August 6, 2021

VIA: ELECTRONIC MAIL ONLY

Attn: Susan Nakamura, Assistant DEO **(snakamura@aqmd.gov)**
Michael Krause, Planning & Rules Manager **(mkrause@aqmd.gov)**
South Coast Air Quality Management District

Re: Comments on July 2021 Draft Rule 1109.1 (Refinery Equipment)

Dear Ms. Nakamura and Mr. Krause:

The undersigned organizations submit the following comments on the draft Proposed Rule 1109.1 released July 2021. This rule has turned into a Rube Goldberg production with confusing alternative compliance pathways, broad compliance exemptions, and giant loopholes that are unwarranted and will be easily exploited by petroleum refineries to avoid installing necessary pollution controls.

As detailed below, there are significant areas of concern that South Coast AQMD must address before finalizing this rule. Communities near petroleum refineries have waited for years for a *strong rule* that would reduce NOx emissions and require that petroleum refineries finally make *all* available equipment updates that have been delayed for decades. In its current form, the rule fails to achieve this objective.

***

(a) Purpose

The rule states that it aims "to reduce emissions of oxides of nitrogen (NOx), *while not increasing carbon monoxide (CO) emissions*" in the region. The rule, however, does not address how this purpose would be achieved in practice. For instance, the rule contains no requirement mandating and/or establishing baseline CO emissions that cannot increase under the rule. Importantly, to the extent that low-NOx burners will be used by petroleum refineries as a strategy to achieve BARCT in aggregate under alternative compliance plans, those burners will typically cause increases in CO emissions. The flexibility provided to petroleum refineries under these alternative compliance paths must not result in increased CO emissions.

(c) Definitions

- **(c)(4) B-Plan**

The B-Plan is defined as "a compliance plan that allows an owner or operator to select NOx *concentration limits* that are equivalent, in aggregate . . . ." South Coast AQMD must explain the basis for BARCT equivalence based on *concentration* limits rather than *mass* (i.e., pounds per hour or tons per year). The only equivalence that makes technical sense here is based on mass alone rather than concentration unless the assumption is that the flow would remain constant. If the agency is assuming that flow would remain constant using 2017 annual NOx emissions data, petroleum refineries must not be allowed to select a different representative year. As explained in more detail below under subparagraph (c)(5) comments, the agency must strike all loopholes allowing petroleum refineries to use an alternative representative year.

- **(c)(5) BARCT Equivalent Mass Emissions**

In calculating BARCT equivalent mass emissions, a facility may deviate from 2017 annual NOx emissions and use "*another representative year* as approved by the Executive Officer." South Coast AQMD must strike this loophole from the rule. The agency has spent years engaging petroleum refineries and technical consultants, as well as reviewing emissions inventories and other data, to understand the operations and emissions of *each unit* throughout 2017 – the representative year selected by the agency. The appropriate representative year has been debated throughout the twenty-four working group meetings, and multiple agency staff committee presentations. Petroleum refineries should not be allowed to reargue outside of public and Governing Board scrutiny that another representative year should be selected. This rule language creates a massive loophole, and it denies the public transparency into the factors that would be considered by the agency in allowing a petroleum refinery to deviate from using the 2017 annual NOx emissions as the representative year.

Additionally, the South Coast AQMD should analyze and disclose whether flow rates have *decreased* at petroleum refineries since 2017. To the extent that flow rates have decreased, the agency must provide a rational basis explaining why using a higher flow rate would be appropriate. Allowing petroleum refineries to use higher flow rates would effectively lock-in units, particularly boilers and process heaters, to flow rates that would not be representative of current conditions.

