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Ref: 8P-AR

Garry Kaufman, Director
Air Pollution Control Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

RE: EPA Region 8 Comments on Colorado's Proposed Revisions to Regulation Number 7, Section XVI.D and Technical Support Document

Dear Mr. Kaufman:

Thank you for the opportunity to provide comments on the state of Colorado's proposed revisions to Regulation Number 7, Section XVI.D and the Technical Support Document (TSD) for boilers, stationary combustion turbines, lightweight aggregate kilns, glass melting furnaces and compression ignition reciprocating internal combustion engines (RICE) located at major sources of nitrogen oxides (NO_x). We want to acknowledge the significant efforts of the Colorado Department of Public Health and Environment (CDPHE) in developing the Reasonably Available Control Technology (RACT) requirements for major NO_x sources.

Our comments are detailed in the enclosure to this letter. Our preliminary assessment is that some of the provisions addressing RACT for major sources of NO_x need additional supporting information. In addition, we recommend that the TSD be provided before, or concurrently with, the proposed SIP rules, since it is the technical basis for the selected RACT limits.

We will provide any assistance needed by CDPHE to address our comments and look forward to working with you and your staff. If you have any questions, please contact me at (303) 312-6936, or your staff may contact Abby Fulton, of my staff, at (303) 312-6563.

Sincerely,

6/29/2018

X Monica Mathews-Morales

Signed by: MONICA MATHEWS-MORALES

Monica Mathews-Morales
Director, Air Program
Office of Partnerships and Regulatory Assistance

Enclosure

ENCLOSURE

EPA Region 8 Comments on Revisions to Colorado Regulation Number 7, Section XVI.D and Technical Support Document

1. The proposed categorical RACT limits for stationary combustion turbines in Section XVI.D.4.b are applied differently depending on the commencement of construction, modification, or reconstruction date of the unit. Specifically, units constructed prior to February 2005 are subject to New Source Performance Standard (NSPS) 40 CFR part 60, subpart GG, and those constructed after February 2005 are subject to 40 CFR part 60, subpart KKKK. The EPA is concerned that the limits provided for under 40 CFR part 60, subpart GG may not accurately represent RACT for all stationary turbines that were constructed, modified, or reconstructed prior to February 2005.

   In reviewing major source NO_x RACT rules in other ozone nonattainment areas (NAAs) in the country, EPA identified state agencies that have established a categorical RACT limit for all stationary turbines in the NAA. For units that were unable to comply and could demonstrate that the categorical RACT limit was not technologically or economically feasible to meet, the state imposed a less stringent emission limit. These source-specific limits were then incorporated into the SIP to establish federal enforceability.

   A review of the sources identified in Colorado's May 31, 2017 attainment state implementation plan (SIP) submission, for which Section XVI.D.4.b(i) would apply, indicates that many of the applicable units are already meeting or exceeding the limits under 40 CFR part 60, subpart KKKK. These older turbines demonstrate that control technologies can be reasonably installed to control NO_x emissions to levels beyond those set in Section XVI.D.4.b(i). Additionally, the limits allowed for under 40 CFR part 60, subpart GG exceed the limits found for stationary combustion turbines in other NAAs classified as Moderate, or above, throughout the country. The EPA recommends adopting stationary combustion turbine limits that apply across the NAA regardless of construction date and allowing units unable to meet the categorical RACT limits to adopt a less stringent emission limit, pending a source specific RACT determination. If the state believes that all or the vast majority of units constructed before 2005 would be unable to meet a more stringent emission limit, the EPA requests documentation to support that conclusion. (See comment 6, below, for more detail on information that we recommend including to substantiate the level of the categorical limits as well as any case-by-case limits.)

2. The proposed Colorado categorical RACT provisions address stationary RICE under Section XIX, where 12 major sources are required to comply with applicable NO_x emission limits and associated monitoring, recordkeeping and reporting requirements in 40 CFR part 60, subpart IIII (July 1, 2016), 40 CFR part 60, subpart JJJJ (July 1, 2016), and/or 40 CFR part 63, subpart ZZZZ (July 1, 2016). The EPA notes that the Colorado SIP already contains provisions under Regulation 7, Section XVI, addressing the "Control of Emissions from Stationary and Portable Engines in the 8-hour Ozone Control Area." The provisions for Section XVI require the use of an oxidation catalyst for lean burn engines with a manufacturer's design rating of greater than 500 horsepower (hp). Beyond the two aforementioned provisions, the EPA was unable to determine how NO_x RACT controls were considered for lean burn engines. There are several uncontrolled lean burn engines in the inventory of emitting units in the Denver-North Front Range (NFR) NAA that are

permitted to emit large quantities (80 tpy-100tpy) of NO_x. The EPA suggests providing an analysis for this source category addressing how RACT is being implemented in the context of the major source RACT requirements.

