HIGH-LEVEL SUMMARY OF BACKGROUND OZONE WORKSHOP

On February 24 and 25, 2016, EPA officials held meetings with air agencies and other interested stakeholders to discuss and receive feedback on issues surrounding background ozone in the context of implementing the 2015 ozone National Ambient Air Quality Standards (NAAQS). In advance of the meetings, EPA released a white paper ("Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone") to establish a common understanding and foundation for additional conversation on background ozone and to inform any further action by EPA. A high-level summary of the meetings is provided below. Attendees are listed in a separate docket file EPA-HQ-OAR-2016-0097.

FEBRUARY 24, 2016 – STATE/LOCAL/TRIBAL CO-REGULATORS

BACKGROUND OZONE ESTIMATES

- The white paper asked for feedback from stakeholders as to whether EPA had properly characterized background ozone. Several concerns were raised by co-regulators about the EPA's technical characterization of background ozone in the white paper.
    - Some co-regulators questioned the ability of air quality models to accurately estimate U.S. background (USB) impacts on the highest ozone days. In particular, there was concern that the global models needed more thorough evaluation. Several suggested more detailed assessments of regional model performance, especially on days with suspected high USB impacts (e.g., days with stratospheric intrusions or smoke plumes).
    - Along the same lines, several groups showed variations in USB estimates (at some locations) between EPA USB modeling and work done by the Western Air Quality Study (or others). Generally speaking, the additional modeling information provided by co-regulators appeared to suggest a larger proportional contribution from USB sources than the EPA modeling. It was suggested that a joint EPA/co-regulator effort be undertaken to understand the causes of these differences.
    - Several co-regulators encouraged EPA to assess modeled USB estimates for multiple (and more recent) base years due to suspected interannual variability in the USB contribution. There was also concern that seasonal mean estimates of USB were potentially misleading, given the daily variations in USB and the form of the NAAQS.
- The white paper also asked which data elements or model improvements may be most needed to improve characterization of background levels. Comments from co-regulators included the following:
    - A need exists for EPA guidance on appropriate applications of global models that provide the boundary conditions to regional assessments of U.S. background (USB).
    - There was concern about the apparent increasing trend in USB levels and its implications for eventual attainment of the 70 ppb NAAQS. In particular, it was noted that wildfire emissions appear to be increasing in magnitude and extent. Several commenters asked for clarity on how EPA would consider future increases in wildfire in future estimates of background ozone.
    - Several specific model inputs and processes were identified as needing more detailed consideration: lightning NOx, Mexican emissions, wildfire emissions, U.S. anthropogenic

emissions, satellite column estimates, emissions projections, deposition to ocean surface, boundary layer processes, monitoring uncertainty, global source apportionment modeling, and exchange processes between the stratosphere and the troposphere.

- Generally speaking, while the co-regulators understood the value of EPA's definition of USB, they were concerned about the sum of the influence from all external processes, including interstate transport which is not part of USB.
    - For instance, co-regulators representing Yuma, Reno, and Denver all suggested that the combination of USB plus out-of-state emissions were influencing local ozone levels.
    - Another co-regulator expressed support for continued assessments of natural background (NB) along with USB.
    - Again, there was concern about an overemphasis on mean USB levels, as opposed to summarizing USB estimates on the highest days that are relevant to ozone design values.
- Some co-regulators disagreed with the EPA white paper preliminary conceptual model of ozone attainment planning.
    - In particular, several co-regulators took issue with the white paper statement that rural areas in the inter-mountain western U.S. would have the most influence from background sources. Some co-regulators suggested that urban areas in the inter-mountain western U.S. (e.g., Denver, Las Vegas, and Salt Lake City) would also have difficulty attaining due to background influences.

EXCEPTIONAL EVENTS

- Interest was expressed in EPA issuing additional guidance in the near future on demonstrating stratospheric ozone intrusion and wildfire events. EPA noted that draft wildfire guidance was issued for public review in late 2015 and will be finalized by the end of summer 2016. Also, EPA has a work group that is developing a guidance document on demonstrating stratospheric ozone intrusions that may be ready for external review by end of summer 2016.
- Several questions were raised about the Exceptional Events Rule and EPA's recent proposed revision to that rule. EPA anticipates that the final rule update, expected by the end of summer 2016, will address these issues, which include:
    - whether it would be necessary for states to distinguish and quantify the various event-eligible contributions to high ozone (e.g., wildfires, stratospheric intrusion) or whether it would be enough to simply identify the event; and
    - whether prescribed fires are eligible for consideration as exceptional events.
- A request was made for guidance on criteria for excluding events that don't cause exceedances. EPA noted that for ozone, if an event does not cause a monitored 3-year average design value to violate the standard, the data associated with that event are not eligible for exclusion under the Exceptional Events Rule.[1]
- There was some discussion about prioritizing the development of demonstrations and EPA's review and feedback on demonstrations to ensure efficient use of limited air agency and EPA

[1] In the preamble to the November 20, 2015, Federal Register notice for the proposed Exceptional Events Rule, EPA noted that while the proposed rule revisions would apply to five specific regulatory activities, the Agency is developing supplementary guidance which will describe the appropriate additional pathways that we intend to make available for data exclusion for other monitoring data applications.

resources (including requisite level of documentation, establishing best practices, and coordinating multi-agency efforts wherever possible).