- **(c)(12) Facility BARCT Emission Target**

A facility BARCT emission target is defined as the "total *mass emissions* per facility calculated *based on the applicable Table 1 emission limits or Table 2 near limits* and the 2017 annual NOx emissions, *or another representative year*. . . ." Tables 1 and 2 under the rule, however, specify

concentrations rather than *mass* emissions. South Coast AQMD must detail the flow rate(s) that will be used to determine the *mass*, as intended under this definition, along with the specified concentrations. Moreover, if the agency intends to require flow rates from 2017, those should be specified under the rule by unit. Finally, as detailed above under subparagraph (c)(5) comments, petroleum refineries should not be allowed to use a different representative year. There is no rational basis for using an alternative representative year. The agency must remove this loophole from the rule.

- **(c)(14) Flare**

A flare is defined broadly as a "combustion device that oxidizes combustible gases or vapors from tank farms or liquid unloading." The rule, however, must exclude elevated, open flares from any alternative compliance plans. Open flares are exempt from source testing under subparagraph (m)(8)(B), which states that "an open flare, which is an unshrouded flare, shall not be required to conduct source testing pursuant to subdivision (j)."

Further, the agency must explain whether this category extends to *enclosed flares with CEMS and incinerators*. Facilities subject to the rule should not be allowed to use questionable emissions factors or easily manipulated source tests to claim emission reductions from flares under alternative compliance plans. Otherwise, they may overestimate actual emission reductions from flares to avoid further reductions for boilers and process heaters. Further, the agency must provide data for enclosed flares to support the set emissions limits.

- **(c)(18) Heat Input**

The rule defines heat input as "the heat of combustion released by burning a fuel source, *using higher heating value of the fuel*." South Coast AQMD must explain how this heating value will be determined if the fuel composition – and therefore the heating value – is variable and changing.

- **(c)(27) Petroleum Refinery**

The rule defines petroleum refineries as facilities "identified by the North American Industry Classification System Code 324110." Under subparagraphs (c)(2) and (c)(13), the rule then creates two other categories of covered facilities: "asphalt plants" and "facilities with related operations to petroleum refineries" that includes "asphalt plants, biofuel plants, hydrogen production plants, petroleum coke calcining facilities, sulfuric acid plants, and sulfur recovery plants." Several of these operations under (c)(2) and (c)(13) *are* petroleum refinery operations rather than distinct or separate operations.

As South Coast AQMD recognizes, petroleum refineries engage in a range of processes, including crude oil refining and the manufacturing, storage, and handling of various petroleum products.[1] The agency's attempt to *narrow* what constitutes a petroleum refinery is arbitrary and inconsistent with the Health and Safety Code (see, e.g., Health & Safety Code, § 25144(a)(4) (defining "petroleum refinery" as "an establishment that has the Standard Industrial Classification Code 2911"); the agency's previous definitions in other rules (see, e.g., Rule 1180 ("petroleum refinery" defined as having "Standard Industrial Classification" ("SIC") Code No. 2911); SIC Code No. 2911 defining petroleum refinery operations as involving crude oil refining and other processes, such as asphalt manufacturing, fuel blending, and coke production[2]; and the agency's permitting and public facing documents (see, e.g., Valero Asphalt (SIC Code No. 2911); and Marathon Wilmington Refinery (SIC Code No. 2911)).[3]

Consequently, South Coast AQMD must amend the "petroleum refinery" definition to encompass all operations occurring at petroleum refineries.

- **(c)(30) Refinery Fuel Gas**

The term "refinery fuel gas" is defined as including "natural gas when the natural gas is combined and combusted with a gas generated at a refinery at a maximum natural gas proportion of less than 50 percent of the fuel mixture's higher heating value." This sentence of the definition is *very convoluted and confusing*. The agency should remove this unnecessary language. There is no need for this sentence in the definition of refinery fuel gas. Moreover, the paragraph contains a formatting error because subparagraph (c)(31) is collapsed into this definition.