3. The Regulation 7, Chapter XVI rule revisions provide an exemption for any stationary combustion equipment whose capacity factor is less than 20% on an annual average basis over a 3-year rolling period. Exemptions for stationary combustion devices across other NAAs, are typically applied to emergency and backup operations, with hourly operations in the range of 300-800 hours. An exemption of 800 hours of operation would roughly correspond to a 10% capacity factor exemption on an annual basis. The EPA has identified one provision in the Wisconsin SIP (NR 428.08, Wis. Adm. Code) that exempts "any emissions unit whose utilization is less than 10% of its capacity factor on an annual average basis over a 3-year rolling period and less than 20% of its capacity factor in any year of the 3-year rolling period and which is owned or operated by an electric generation utility or gas transmission utility." Notably, this provision applies to electric generation utilities or gas transmission utilities, and is not a general stationary combustion exemption. Additionally, this provision caps the exemption at a 20% capacity factor for any given year, whereas CDPHE's proposed provisions could potentially allow up to a 60% capacity factor in a given year.

   Without an analysis of the number and type of sources that could fall under this exemption, it is difficult to determine the environmental impact, as well as whether such an approach takes into consideration RACT for those emitting units.

   The EPA suggests the state provide an analysis identifying the number of sources that would potentially be subject to this exemption, as well as their projected emissions (both a short-term emission rate and ton per year emissions), and a RACT analysis for those sources. The RACT analysis should address why a lower capacity factor exemption would not be appropriate for the source universe within the Denver-NFR NAA and the potential for 60% utilization in any one year, while remaining exempt over the rolling 3-year period.

4. The proposed Colorado categorical major source RACT provisions address boilers, glass melt furnaces, kilns, compression ignition RICE and stationary gas turbines. However, after examining the major NO_x sources in the NAA, the EPA was unable to identify RACT provisions that would apply to process heaters, beyond combustion adjustment requirements outlined in Section XVI.D.b. RACT requirements for major stationary NO_x sources should include all significant emitting units at a major source facility.

   The EPA suggests addressing RACT for process heaters in the NAA. Should the state determine that combustion adjustment requirements establish RACT, sufficient documentation should be provided to demonstrate current emission unit performance and how additional controls for the category would not be reasonably available.

5. The proposed categorical RACT limits for glass melt furnaces are conservative when compared with the range of emission limits found in other state NAA RACT SIPs. However, the Section XVI.D.4.d.(i) provisions exempt emissions from glass melt furnaces during periods where the capacity factor for a given unit falls below 35%. EPA was unable to determine a technological or economic justification as to why such a high capacity factor usage would be exempted from emission limitations. Emissions profiles during non-steady-state operations may differ from those

during steady-state operations, but the current analysis does not explain whether the emitting units in question would be unable to meet the proposed limit during non-steady-state operations. Should the state seek to provide a compliance limit during those events, the state could exempt those periods from the 1.2 lb NO_x/ton product limit, and instead rely upon alternative emission limitations, which may consist of an alternative numerical limit or work practice standard.

6. We recommend addressing in the TSD the items listed below to support CDPHE's RACT determinations and categorical limits.

- Document any available information regarding hours of use or capacity factor for the three-year period for which ton per year emissions are being disclosed.
- Document any existing numeric limit applicable to the emitting units and the source of the limit. Conduct any necessary unit conversion such that the limit is comparable to the proposed RACT limit units of measure (e.g., if the limit is a ppm limit, but the RACT limit will be in g/hp-hr, convert the ppm limit to g/hp-hr and document the assumptions used in the conversion).
- Document any available stack testing or source test data and discuss how actual emitting unit performance compares to applicable limits.
- Document the performance of the source category universe as it compares to the proposed RACT limit and identify any emission units that may define the upper bound of what is appropriate for RACT for each categorical limit. In addition, document and discuss whether any emission units are not appropriate for inclusion in the categorical limits, and therefore require source specific RACT analysis and limits.

To assist in understanding where and how this information could be included in the current TSD we have outlined below locations in the document where it would be useful to include this information. Including this information will assist in addressing our comments above.

- Table 4 – We recommend adding two columns to this table. One column listing hours of operation or utilization factor for each of the three years being assessed (data for each year could be separated by semicolon to avoid the need to add three columns to the table). We recommend adding a second column that lists the 30-day rolling average NO_x emissions in lb/MMBtu. We recommend the method used to list the short-term performance based NO_x emission rate be documented in the TSD discussion. Also, we recommend that the table list the numeric NO_x limits that apply to the emitting units subject to NSPS Subpart Dc and Db. If any of the other emitting units have NO_x limitations other than the NSPS, we recommend those limits also be included in the table.

- Table 9 – We recommend including a column for hours of use or capacity factor for each of the years being assessed. We also recommend including a column listing maximum 30-day rolling average and an estimation of representative 4-hour average NO_x emissions from the emitting units in parts per million (ppm). We recommend that the methods for determining representative short-term emission rates be documented in the text of the TSD.

- Table 10 – We recommend that the applicable limits from Subpart GG and KKKK be listed in addition to indicating that the Subpart is applicable. In addition, if any other limits exist for these units (other than NSPS limits) we recommend those be listed as well as the origin of

authority for those limits (i.e., PSD Best Available Control Technology (BACT), Minor New Source Review BACT, etc.).

- Table 11 – We recommend including the hours of use or capacity factor where the information is available for each year being assessed. We also recommend that a column be added for average hourly emissions of NO_x in grams/horsepower-hour. As with our other recommendations, and because there may be several ways to determine a representative rate for a short term-emission rate, we recommend the methods and assumptions used to generate those short-term rates be documented in the text of the TSD. It would also be useful to include any NO_x limits that apply to the listed emitting units and the origin of authority for those limits.