.1

Initial Commissioning Definition

- Staff added a new definition for initial commissioning to streamline rule provisions

> INITIAL COMMISSIONING means the first commissioning of a unit or the first commissioning of NOx post-combustion control equipment.

Exemption from PR 1109.1 Emission Limits

Included initial commissioning and maintenance for units with a permit condition before date of adoption to the list of activities that are exempt from PR 1109.1 NOx and CO emission limits and the applicable rolling average

- Initial commissioning of a unit or NOx post-combustion control is a one-time event
- Requirements during initial commissioning and maintenance are specified in South Coast AQMD permits

An owner or operator of a unit is not subject to the NOx and CO emission limits in Rule 1109.1 paragraphs (d)(3), (d)(4), Table 1, Table 2, Table 3, an approved B-Plan, or an approved B-Cap and the applicable rolling average provisions ~~pursuant to Rule 1109.1~~ during startup, shutdown, initial commissioning, maintenance for units with a permit condition before [*Date of Adoption*] which allows the use of a bypass to conduct maintenance, and catalyst maintenance events.

Maximum Number of Scheduled Startups

- The maximum number of scheduled startups is contained in Table 2
- The number of scheduled startups was reduced for most units
  - More accurately reflects the number of scheduled startups needed for each unit type

(3) An owner or operator of a unit shall not exceed the maximum number of scheduled startups specified in Table 2 per calendar year for each unit. ~~for boiler, flare, gas turbine, process heater, steam methane reformer heater, sulfuric acid furnace, or vapor incinerator at a former RECLAIM petroleum refinery or a new petroleum refinery shall not exceed ten scheduled startups per calendar year for each unit.~~

~~(4) An owner or operator of a FCCU, petroleum coke calciner, or SRU/TG incinerator at a former RECLAIM petroleum refinery or a new petroleum refinery shall not exceed three scheduled startups per calendar year for each unit.~~

TABLE 2: MAXIMUM NUMBER OF SCHEDULED STARTUPS

Unit Type	Maximum Number of Scheduled Startups per Calendar Year
Cogeneration Gas Turbines	10
Process Heaters on Delayed Coking Units	5
All Other Units	2

Exemption (g)(3)- Pilots

The exemption from startup and shutdown duration limits and certain recordkeeping requirements when fuel is burned exclusively in a pilot light was added back into PR 429.1

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

Additional Considerations for PAR 1304

Determining PM Emissions for Federal NSR Applicability

- At the PR 1109.1 WGM #21[1], staff presented a comment letter from Marathon that expressed concern that certain SCR projects could exceed the federal PM threshold
  - Stakeholders stated that source testing overestimates the post-SCR PM emissions due to the condensable fraction of the source test
- Staff is proposing to use a calculation[2] in lieu of source testing to determine federal major NSR applicability
  - Based on this calculation and assuming worst case scenario, PM_{10} emissions from installation of SCR would not exceed federal PM NSR threshold
  - U.S. EPA confirmed that this approach is acceptable for determining NSR applicability
- Stakeholders are still concerned that U.S. EPA may require a source test and not allow the calculation for Rule 1325 – Federal $PM_{2.5}$ New Source Review Program
  - Stakeholders want a calculation approach to be included in specific rule language, including Rule 1325, and approved by U.S. EPA
- Staff has discussed this issue with U.S. EPA and is working with U.S. EPA

1 http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/pr1109-1_wgm21_presentation-mtgversion.pdf?sfvrsn=12
2 http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/regxx/par-1304-and-par-2005/pdsr-par-1304_2005-aug-2021.pdf?sfvrsn=16 (page 2-6)

Next Steps

Close of Comment Period:
September 17, 2021

Stationary Source Committee:
September 17, 2021

Next Working Group Meeting:
End of September

Set Hearing: October 1, 2021

AB617 WCWLB Community Meeting:
October 14, 2021

Public Hearing: November 5, 2021

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