- A question was raised about whether the Administrator could apply a designation of "unclassifiable" to areas that are heavily impacted by non-local emissions. EPA noted that the definition of "unclassifiable" is specified in CAA section 107(d), and can only be used if that definition applies to an area. The impact of non-local emissions are addressed by other parts of the CAA (e.g., rural transport areas, interstate transport, and international transport).
- One attendee noted that it was unclear which regulatory entities are/should be responsible for examining ozone data for evidence of event-driven exceedances when there are regional phenomenon (e.g., intrusions, wildfires) that affect a wide area, and suggested modifying the ozone data handling regulations in Appendix U to allow for the exclusion of region-wide data in those cases.

NONATTAINMENT BOUNDARIES AND RURAL TRANSPORT AREAS (RTAs)

- No state representatives indicated an inclination to request RTA status for any of the areas they expect to be nonattainment.
- Tribes would like clarification on how the qualification criteria would apply to Indian country.
- In response to a question about whether the specific source and amount of overwhelming transport would need to be fully understood to qualify for RTA status, EPA noted that past approved RTAs did not rely on such a demonstration.

CLEAN AIR ACT SECTION 179B: INTERNATIONAL TRANSPORT

- There was interest in clarifying whether, as a general matter, 179B could relieve states of any obligation to compensate for international emissions/contributions from any international source, not just bordering countries. In the 2008 ozone implementation rule EPA indicated that the CAA provision is not limited in application to areas adjoining international borders (see March 6, 2015, Federal Register, page 12294).
- There was interest in clarifying whether it would be necessary for air agencies to determine the portion of ozone that is specifically attributable to international transport amidst other background sources (e.g., what portion may be excludable as an exceptional event and what portion applies to 179B). Similarly, there was interest in clarifying whether it is necessary to determine the portion of non-local ozone that is attributable to upwind states vs. international sources (i.e., what portion is subject to interstate transport provisions and what portion applies to 179B).
- There was interest in active federal engagement in addressing Mexican emissions, and for estimating the overall health effects and costs to the US from international emissions.
    - Concerning existing programs to reduce USB levels entering the U.S., it was suggested that States and EPA work more closely with foreign governments, where possible, to reduce international emissions. Some co-regulators already have active engagement with foreign governments.
- There was interest in consolidating all potential guidance relevant to 179B demonstrations in one place (e.g., guidance on procedures for overall application of the provision, data gathering, performing demonstrations, and general policy clarification)

OTHER GENERAL

- Some attendees noted that in total, all existing CAA provisions do not provide the kind of regulatory relief that air agencies and communities want. There is a desire for alternate CAA provisions or EPA regulations that allow an area impacted by non-local emissions to be designated “attainment” or “unclassifiable” to avoid application of the CAA’s nonattainment provisions.

FEBRUARY 25, 2016 – ALL INTERESTED STAKEHOLDERS

BACKGROUND OZONE ESTIMATES

- The white paper asked for feedback from stakeholders as to whether EPA had properly characterized background ozone. Many of the same concerns raised by co-regulators on day 1 were also raised by stakeholders about the EPA's technical characterization of background ozone in the white paper. Additional concerns not noted on the previous day are listed below:
    - One stakeholder suggested that models were unable to replicate many major USB components (e.g., wildfire, stratospheric intrusions, and international transport).
    - Several groups suggested EPA update the USB estimate modeling to a more recent base year, due to interannual variability and potential trends.
- The white paper also asked which data elements or model improvements are needed to improve characterization of background levels. Comments from stakeholders included the following:
    - A number of participants called for the collection of additional data related to USB concerns. Suggestions for additional data collection included (beyond day 1): field studies related to wildfire smoke plumes, better spatial and temporal coverage from ozone sonde data, better spatial and temporal coverage from ozone LIDAR data, better estimates of mixed layer depth, and more comprehensive analyses of spatial patterns in the existing ground-based monitoring network.
    - One participant suggested that there appeared to be no movement toward additional data collection in this regard and questioned how it could collectively be promoted.
    - Some participants suggested that EPA extend model evaluation assessments to include precursor species as well as ozone.
    - Multiple attendees suggested that "ensemble" model analyses could be useful characterizing present and future levels of background.
    - Several specific model inputs and processes were identified as needing more detailed consideration: lightning NOx, meteorological model data, ozone transport from thunderstorms, county-level NOx emissions, VOC reactivity, international emissions projections, global source apportionment modeling, and boundary conditions from global models.
- While there was no general opposition to the white paper definition of USB, one stakeholder commented that rather than determining what the contribution from background sources was, it would be more useful to States to determine what U.S. controls would be needed to attain.
    - Attached to this suggestion was the comment that achieving zero emissions from certain States or sectors should be considered unrealistic.
- Some stakeholders disagreed with the EPA white paper preliminary conceptual model of ozone attainment planning.
    - One stakeholder took issue with the white paper statement that rural, high-elevation areas in the inter-mountain western U.S. would have the most influence from background sources. It was suggested that any area in the western U.S. that experienced deep mixing layers would see a large USB influence, not just high-elevation areas.