- **(c)(40) Unit**

The term "unit" is defined to include "flares." As detailed above, the rule should exclude elevated, open flares from any alternative compliance plans, and should detail whether this "flare" category extends to *enclosed flares with CEMS and incinerators*. Enclosed flares without

[1] See, e.g., United States Energy Information Administration, *What is the difference between crude oil, petroleum products, and petroleum?*, available at https://www.eia.gov/tools/faqs/faq.php?id=40&t=6 (last visited Aug. 4, 2021).
[2] United States Department of Labor, *Description for 2911: Petroleum Refining*, available here https://www.osha.gov/sic-manual/2911 (last visited Aug. 4, 2021).
[3] South Coast Air Quality Management District, *Valero Wilmington Asphalt Plan*, available at https://xappprod.aqmd.gov/find//facility/AQMDsearch?facilityID=800393 (last visited Aug. 4, 2021).; South Coast Air Quality Management District, *Tesoro Refining and Marketing Co LLC*, available at https://xappprod.aqmd.gov/find//facility/AQMDsearch?facilityID=800436 (last visited Aug. 4, 2021).

CEMS must be excluded from any alternative compliance plan for the reasons noted above under subparagraph (c)(14) comments.

(d) Emission Limits

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

The emissions limits under Table 1 includes flares with assigned concentration limits and averaging times. As detailed above under subparagraph (c)(14) comments, South Coast AQMD must explain how these concentration limits will be determined given that source testing of open stack flares is not available and these flares are exempt from source testing under subparagraph (m)(8)(B).

- **(d)(2)(B) Boilers <40 MMBtu/Hour**

This subparagraph specifies requirements when "an owner or operator *replaces* either 50 percent or more of the unit's burners" after the date of rule adoption. South Coast AQMD should specify whether this section also applies when a petroleum refinery *modifies* a unit through *any physical change* not merely replacement of the entire burner. Burners are comprised of multiple parts, but the proposed language is ambiguous whether the replacement of critical burner parts, such as a fuel line, would constitute a replacement under this subparagraph. The agency should consider creating a separate definition under the rule to explain what constitutes a replacement.

- **(d)(3)(B) Process Heaters <40 MMBtu/Hour**

This subparagraph provides a grace period of *ten years* after rule adoption. South Coast AQMD does not provide any rational basis for such a long grace period. The timeframe should be the same as subparagraph (2)(B) for boilers, which is effective immediately as of the *date of rule adoption*.

- **(d)(6)(B) NOx Emission Limits Near Table 1 NOx Limits**

This subparagraph allows the use of near limits instead of Table 1 emissions limits if the petroleum refinery meets three conditions, including where "process heaters larger than 110 MMBtu/hour" have a unit share "less than *20 tons per year*." South Coast AQMD must provide a rational basis for the 20 tons per year threshold.

Moreover, Table 2 of this subparagraph (d)(6) provides near limits for process heaters 40 – 110 MMBtu/hour and process heaters >110 MMBtu/hour. South Coast AQMD must detail the universe of equipment that would be covered under these categories, coupled with

subparagraph (6)(B) that allows for process heaters with less than 20 tons per year to use near limits.

- **(d)(9) CEMS 18-Month Rolling Average**

This subparagraph provides a "unit that operates with CEMS" with "a 365-day rolling average for the *first 18 months* complying with the applicable Rule 1109.1 Emission Limits." South Coast AQMD must explain why this averaging and 18-month timeframe would be appropriate under the rule. Moreover, the agency must explain how *averaging* times under Tables 1 and 2 will be determined for units without CEMS.

- **(d)(14) Startup and Shutdown Exemptions**

This subparagraph reiterates exemptions from applicable emissions limits for petroleum refineries during start-up and shutdown periods. The loose definition of what constitutes a "start-up" and "shutdown" is problematic. For instance, "start-up" is broadly construed to include definitions under *any* "South Coast AQMD permit to operate" that are unknown to the public and that could encompass less restrictive start-up circumstances. Further, as detailed in previous comments submitted on January 25, 2021, we have serious concerns about the adoption of start-up and shutdown provisions that are unauthorized under – and inconsistent with – the Clean Air Act.[4]

