



**Torrance Refining
Company LLC**
3700 W. 190th Street
Torrance, CA 90504
www.pbfenergy.com

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VIA E-MAIL: srees@aqmd.gov

Sarah Rees, Ph.D.
Deputy Executive Officer
Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Supplementary Comments on South Coast Air Quality Management District Staff's 1109.1 Proposed Rule Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Industries Revise Rule Language Released to the Public on Friday, December 24, 2020

Dear Dr. Rees,

Torrance Refining Company LLC ("TORC") is pleased to submit comments to the South Coast Air Quality Management District ("District") in response to staff's Proposed Rule 1109.1 Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Industries ("PR 1109.1") revised rule language released on December 24, 2020 ("Revised December 2020 Language"). This supplements TORC's previous comment letters submitted to the District on November 20, 2020, December 14, 2020, January 27, 2021 and two letters on April 16, 2021.

Purpose

In the Revised December 2020 Language (a), the District continues to include carbon monoxide ("CO") emissions as part of the proposed rule. Regardless of changing "limiting" to "maintaining" in this revised draft, the District is still proposing to lower the CO emission levels governing most Refinery Process Heaters and Boilers. As TORC has previously commented, any CO emission levels proposed in PR 1109.1 must be removed since a Best Available Retrofit Control Technology ("BARCT") analysis has not yet been performed to determine if these levels are cost-effective and technologically feasible while simultaneously meeting the extremely low proposed oxides of nitrogen ("NOx") emission levels, which themselves have not been proven cost-effective and technologically feasible to date.

Definitions

As mentioned in TORC's October 23, 2020 comment letter, the "Shutdown" definition (Revised December 2020 Language (b)(23)) must address Fluidized Catalytic Cracking Unit ("FCCU") regenerators that do not use typical fuel for combustion, particularly since the FCCU definition (Revised December 2020 Language (b)(11)) recognizes the burning of built up coke on the catalyst

to provide the heat for the cracking process. During an FCCU shutdown, coke may be burnt off the catalyst after the feed has been stopped and could continue until the combustion/circulation air has stopped. Therefore, the "Shutdown" definition must be revised to make clear that an FCCU shutdown ends when the combustion/circulation air in the regenerator has stopped.

Also, as mentioned in TORC's October 23, 2020 comment letter, the "Start-Up" definition (Revised December 2020 Language (b)(25)) must address FCCU regenerators particularly how refractory within the regenerator is dried and the criteria for completing FCCU start-up. Start-up emissions from FCCU regenerators begin when combustion/circulation air is introduced into the regenerator. To address this, the "Start-Up" definition should be revised to reflect that the beginning of a FCCU start-up includes when combustion/circulation air is introduced as long as the start-up heater is used less than 200 hours per calendar year. Importantly, the definition should be revised to make clear that refractory dry out is not included in the definition regardless of whether or not a separate unit is used. Refractory dry out should be considered as part of a continued maintenance activity not as part of operation or subject to the proposed NOx and CO BARCT levels under the rule. With the much lower emission limits, the minimum operating temperature of control equipment should not be the only criteria considered to end start-up as defined in PR 1109.1. Other factors will need to be considered such as the targeted Refinery equipment's emission limits (Permit and/or BARCT limit) to indicate that the equipment has successfully started up.

Additionally, the definition for "Unit" (Revised December 2020 Language (b)(31)) should exclude any reference to flares since they are subject to Rules 1118 and 1118.1.

Emission Limits

In the Revised December 2020 Language (d)(1), Table 1, District staff has again proposed BARCT CO emission levels without, as noted in above and in prior comment letters, performing BARCT technology feasibility and cost-effective analyses. Accordingly, the BARCT CO levels for the targeted Refinery equipment should be removed from PR 1109.1.

Additionally, in (d)(1), Table 1, there are targeted Refinery equipment such as Process Heaters and Vapor Incinerators that do not require a continuous emission monitoring system ("CEMS") per Revised December 2020 Language (f). As such, a rolling average does not apply to them. Accordingly, Table 1 should clarify that the rolling average only applies to devices with CEMS.