  - Others posited that EPA was underestimating the role of USB in attaining the NAAQS in the eastern U.S., concluding that even 50% contribution to ozone design values from USB sources would be problematic.

EXCEPTIONAL EVENTS

- A concern was raised about the ambiguity of whether it is going to be relevant to develop a demonstration for standards that cover 3 years because an agency does not know whether one event will be the difference between attainment and nonattainment until the 3-year design value is calculated.
- A question was asked about whether any international transport could qualify as an exceptional event. EPA clarified that events such as wildfires and volcanic activity that originate outside the US may be eligible as exceptional events, but routine international emissions are not.
- A question was asked about whether multiple USB contributors to a high ozone value could be treated as an exceptional event if at least one of those contributors qualified for exceptional event, and whether each contributor needs to be quantified. For example, would a wildfire event that is comingled with routine international emissions and a stratospheric ozone intrusion be eligible for consideration as an exceptional event.
- Interest was expressed in employing efficient practices to streamline demonstrations, such as templates, and a concern was noted that the nearness of demonstration submission deadlines may preclude the use of some otherwise helpful tools and analyses.
- Interest was expressed in EPA issuing additional guidance in the near future on demonstrating stratospheric ozone intrusions.
- Interest was expressed in exploring modifications to the ozone data handling provisions of Appendix U to exclude events outside state control.

NONATTAINMENT AREA BOUNDARIES AND RURAL TRANSPORT AREAS (RTAs)

- A question was asked about whether alternative nonattainment boundaries could be considered in large counties. EPA explained that partial county boundaries can be used when justified by application of the five-factor designation evaluation (see ozone NAAQS designations guidance).
- A question was asked about whether RTAs would forever be classified Marginal. EPA clarified that the RTAs are not classified as Marginal but are classified based on the area's design value. However, RTAs satisfy the ozone planning requirements by meeting the requirements applicable to Marginal areas. Furthermore, an RTA determination does not insulate an area from a mandatory reclassification for failure to attain, but that reclassification carries no new consequence because the area remains subject to Marginal area planning requirements.

CLEAN AIR ACT SECTION 179B: INTERNATIONAL TRANSPORT

- There was interest in clarifying how international transport is defined by 179B and question of whether non-border (e.g., Asian) emissions are considered international. EPA clarified that non-border emissions could be considered under 179B.
- There was interest in clarifying the difference between global boundary conditions and international anthropogenic emissions contributions. Stakeholders also expressed interest in tools for performing source attribution to quantify the individual source contributions to ozone at the boundary.

- A question was asked about whether a 179B approval relieves an area of NSR offset requirements. EPA clarified that the CAA does not provide that type of relief.
- A question was asked about whether a quantified international contribution of 1-2 ppb could be subtracted from the DV so that an area close to the standard could be considered in attainment. EPA clarified that the CAA does not provide that type of relief, and that initial area designations are based on monitored ozone air quality after considering any exceptional events exclusions.
- Some participants noted that it would be useful if EPA could help quantify international contribution for purposes of planning rather than each state trying to do it. There was a question whether states could use EPA's modeling from CSAPR rule to estimate international contribution at a particular monitor. EPA clarified that any modeling EPA conducts that could be relevant for NAAQS implementation (must ensure modeling application is well-suited for the determination) can be used by states and the public. To be relevant for 179B it would need to reflect conditions in the attainment year (either projected for prospective attainment year analysis, or retrospective for attaining by the attainment date determinations).
- Concern was expressed over the short time between attainment year data being available and EPA's statutory duty to reclassify areas that fail to attain; that EPA would reclassify an area before the state had time to gather the information to conduct an approvable "but for" demonstration.

OTHER GENERAL

- Some attendees noted that in total, all existing CAA provisions do not provide the kind of regulatory relief that air agencies and communities want. There is a desire for alternate CAA provisions or EPA regulations that allow an area that is violating the standard but is impacted by non-local emissions to be designated "attainment" or "unclassifiable" to avoid application of the CAA's nonattainment provisions.
- A concern was raised by some attendees that the science is not yet robust enough, or too uncertain, to adequately support the demonstrations that might be required to invoke some CAA relief provisions, and that EPA's setting of a low ozone standard may be an example of policy making being out ahead of the science.
- It was noted that there are many ozone and other related planning needs that states have, and it would be wise to determine as soon as possible how best to leverage the resources and expertise of the many organizations that can contribute to effective planning.

End of Report