Regulation XIII – New Source Review

Working Group Meeting

June 16, 2021

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South Coast AQMD

Agenda

- Proposed Amended Rule 1304
- Marathon Petroleum Comment Letter (May 12, 2021)
- Federal NSR Applicability – Permit Project Aggregation

Proposed Amended Rule 1304

- At the February 2021 Working Group Meeting, staff proposed to add a limited BACT exemption for "non-ozone precursors" in PAR 1304
  - Staff was concerned that "non-ozone precursor" may not be clear
- During the April 2021 Working Group Meeting, staff proposed to limit the BACT exemption to PM emissions only
  - Stakeholders requested that the BACT exemption be extended to SOx and CO for increases related to new equipment installed to meet NOx BARCT standards

Applicability of the BACT Exemption

- Staff is proposing to extend the applicability of the BACT exemption to SOx since:
  - Incremental SOx emissions can occur when installing new permit units with SCR for NOx BARCT compliance
  - SOx BACT would require the same refinery fuel gas clean up that is needed to meet PM BACT
- Narrow BACT exemptions for PM10 and SOx are needed to address emission increases associated with installation of new SCRs or new units with SCR for compliance with a NOx BARCT requirement
- BACT exemption will not apply to CO
  - Expensive fuel gas clean up not necessary to meet CO BACT

Rule 2005 – RECLAIM NSR

- SOx emission increases at facilities that are in SOx RECLAIM are subject to Rule 2005 instead of Reg XIII
  - Refinery operations are usually subject to SOx RECLAIM
  - Rule 2005 will continue to apply during the NOx RECLAIM transition while facilities are implementing NOx BARCT
- Staff is proposing a narrow BACT exemption in Rule 2005 for SOx emission increases associated with NOx BARCT compliance
- Limited BACT exemption will be added to the list of current Rule 2005 exemptions under subdivision (k)
  - Will use the same provisions proposed for PAR 1304
- Staff is currently discussing with CARB the feasibility of applying the BACT exemption to SOx

PAR 1304 – Updated Rule Language

(f) Limited BACT Exemption

(1) Upon approval by the Executive Officer or designee, new or modified permit unit(s) to install, add on, air pollution control equipment for control of NOx emissions, shall be exempt from the BACT requirement of Rule 1303 (a)(1) for any associated increase in PM10 and/or SOx emissions caused by the operation of the add-on air pollution control equipment provided:

(A) The new or modified permit unit(s) is located at a RECLAIM or future RECLAIM facility and is being installed or modified to comply with a South Coast AQMD rule to meet a specified Nox Best Available Retrofit Control Technology (BARCT) emission limit modify established before December 31, 2023;

(B) The cumulative total maximum rated capacity of all new and modified permit units is less than or equal to the cumulative total maximum rated capacity of the permit unit(s) being replaced and modified, and the new and/or modified permit unit(s) will serve the same purpose as those being replaced and modified. For the new and/or modified permit unit(s) and the permit unit(s) being replaced, a maximum of 90 days is allowed as a start-up period for simultaneous operation;

(C) The facility does not lose an increase in physical or operational design capacity, except for those changes needed for the new or modified permit unit(s) that meet the requirement of subparagraph (f)(1)(B). An increase in efficiency is not an increase in the physical and operational design capacity;

(D) Evaluation from the new or modified permit unit(s) do not cause an exceedance of any state or national interest, air quality standard, or demonstrated with modeling required in Rule 1303 (b)(1); and

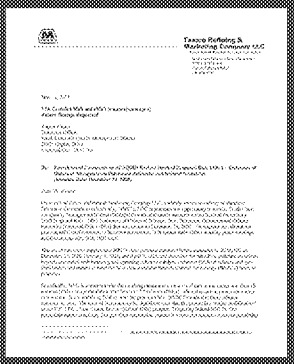
(E) The new or modified permit unit(s) does not constitute a federal, Major Stationary Source or Major Modification determined pursuant to 40 CFR 51.165 and 40 CFR 52.21.