Furthermore, Revised December 2020 Language (d)(1), Table 1, should not include flares as they are covered by existing District rules. Specifically, Rule 1118.1 applies to all flares that are non-refinery flares and Rule 1118 applies to all Refinery flares. However, although it appears the Revised December 2020 Language excludes Refinery flares, it includes flares not subject to Rule 1118 (i.e., non-refinery flares). This is very confusing as to which flares the District staff is proposing that must meet a 20 parts per million volume ("ppmv") NOx level. If it is the intent of the Revised December 2020 Language to apply a NOx level to thermal oxidizers, then District staff should clearly indicate this and define this term in the rule language. At a Refinery, a flare and a thermal oxidizer are used for two completely different purposes. A Refinery flare is a process

safety device whereas a thermal oxidizer is Best Available Control Technology (“BACT”). Under Rule 1118, a flare is defined as a combustion device that uses an open flame to burn combustible gases with combustion air provided by uncontrolled ambient air around the flame. Under Rule 1118.1, a flare is defined a combustion device that oxidizes combustible gases or vapors, where the combustible gases or vapors being destroyed are routed directly into the burner without energy recovery. At a Refinery, the Rule 1118.1 definition is more reflective of a thermal oxidizer rather than a flare. As such, the District should not use the term “flare” or define it in the Revised December 2020 Language since it is not how flares are used in a Refinery. Further, since the Refineries have installed thermal oxidizers as BACT, BARCT should not be required on targeted Refinery equipment that already has BACT. BACT is determined to the best emission control or limit at the time of permit issuance, and under New Source Review (“NSR”), cannot be changed unless the equipment is modified with an increase in emissions over a one pound per day. Therefore, instead of circumventing NSR, at the time an existing thermal oxidizer is modified, or new thermal oxidizer is permitted, and NO_x emissions are increased, the District should evaluate the appropriate NO_x limit for BACT purposes.

Lastly, the Revised December 2020 Language (d)(1), Table 1, has NO_x levels for Sulfur Recovery Units (“SRU”)/Tail Gas Incinerators (“TGI”). As TORC indicated during the December 10, 2020 PR 1109.1 Working Group meeting, TGIs are not the only source of NO_x emissions in the SRU process. There are in-line reaction heaters that are used in the SRU process that cannot have ultra-low NO_x burners (“ULNB”) installed on them. Therefore, the 30 ppmv NO_x level in the Revised December 2020 Language for the SRU/TGI category is not technologically feasible. Furthermore, both Tail Gas Units (“TGU”) and TGIs are VOC BACT emission control systems for SRUs and Tail Gas Units (“TGU”), respectively. Yet, the Revised December 2020 Language establishes a 30 ppmv NO_x level as a BARCT requirement on BACT devices. As stated above, a BARCT level should not be required on existing equipment with BACT. Rather, when new TGUs or TGIs are permitted, the District should evaluate the appropriate NO_x limit for BACT purposes.

In the Revised December 2020 Language (d)(3), District staff proposes that the CO emission levels in Table 1 apply to targeted Refinery equipment if there are no CO permit limits applicable to the equipment as of the date of rule adoption. The District’s Revised December 2020 Language would lower the CO emission levels from 2,000 ppmv to 400 ppmv without a BARCT analysis completed. Again, as stated previously, the BARCT CO levels for the targeted Refinery equipment should be removed from the rule unless the appropriate BARCT analysis is completed. Importantly, Process Heaters are already subject to a 2,000 ppmv CO limit under Rule 407, which is incorporated into a Refinery’s Title V permit by reference.

In the Revised December 2020 Language (d)(4), the District staff proposes one-hour subsets for averaging periods of 24 hours or less and 24-hour subsets for averaging periods greater than 24 hours. However, it is unclear if these are block clock/calendar periods or subset that begin and are established when the Process Unit and/or targeted Refinery equipment is started up. The District should clarify that this is meant to be block clock/calendar periods. Otherwise, depending on when the Process Unit and/or targeted Refinery equipment is started up, the beginning point of the averaging subset will change.

Start-up, Shutdown, and Malfunction (“SSM”)

In the Revised December 2020 Language (e)(1), Table 2, District staff proposes language to allow periods of time when the proposed NO_x and CO levels do not apply for SSM events. The proposed language is concerning in that it appears to state that the exclusion of SSM events should be the lesser of the proposed SSM periods in the rule or existing permit limits for SSM events. However, if a Refinery establishes a SSM period for a targeted piece of Refinery equipment in its Title V permit, then that SSM period permit limit should take precedence over any rule SSM period in the rule since it has already been established through the District permitting process that the equipment requires this period of time for a SSM event. Accordingly, the Revised December 2020 Language should not conflict with a Refinery’s Title V permit SSM periods for SSM events. Additionally, if the rule arbitrarily forces a lesser SSM period than what is currently allowed for in a Refinery’s Title V permit, this may also lead to process and personal safety concerns as the permitted SSM periods were based in part on the time periods needed to safely shutdown and start-up the permitted equipment.

