



Patty Senecal

Senior Director, Southern California Region

August 4, 2021

Michael Krause
Manager, Planning and Rules
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: mkrause@aqmd.gov

Re: SCAQMD Proposed Rule 1109.1, Emissions Of Oxides Of Nitrogen From Petroleum Refineries And Related Operations

WSPA Comments on BARCT Proposal for Refinery Heaters <40 MMBtu/hr Category

Dear Mr. Krause,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in the Working Group Meetings (WGMs) for South Coast Air Quality Management District (SCAQMD or District) Proposed Rule 1109.1, NO_x Emission Reduction for Refinery Equipment (PR1109.1). This proposed rulemaking is part of the District's larger project to transition facilities in the Regional Clean Air Incentives Market (RECLAIM) program for NO_x emissions to a command-and-control structure (i.e., the "RECLAIM Transition Project").

WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are within the purview of the RECLAIM Program administered by the SCAQMD and will be impacted by PR1109.1.

On July 21, 2021, SCAQMD released a "pre-preliminary" draft version of PR1109.1.¹ WSPA has the following comments on the proposed BARCT requirements for the refinery heaters rated <40 MMBtu/hr category.

- 1. The District has proposed that existing refinery heaters < 40 MMBtu/hr meet an initial BARCT limit of 40 ppmv NO_x under both Table 1 (NO_x and CO Emission Limits) and Table 3 (Interim NO_x and CO Emission Limits). While these limits are proposed to go into force shortly after rule adoption, the District has not demonstrated whether the existing heaters in the category can meet this limit without new emission controls.**

Section (d)(3)(A) of the pre-preliminary PR1109.1 proposes the following:

¹ SCAQMD Pre-Preliminary Draft of PR1109.1, released July 21, 2021. Available at [SCAQMD PR1109.1 page](#).

(3) *Process Heaters <40 MMBtu/hour*

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

(A) Not operate a heater that exceeds 40 ppmv NO_x and 400 ppmv CO at three percent O₂ based on the applicable averaging time in Table 1 as established in the Permit to Operate issued on or before January 1, 2023; ...

These same NO_x and CO limits are also proposed as Interim Limits in Table 3 of the rule, so facilities would be required to comply with them shortly after rule adoption.

The District previously acknowledged that some of the existing heaters in the category do not meet this level of emissions. At Working Group Meeting (WGM) #14 units in the category were reported to have current NO_x emissions ranging from 5 to 100 ppmv (see Figure 1). Ramboll has also confirmed that some units in the category are currently permitted at levels above the proposed NO_x limit. The District needs to determine how many units are likely to require new emissions controls.

Figure 1: Slide #24 from PR1109.1 Working Group Meeting #14, August 27, 2020.

Heater Size	No. of Devices in Category	Range of Current NO _x Levels (ppmv) ⁽¹⁾	Percent Oxygen
Heaters			
<20 MMBtu/hr	22	30 to 60	3
20 - 40 MMBtu/hr	45	5 to 100	3
>40 - 110 MMBtu/hr	72	5 to 140	3
>110 MMBtu/hr	46	5 to 90	3
SMR Heaters	11	5 to 50	3
SMR Heater/GTG	2	5	15
Sulfuric Acid Plant Furnace	3	20 to 60	3

⁽¹⁾ NO_x emissions based permit limit, CEMS annual average, or source test data, dependent on data source available for specific equipment

Source: SCAQMD. Annotated by Ramboll for WSPA.

2. The District has not completed the cost effectiveness analyses required to establish a 40 ppm NO_x BARCT standard for refinery heaters < 40 MMBtu/hr category.

As shown in Figure 1 above, there appear to be a number of heaters in the category that currently do not meet the proposed standard of 40 ppmv NO_x (based on a 2-hr average). The District has not provided stakeholders an assessment of the potential compliance costs or cost effectiveness.

To the contrary, the District last reported there would be zero compliance cost for heaters < 20 MMBtu/hr to meet a 40 ppmv NO_x level, and negligible costs (i.e., \$3,900/tpy) for heaters rated 20-40 MMBtu/hr to meet a 30 ppmv NO_x level (see Figure 2).

Figure 2: Slide #34 from PR1109.1 Working Group Meeting #14, August 27, 2020.

Proposed BARCT NO _x Limit for Heaters						
Heater Size (MMBtu/hr)	No. of Devices in Category	Range of Current NO _x Levels ⁽¹⁾ (ppmv)	Proposed BARCT Limit (ppmv)	Percent Oxygen	Cost-Effectiveness	Averaging Time (Rolling)
Heaters						
<20	22	30 to 60	40/9 ⁽²⁾	3	— ⁽³⁾	2 hours
20 – 40	45	5 to 100	30/9 ⁽²⁾	3	\$3,900/ ⁽³⁾	2 hours
>40 – 110	72	5 to 140	2 ⁽⁴⁾	3	\$35,000	8 hours
>110	46	5 to 90	2 ⁽⁴⁾	3	\$35,000	8 hours

(1) NO_x emissions based permit limit, CEMS annual average, or source test data, dependent on data source available for specific equipment
 (2) 9 ppm limit based on emerging technology with a future effective date
 (3) Requirement at end of useful life - potential additional cost beyond what the facility will already incur
 (4) Units permitted at 5 ppm or less at the time of rule adoption can keep their permit limit until equipment replacement

Source: SCAQMD. Annotated by Ramboll for WSPA.

