Preliminary Appendix W Comments - Ozone

August 13, 2015

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Single Source Ozone Analysis

Based on our initial review on the Appendix W rulemaking, it appears that EPA is proposing to:

(1) use photochemical modeling to develop the Modeled Emission Rates for Precursors (MERPs) of ozone (VOC and NOx) on a national basis,

(2) utilize photochemical modeling of areas near the project as a means to arrive at a calculated ratio of precursors to downwind ozone impact to demonstrate impacts below an unspecified SIL, and

Single Source Ozone Analysis

(3) use a new modeling analysis (full photochemical or Lagrangian) to determine the specific project will have impacts below the SIL as a means to avoid NAAQS modeling, and/or

(4) perform the cumulative NAAQS modeling using a full photochemical analysis to demonstrate that the impact of the project does not "cause or contribute" to predicted air quality problems.

Previous regulatory context

- Missouri 10 CSR 10-6.345
  - "Upwind NOx" rule
  - designed to establish a de minimis emission threshold for NOx projects in five counties upwind of St. Louis (aka "local" MERP)

http://s1.sos.mo.gov/cmsimages/adrules/csr/previous/10csr/10csr0412/10c10-6b.pdf (page 157; pdf page 48 of 104)

Previous regulatory context

- So, what was the level?
  - 900 tons NOx per ozone season (May– September)
  - Approximately equivalent to 2,150 tons per year

- This information is not intended to suggest this emission level as the MERP, but only to suggest there are a number of technical and policy issues

Area-specific considerations

- The beauty of the photochemical modeling systems is that they are designed to include all sources, background, and provide the ability to use a single model to predict concentrations in the atmosphere

- This is also a difficulty when attempting to use them for single source analysis
  - The surrounding environment during each hour of the simulation has direct impact on the outcomes of the analysis

VOC/NOx ratio

- In the case of the St. Louis upwind NOx rule, the State Implementation Plan modeling demonstrated that the area was NOx-limited (i.e., high VOC/NOx ratio)

- Specifically, no “upwind VOC rule” was needed as changes in volatile emissions did not produce predicted impacts on downwind ozone

Not all VOCs are the same…

- The reaction chemistry for ozone within all photochemical models using speciation profiles for each source included in the model
- The different species do not have the same reactivity; otherwise you wouldn't need to speciate them
- Therefore, the subsequent downwind ozone impact could vary significantly based on that source's speciation profile

Overall comment

- Notwithstanding the efforts by EPA to develop a new paradigm for analyzing ozone on a single source basis, the level of detail provided in the proposed rule and referenced draft guidance are not sufficient to provide substantive comments on EPA's approach for single-source ozone analyses