Additionally, in the Revised December 2020 Language (e)(2), District staff proposes language that if the (d)(1), Table 1, emission levels are exceeded during an SSM event, the Refinery should implement best engineering practices to meet the emission levels “as quickly as feasible.” This requirement is redundant and could lead to confusion as during SSM events, Refineries already follow strict operating/emergency procedures to safely start or shutdown the Process Unit and/or targeted Refinery equipment in order to avoid process safety and personal safety incidents. Moreover, the requirement to meet the NO_x and CO emission levels “as quickly as feasible” after a SSM event should be removed as a Refinery needs the flexibility to safely manage a SSM event and not be subsequently second guessed whether its response was “as quickly as feasible,” a subjective determination.

In addition, in the Revised December 2020 Language (e)(4), the District staff proposes language to exclude “zero or less” measured NO_x emissions from (d)(1), Table 1, rolling averages during a shutdown. However, pursuant to the Revised December 2020 Language “Shutdown” definition (b)(23), a shutdown only includes the period of time when a Refinery reduces load and the flue gas temperature falls below the minimum operating temperature of the emission control equipment until there is “zero fuel flow or zero feedstock.” During shutdown, the targeted Refinery equipment is still operating, and the emissions are not included in the rolling average already. Therefore, the District should change the proposed language to read “... that measures NO_x emissions zero or less after a unit has shutdown, shall exclude those measurements”

CEMS Requirements

In the Revised December 2020 Language (f)(1), It appears that during a “Malfunction” as defined by (b)(16), (e)(1) states that the NO_x emissions levels do not apply. Therefore, if an installed Selective Catalytic Reduction system (“SCR”) that does not need to meet an applicable BARCT NO_x level, assuming it is technologically feasible and cost-effective, were to be bypassed during a malfunction of the targeted Refinery equipment and/or associated Process Unit, then the Refinery should also be exempt from the CEMS requirements of (f)(1) similarly to the BARCT NO_x and

CO emission levels in Section (d)(1) during the period of time included in (e)(1), Table 2. Since the emissions during a SSM event do not apply to the rolling averages, then logically this should also apply to CEMS measurements during the SSM event. The District should include such an exemption into the CEMS requirements in any future revised rule language.

In addition, in the Revised December 2020 Language (f)(3), District staff is proposing that a CEMS that currently measures CO must certify and operate the CO CEMS in accordance with Rule 218. As previously stated, Refineries already have to meet a 2,000 ppmv CO limit under Rule 407. Without a BARCT CO analysis, a BARCT CO emission levels should be removed from the rule. With the removal of the BARCT CO emission levels, then the requirement for a CO CEMS should also be removed.

Source Test Requirements

In the Revised December 2020 Language (g)(8)(C), the applicable BARCT NO_x and CO emission levels' averaging periods for the Boilers, Process Heaters, and Incinerators in (d)(1), Table 1, range from two to three hours. However, the Revised December 2020 Language currently requires that source tests use the applicable "Averaging Time in Table 1." Generally, source tests can only run for 2 hours before a bias check is required. Therefore, the District would have to either change the averaging period in (d)(1), Table 1, for Boilers, Process Heaters, Incinerators to three hours or modify the source test methodology to run a bias check after three hours.

Monitoring, Recordkeeping and Reporting Requirements

In the Revised December 2020 Language (i)(2), it is unnecessary to require that daily operating logs for targeted Refinery equipment be maintained and approved by the District. Maintaining daily records of the hours of operation, fuel used, and cumulative hours of operation for each individual unit has no purpose for determining compliance with the rule's proposed emission levels. Further, it is unnecessary to keep daily records of the time and duration of targeted Refinery equipment and/or associated Process Units start-ups and shutdowns. If recordkeeping is necessary, it should focus on the dates and the entire duration of each start-up and shutdown. Other than maintaining records of the start-ups and shutdowns, this section is unnecessary and overly burdensome and should be removed from the rule.