- **(d)(15) Invalid CEMS Data**

This subparagraph allows facilities to exclude "invalid CEMS data" from a unit. This subparagraph creates a potentially problematic loophole that would encourage invalid CEMS data collection, subject to Rule 218.3 provisions. South Coast AQMD should construe periods where data is invalid as exceeding applicable emission limits or otherwise subject the facility to a notice of violation for its failure to collect valid QA/QC data. This invalid data is the result of a failed QA/QC test or failure to conduct the test that are within a petroleum refinery's control. South Coast AQMD must deter petroleum refineries from failing these tests or failing to conduct them in the first place. The current rule language *rewards* rather than deters invalid CEMS data collection by allowing petroleum refineries to discard CEMS data, which may be from periods of exceedances.

[4] January 25, 2021, *Comments on Draft Proposed Rule 1109.1 (Refinery Equipment)*, available at http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/ej-letter-to-aqmd-board-on-rule-1109-1---refinery-boilers-and-heaters-031821.pdf?sfvrsn=6 (last visited Aug. 4, 2021).

(e) Compliance Schedule

- **(e)(3), (e)(4)(B) I-Plan Review Process and Time Extensions**

These subparagraphs provide for compliance plan development and review, in addition to the process for a time extension to comply. As South Coast AQMD knows, we have serious concerns about the lack of transparency in these processes. The rule lacks any public notice and comment opportunity to review and comment on proposed compliance plans, and does not inform the public of the reasons provided by petroleum refineries when requesting a compliance extension. Further, although currently implied, the rule should *explicitly* state that the circumstances or reasons allowing for a time extension should be outside of the petroleum refinery's control.

- **(e)(5)(A) Existing Post-Combustion Air Pollution Control Equipment**

This subparagraph requires that a petroleum refinery unit complying with Table 2 near limits meet Table 1 BARCT emissions limits when an "existing post-combustion air pollution control equipment or burners" are replaced and the cost "exceeds 50 percent of the fixed capital cost that would be required to construct a *comparable new source*." South Coast AQMD does not explain why NSPS reconstruction language is appropriate or necessary here. The section begins by focusing on "air pollution control equipment or burners" and then compares that to an entirely "new source." South Coast AQMD must provide a rational basis for this comparison.

(f), (g) B-Plan and B-CAP Requirements

- **(f)(2), (g)(3) B-Plan and B-CAP Review Process**

These subparagraphs establish the planning process for alternative compliance plans to achieve BARCT in aggregate. As previously communicated to South Coast AQMD, the rule must provide a public notice and comment period for transparency and input on the proposed plans, including revised plans. The rule should also set a deadline for the Executive Officer to review and approve or disapprove these plans.

South Coast AQMD has argued that the information in these plans, such as turnaround and 2017 throughput information, is confidential and/or might undermine industry competitiveness. These reasons for limiting public review are unfounded. First, turnaround schedules are routinely reported in industry trade publications and other news outlets and otherwise known by industry competitors in the region. Second, overall production numbers are reported to the United States Energy Information Administration. And third, the

production information here is based on historical (i.e., outdated) 2017 data rather than current operations at petroleum refineries.

Finally, petroleum refineries should be required to demonstrate that under these alternatives the impacts to surrounding communities would be no greater than compliance with Table 1 (i.e., controls on *all units* to achieve BARCT limits). The agency must prevent petroleum refineries from leaving high polluting equipment near the fenceline without controls under these alternative compliance options.

(i) CEMS Requirements

- **(i)(1), (3) Heat Input Capacity of 40 MMBtu/Hour or Greater**

This subparagraph requires petroleum refineries with a unit with a rated heat input capacity of 40 MMBtu/hour or greater to install CEMS to measure NOx and O2. This subparagraph, however, ignores CO, which the rule states under paragraph (a) would not increase under the rule. Moreover, subparagraph (i)(3) is not enough to solve this issue because it does not address units that do not have CEMS to track CO emissions.

(j) Source Test Requirements

- **(j)(1) Table 6 Source Test Requirements**

Table 6 of this subparagraph includes source testing requirements for flares. The rule, however, *exempts* flares from source testing requirements under subparagraphs (m)(8)(A)-(B).