(2) All other requirements of Regulation XIII – New Source Review, including but not limited to, permit conditions limiting monthly emissions increases as required in Rule 1313 – Permits to Operate, shall apply regardless of the limited BACT exemption in paragraph (f)(1).

- "…new or modified permit unit(s) that install add-on air pollution control equipment for control of NOx emissions, shall be exempt from the BACT requirement of Rule 1303 (a)(1) for any associated increase in **PM10 and/or SOx emissions** caused by the operation of the add-on air pollution control equipment provided:"

- "The cumulative total maximum rated capacity of all new and modified permit unit(s) is less than or equal to the cumulative total maximum rated capacity of the permit unit(s) being replaced and modified, and the new and/or modified permit unit(s) will serve the same purpose as those being replaced and modified. For the new and/or modified permit unit(s) and the permit unit(s) being replaced, a maximum of 90 days is allowed as a start-up period for simultaneous operation;"

Marathon Petroleum Comment Letter (May 12, 2021)



- PR 1109.1 staff received a letter from Marathon Petroleum Corporation (Marathon) on May 12, 2021
  - Summary presented at PR 1109.1 Working Group Meeting #21 (May 27, 2021)
- Comments are more relevant to New Source Review than to PR 1109.1
- Marathon anticipates some of their SCR projects may exceed the federal Major Modification threshold for PM2.5, which is 10 tons per year and would:
  - Trigger BACT PM requirements
  - Require expensive sulfur cleanup of their refinery fuel gas

NSR Related Comments from Marathon Letter

Comment 1: South Coast AQMD Provides No Information to Substantiate that Fine Particulate Matter Emissions due to SCR Would Likely Be Below Federal Major Modification Thresholds

Comment 2: Based on the Example a 425 MMBtu/hour Unit Will Exceed the PM2.5 Federal Major Source Modification Threshold of 10 Tons per Year

Comment 3: EPA's "Project Aggregation" Policy Must be Considered if the Emissions Increase for the SCR Project is Combined with Other SCR Projects at the Refinery

Comment 1: South Coast AQMD Provides No Information to Substantiate that Fine Particulate Matter Emissions due to SCR Would Likely Be Below Federal Major Modification Thresholds

- Staff evaluated existing refinery units to determine scenarios that may exceed the federal 10 tpy $PM_{2.5}$ threshold
- PM emissions depend on several variables
  - Conversion of SO2 to SO3
  - Fuel sulfur content
  - Size of the unit
- Staff is evaluating comment made during the working group meeting that the source test methodology may be a concern

Comment 2: Based on the Example a 425 MMBtu/hour Unit Will Exceed the PM2.5 Federal Major Source Modification Threshold of 10 Tons per Year

- Hypothetical example was not a PR 1109.1 scenario and overestimates post-project emissions based on an existing unit with an existing SCR
- Staff estimates that PM emissions will be below the federal NSR thresholds when considering:
  - Newer catalyst will have lower PM emissions
  - Emissions from a new units will be lower than an existing older units, provided no increase in rating
  - Federal NSR applicability will be determine using the Baseline Actual-to-Projected Actual test
    - Baseline includes actual emissions for the existing unit, rather than a zero baseline for the new unit under Reg XIII

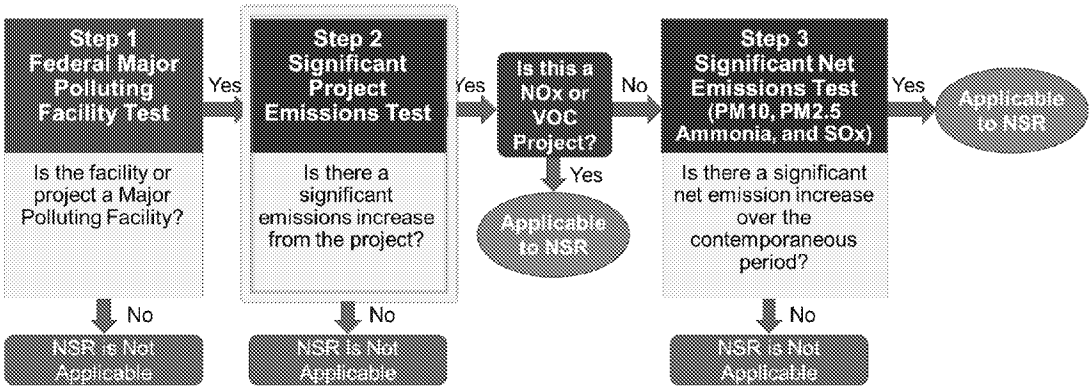
Comment 3: EPA's "Project Aggregation" Policy Must be Considered if the Emissions Increase for the SCR Project is Combined with Other SCR Projects at the Refinery