Compliance Schedule

District staff demonstrated at the August 12, 2020 PR 1109.1 Working Group Meeting 13 that it was not cost effective to meet a 2 ppmv NO_x BARCT level for an existing Process Heater that already meets 5 ppmv NO_x and that has/will have a Title V permit condition to limit heater's NO_x emissions to this level. However, in the Revised December 2020 Language (j)(3), District staff has now limited this exemption to 10 or 25 years depending on the age of the heater emission control device. Since the District's BARCT evaluation has already demonstrated that it is not cost effective for existing Process Heaters with emission controls meeting 5 ppmv NO_x, the District must perform a new BARCT evaluation to require that a 2 ppmv NO_x BARCT level is required for this category of heaters. Until such an analysis is completed and shown to be technologically

feasible and cost-effective, the 10- or 25-year restriction should be removed from the rule and this category of Process Heaters be fully exempt from any lower NOx BARCT level.

In the Revised December 2020 Language (j)(4), the District staff has proposed that should a Refinery exceed the exemption levels of (l)(2) or (l)(4), a permit application must be submitted within six months of the exceedance to meet the (d)(1), Table 1, levels. This is extremely punitive and the District staff needs to consider whether or not "one off" occurrences should justify this, considering if there has otherwise been historical compliance with the exemptions. If there are "one off" occurrences, then the owner or operator should not be required to submit a permit application or have to meet the Table 1 emission levels.

BARCT Compliance Alternative Plan (B-CAP)

The Revised December 2020 Language (k), still suffers the same fatal flaws that TORC has already identified in its December 14, 2020 comment letter regarding the previously released BCAP rule language. TORC incorporates these comments and refers the District staff to its December 14, 2020 comment letter, in hopes these flaws will be fully and appropriately addressed in future revised rule language

It is applaudable that District staff has proposed in the Revised December 2020 Language (k) to extend out the implementation schedule for final compliance by two years, if extensions are granted. Although TORC is appreciative of the District staff providing additional implementation time, it is still not sufficient or provide the flexibility necessary the Refineries need for the critical turnaround timing necessary for the currently targeted Refinery equipment under the rule. As TORC has previously stated in its December 14, 2020 comment letter, an arbitrary phased-in implementation schedule as currently proposed in the December 2020 Revised Language is infeasible and, due to the currently proposed very short and condensed time periods, raises significant operational integrity and process and personnel safety concerns.

As TORC has indicated, all affected Refineries will be competing for the same design, engineering, permitting, procurement, construction, and skilled trades resources leading to significant and unexpected delays and costs with potential anti-competitive implications. This doesn't change by extending the implementation schedule by two years. Despite the realities of proper turnaround planning and scheduling, the Revised December 2020 Language still infeasibly requires the Refining sector to lock-in and broadcast its turnaround schedules for the next 15+ years, which defies accurate forecasting, presents anti-competitive issues, and importantly, would require Refineries to hasten turnaround planning outside of established industry best-practices at the expense of the careful, highly technical attention-to-detail employed to prevent process and personnel safety incidents.

The Revised December 2020 Language still mandates an implementation schedule in arbitrary phases to which an affected Refinery is required to retrofit their currently targeted Refinery equipment under PR 1109.1. While the District may believe that this provides flexibility for an affected Refinery to plan its BARCT level emission control projects, it forces the PR 1109.1 implementation schedule to be in line with emission reductions versus a specific turnaround

schedule that an affected Refinery may have, i.e., because of uncontrollable external influences alone, such as skilled trades resourcing, the B-CAP target may not be in line with the scheduled turnarounds over the next 15+ years forcing a Refinery to perform an out of cycle shutdown of a process unit.

Due to the heightened risk that such out-of-cycle turnarounds create, TORC believes that such phasing should be eliminated from PR 1109.1. The District cannot ignore the personal and process safety risks associated with any phasing of BARCT level emissions controls as they are of paramount importance to Refinery workers and the community.

Therefore, TORC again urges that before any further B-CAP or final compliance deadlines are included in any future revised rule language, District staff should meet with all affected Refineries to obtain and include their input on such deadlines. This step is fundamentally necessary in determining a feasible and reasonable construct for deadlines and process for meeting the BARCT levels for the targeted Refinery equipment, assuming these levels are technologically feasible and cost-effective in the first instance. Until this step is taken, all proposed implementation schedules should be removed from the rule.

Exemptions

In the Revised December 2020 Language, the District has included the following pilot light operation as an exemption to the (d)(1), Table, emission levels.