Based on recommendations from the District’s third-party expert (i.e., Norton Engineering Consultants, NEC), the District later revised its BARCT proposal for the 20-40 MMBtu/hr heaters category to 40 ppmv NO_x and combined it with the <20 MMBtu/hr category.² The District has not presented stakeholders with a revised analysis of compliance costs or cost effectiveness for either the two original categories, or the now combined category. This is necessary to establish BARCT.

3. The proposed Interim Limits for the <40 MMBtu/hr heater category may need to be revised pursuant the District’s “Guiding Principles” for Interim Limits.

For Interim Limits, District’s outlined the following “Guiding Principles:”³

- “Interim limits would reflect current operating conditions until BARCT emission limits are achieved and ensure enforceable emission limits are in place;
- “Interim limits are not an interim step down to BARCT emission limits;
- “Interim limits will apply to individual units and ensure RACT requirements are being met; and

² SCAQMD presentation to PR1109.1 WGM #16, December 10, 2020, slides 19-22.

³ PR1109.1 WGM #21 presentation, slide 27 (May 27, 2021).

- Interim limits will be incorporated in PR1109.1 for units that have compliance dates after January 1, 2024.”

In the case of the <40 MMBtu/hr heater category, the District is proposing Interim Limits (Table 3) which are identical to the initial BARCT limits (Table 1). But as noted above, these may not actually represent “hold the line” levels for some of the heaters in the category. The District needs to consider whether different (i.e., higher) Interim Limits are needed to accomplish the objectives laid out in the Guiding Principles.

4. As proposed, the 40 ppm NO_x BARCT standard for refinery heaters <40 MMBtu/hr would become effective shortly after rule adoption providing little time for retrofits (e.g., new emission controls). The District needs to provide a reasonable schedule for compliance with these initial BARCT limits.

As noted in #1 above, there appear to be some heaters in the category which do not meet the proposed 40 ppm NO_x BARCT standard on a 2-hr average basis. For heaters which would require retrofits (e.g., new emission controls), the District must provide a reasonable schedule to allow facilities to comply with the rule.

5. The District has proposed that existing refinery heaters <40 MMBtu/hr meet a more stringent deferred BARCT limit of 9 ppmv NO_x under Table 1 (NO_x and CO Emission Limits). The District has failed to complete the analyses required to establish this as a BARCT standard.

Under Section (d)(3)(B), the District is proposing:

(3) Process Heaters <40 MMBtu/hour

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

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

- (i) Submit a permit application to meet a NO_x limit of 9 ppmv and 400 ppmv CO at three percent O₂ based on the applicable averaging time in Table 1; and*
- (ii) Meet the emission limits pursuant to clause (d)(2)(B)(i) no later than 36 months after a Permit to Construct is issued.*

The District has taken a position it can establish a “technology forcing” BARCT standard based on emerging technologies which it reasonably expects to be available at some future time.⁴ Regardless, the District is still obligated to demonstrate both technical feasibility and cost effectiveness prior to establishing a BARCT standard.⁵ In this case, the District has done neither.

The District has proposed this emerging technology standard based on burner technology products which the District hopes may be available at some future date. But the District has noted at several PR1109.1 working group meetings that these burner products are still in the

⁴ SCAQMD presented to PR1109.1 WGM #14, August 27, 2020, slide 8.

⁵ California Health & Safety Code §40406.

research & development (R&D) phase and are not commercially available. The District has pushed the effective date for this 9 ppmv NO_x requirement in Section (d)(3)(B) to “ten years after adoption,” but this is an arbitrary and uncertain date. The District has no way to know whether these products will achieve commercial readiness within 10 years, or ever.

WSPA has previously commented that any such technology forcing standard must be subject to a future District-led technology review step before being the BARCT standard becomes effective. The stationary sources subject to PR1109.1 are not involved with the R&D or commercialization of the products on which the District’s standard would rely, and they have no ability to ensure it happens on an arbitrary District timetable.

In establishing a BARCT standard, the District cannot side-step the Health & Safety Code requirements to demonstrate technical feasibility or cost effectiveness.⁶ And in this case, the District has not met either obligation.

6. Section (d)(3)(B)(ii) includes a typographical error and should be revised to reference section (d)(3)(B)(i).⁷

WSPA appreciates the opportunity to provide these comments related to PR1109.1. We look forward to continued discussion of this important rulemaking. If you have any questions, please contact me at (310) 808-2144 or via e-mail at psenecal@wspa.org.

Sincerely,



Cc: Wayne Nastri, SCAQMD
Susan Nakamura, SCAQMD
WSPA, Cathy Reheis-Boyd

⁶ CHSC §40920.6.

⁷ SCAQMD Pre-Preliminary Draft of PR1109.1, released July 21, 2021. Available at [SCAQMD PR1109.1 page](#).