- Based on staff's analysis, aggregating multiple units as one permitting project would not exceed the federal PM threshold of 10 tons per year
- Under the federal NSR applicability test, if a project does not have a significant emissions increase the project is:
  - Not applicable to NSR
  - Not evaluated under the final NSR applicability test that evaluates net emissions over a contemporaneous period
- The "project aggregation" policy is to ensure that permitting projects are not split to circumvent NSR (will be discussed in the next slides)

Federal NSR Applicability – Permit Project Aggregation

- Stakeholders have raised questions regarding "project aggregation" when determining federal NSR applicability
- Concerns about the possibility of multiple SCR installations being grouped as a single project and exceeding the federal NSR thresholds
  - Major Modification threshold for PM2.5 is 10 tons per year

Federal NSR Applicability Tests



***Federal guidance refers to the Significant Project Emissions Test as Step 1 of the NSR test (only for emission units involved in the project), while the Significant Net Emissions Test is referred to as Step 2 of the NSR test (source-wide emissions netting).

Step 2: Is There a Significant Emissions Increase from the Project?

- Purpose of Step 2 is to determine if the project itself will result in a Significant Emissions Increase under the federal definition
- If Project Emissions are greater than or equal to the Federal Significant Emissions Thresholds, then the Significant Net Emissions test (Step 3) is needed to determine if the permitting action is subject to NSR requirements
- "Project Emissions" are the sum of all emissions from project components that are related to the primary permitting project

$$\text{Project Emissions} = \sum \text{Component Project Emissions}$$

Project Emissions – Federal Definition

- U.S. EPA defines the "project" as a physical change in, or change in the method of operation of, an existing major polluting facility [40 CFR 165.(a)(1)(xxxix)]
  - Ensures that nominally-separated projects at a facility are treated as a single project
  - If a project has multiple emission sources, the increases of each individual emission source are added together to determine if the project as a whole has a Significant Emissions Increase
  - Project emissions include all new, modified, and de-bottlenecking units
  - In general aggregated projects includes activities that are substantially related, including technical or economic dependence, and that generally occur within three years of each other
  - Project aggregation would be evaluated on a case-by-case basis

Difference Between Federal NSR Applicability and Regulation XIII

- Regulation XIII permits are issued for each individual source or unit
- Regulation XIII does not include emission increases from other permitting or non-permitting actions

Project Aggregation – Federal Policy

- Purpose of federal policy on project aggregation is to ensure that NSR requirements are not circumvented
- U.S. EPA policy on projection aggregation[1] does not address projects that are required for regulatory compliance
  - Available guidance primarily addresses voluntary projects, such as facility expansions or renovations
- South Coast AQMD will continue to follow federal guidance for NSR applicability determinations

[1] U.S. EPA Federal Register publications on project aggregation: 83 FR 57324 (November 15, 2018), 74 FR 2376 (January 15, 2009), and 71 FR 54235 (September 14, 2006)

Working Group Meeting Summary

- South Coast AQMD will continue to apply the Federal definition of "project" when determining if federal NSR is applicable
- Multiple installations will only be aggregated as required by federal guidance on aggregation
- Staff is developing proposed amendments to Rule 1304 and Rule 2005 to include limited BACT exemption to address PM and SOx increases
- Based on South Coast AQMD analysis, unlikely that multiple units will exceed the federal PM threshold
- Permit projects which fall out of the federal NSR applicability threshold are not required to evaluate net emissions from contemporaneous projects

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