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

However, it only provides relief during the start-up and shutdown periods when the pilots are on. Pursuant to the start-up and shutdown definitions, the pilots and burners will be on during start-up and shutdown periods. The exemption should also apply during periods between shutdown and start-up when it is unsafe to turn off the pilots even when the targeted Refinery equipment is shutdown. This could occur if the equipment has an unplanned shutdown and is expected to only be off until it can be restarted safely.

Additionally, in the Revised December 2020 Language (l)(2), District staff proposes that FCCU start-up heaters are exempt from specific provisions of the rule provided that it is permitted to only operate 200 hours or less per year. Refineries may not have an existing permit condition that has a 200-hour limit. As a result, the rule should provide time to allow a Refinery to submit a Title V permit application to request a 200-hour limit per calendar year and would not become effective until it is included as a Title V permit condition.

Additionally, in the Revised December 2020 Language (l)(5), District staff has proposed an exemption for Process Heaters greater than 40 MMBtu/hour if the Refinery submits a permit application within six months after rule adoption to include a Title V permit condition limiting the NOx concentration from the Process Heater to 5 ppmv NOx or less at 3% O2 on a dry basis. The

proposed language, however, does not include an averaging period for the NOx level. Since the (d)(1), Table 1, averaging period is 24 hours for this category of Process Heaters, this averaging period should be used for consistency when applying it to the 5 ppmv NOx level under the (1)(5) exemption.

Currently, the proposed BARCT NOx level for Process Heaters greater than 40 MMBtu/hr is 2 ppmv. However, to date, District staff has not demonstrated that such a BARCT NOx level for this category of Process Heaters is technologically feasible or cost-effective. If, despite this, the District moves forward with a rule based on emerging technologies¹, then if a Refinery installs an emerging technology in a good-faith effort and has done all it feasibly can to meet the BARCT NOx level of 2 ppmv, but still cannot demonstrate compliance, then the rule should provide an exemption that would allow the Refinery to meet the lowest NOx level achievable associated with the installation of the emerging technology with the same 24-hour averaging period. Otherwise, the only alternative that a Refinery would have is to replace the entire Process Heater, which would far exceed any cost-effective threshold associated with the rule.

* * *

In closing, TORC believes that there are still too many issues and concerns regarding the Revised December 2020 Language and urges the District to meet with industry to work them out before any new revisions are made. Fundamentally, the transition of the RECLAIM program for the Refining sector requires a significant amount of effort and time to properly develop PR 1109.1 to establish BARCT levels for target Refinery equipment at the affected Refineries. We request that proposed BARCT levels be technologically feasible and cost-effective as required by law, and that the ability to operate our Refinery in compliance with applicable requirements not be jeopardized by imposition of unrealistic requirements and implementation deadlines. TORC appreciates that the PR 109.1 rulemaking process has been slowed down so that all the critical issues discussed above can be addressed in a thoughtful, dispassionate, and informed manner.

Thank you for the opportunity to submit comments on the December 24, 2020 Revised Language. We stand ready to work diligently with District staff and other stakeholders to address the complex issues associated with Revised December 2020 Language.

Please note that in submitting this letter, TORC reserves the right to supplement its comments as it deems necessary, especially if additional or different information is made available to the public regarding the PR 1109.1 rulemaking process.

¹ The forcing of "emerging technologies" in PR 1109.1 is inappropriate as "BARCT standards, by contrast [to BACT], are generally applicable rules that require full compliance at some future date, usually several years after a rule is adopted." *American Coatings Ass'n v. South Coast Air Quality Management District*, 54 Cal 4th 446, 467 (2012) (citations omitted).

If you have any questions regarding TORC's comments, please call or email me or John Sakers. Our office phone numbers are 310-212-4500 (Steve) and (310) 212-4292 (John).

Sincerely,



Steve Steach
Refinery Manager

cc: **District Staff - via e-mail and overnight delivery**

Wayne Nastri	Executive Officer
Susan Nakamura	Assistant Deputy Executive Officer
Michael Krause	Planning and Rules Manager

cc: **District Refinery Committee Members - via e-mail and overnight delivery**

Hon. Ben Benoit	Governing Board Chair
Hon. Larry McCallon	Governing Board Member and Refinery Committee Chair
Hon. Lisa Bartlett	Governing Board Member and Refinery Committee Member

cc: **District Governing Board Members - via overnight delivery**

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