(m) Exemptions

- **(m)(2) Process Heaters Fired Less Than 15 Percent of the Rated Heat Input**

This subparagraph exempts process heaters "fired at less than 15 percent of the rated heat input capacity" from complying with Table 1 emission limits. The rule fails to specify whether this would be calculated using a rolling average (e.g., annual).

- **(m)(8)(B) Flares**

This subparagraph exempts flares from source testing requirements. As detailed above under subparagraph (c)(14) comments, the rule should exclude elevated, open flares from any alternative compliance plans, and should explain whether this category extends to *enclosed flares with CEMS and incinerators*. Petroleum refineries should not be allowed to use source tests or emissions factors for flares under alternative compliance plans given the potential for abuse to avoid further reductions for boilers and process heaters.

- **(m)(9) Vapor Incinerators**

This subparagraph exempts vapor incinerators that emit 100 pounds of NOx or less in a year. The rule fails to detail how this would be determined if an operating permit does not require CEMS.

Attachment B

- **B-2.5 Determination of NOx Concentration in the Flue Gas**

This subparagraph allows the Executive Officer to use "the most recent source test *or another source of data* if CEMS or source test data is not available" to determine the NOx concentration in the flue gas. South Coast AQMD must remove these options from the rule. This language is open ended and would allow petroleum refineries to cherry-pick emissions data from any "source of data."

Moreover, petroleum refineries electing to use an alternative compliance plan should be required to install CEMS on all units, or those units lacking CEMS should be excluded from any flexibility option. The alternative compliance plans provide petroleum refineries with the opportunity to avoid making necessary investments in some high-cost pollution controls. As a tradeoff for these significant cost savings, petroleum refineries electing to use an alternative compliance path must be required to install CEMS on all units they aim to bring in as part of an BARCT in aggregate plan.

- **B-2.6 Determination of Baseline Emissions**

This subparagraph allows the Executive Officer to use "*another year* if the 2017 NOx Annual Emissions Reporting data is not representative" to establish a baseline. This subparagraph is broad and provides no factors allowing for a deviation from 2017 annual NOx emissions reporting. As detailed above under subparagraph (c)(5) comments, the agency has determined the appropriate representative year after multiple working group meetings, consultation with technical experts, and review of petroleum refinery emissions data and operations. South Coast AQMD has no rational basis for allowing petroleum refineries to change this baseline after rule adoption.

Attachment E

- **E-2 Facility Baseline Mass Emissions**

This subparagraph provides that a "year other than 2017 was used for units where the 2017 reported emissions were not representative of normal operations." The agency should

detail the *specific units* where it used alternative reported emissions and the reasons why the 2017 annual NOx reported emissions were not representative of normal operations.

***

We appreciate your consideration of these concerns. South Coast AQMD must protect communities living near refineries and prioritize environmental health. As currently written, the rule provides several loopholes and alternative compliance options that allow petroleum refineries to avoid making necessary, long-overdue investments in pollution controls to reduce NOx emissions. Residents in the South Coast Basin, and in particular residents living near refineries, have waited for far too long for petroleum refineries to install pollution controls. South Coast AQMD must secure a strong rule that achieves the necessary emissions reductions as expeditiously as possible.

Sincerely,

Oscar Espino-Padron, Attorney
Byron Chan, Attorney
Adrian Martinez, Attorney
Community Partnerships Program
Earthjustice

David Pettit, Senior Attorney,
Climate & Clean Energy Program
Natural Resources Defense Council

Nicole Levin, Campaign Representative
Beyond Dirty Fuels Campaign
Sierra Club

Taylor Thomas, Co-Executive Director
East Yard Communities for Environmental Justice

Maya Golden-Krasner, Deputy Director and Senior Attorney
Climate Law Institute
Center for Biological Diversity

Alison Hahm, Legal Associate
Communities for a Better Environment