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BEFORE
THE HOUSE ENVIRONMENT SUBCOMITTEE OF THE
SCIENCE, SPACE AND TECHNOLOGY COMMITTEE
HEARING ON:
“REALITY CHECK PART II: THE IMPACT OF EPA’S PROPOSED OZONE
STANDARDS ON RURAL AMERICA”
APRIL 29, 2015

1. Introduction

To understand Wyoming’s perspective one would first benefit from knowing the key characteristics of the state. Wyoming is a large state covering 97,814 square miles and has the smallest population of any state, at approximately 584,000. Much of the state, as with much of the west, is still unsettled and consists of many rural communities with large distances in between. There are only nine towns and cities in the state with populations greater than 10,000. More than half of the land in Wyoming is owned and managed by the federal government. The mean elevation of Wyoming is 6,700 feet. A lower-ozone National Ambient Air Quality Standard (NAAQS), with design values influenced heavily by background ozone, leaves the Wyoming Department of Environmental Quality - Air Quality Division (DEQ) faced with new challenges in implementation, considering Wyoming’s nature as a high-elevation, largely rural state with the lowest population in the United States.

Ozone is a complex air pollutant that can exist naturally, such as the ozone layer in the upper atmosphere, or be formed at ground level by emissions from both anthropogenic (man-made) and natural sources such as wildfire and trees. At ground-level, ozone is not directly emitted

from sources, it is formed by complex reactions of other pollutants in the atmosphere. There are approximately 280 chemical reactions that describe ozone formation at ground level, where each area has a unique mix of sources and meteorology that govern ozone formation. Additionally, at high-elevations, ozone can be injected into our atmosphere from the ozone layer. This makes ozone exceedingly complex to understand and control. So far, EPA has focused on urban areas with high population density and the highest ozone concentrations in order to protect public health. The tools and planning policies that EPA has developed to control ozone have been developed for summertime ozone issues in urban population centers, in mostly flat terrain and low elevations. As the ozone standard is lowered, rural areas will have difficulty attaining the ozone NAAQS, due to fundamentally different characteristics such as terrain, meteorology, fewer nearby anthropogenic sources, and more transported and natural pollution.

Currently, Wyoming has one non-attainment area the 2008 ozone standard. This area, known as the Upper Green River Basin, encompasses more than one county, and has a population of approximately 10,000 people and is surrounded by mountain ranges on three sides. The area is also a prolific oil and gas production area. In 2005, the DEQ began to monitor ozone exceedances in wintertime, which at the time was a relatively new phenomenon. In wintertime, tight inversions can form in the Basin, trapping pollutants. This, coupled with ultraviolet light reflection off the snow, leads to ozone exceedances in this relatively remote and unpopulated area. The DEQ has worked with local governments, federal land managers, industry, and the public, spending approximately \$9.5 million dollars over the last ten years, to lower ozone concentrations in the Upper Green River Basin. In coordination with these federal and private partners, we performed the majority of the research and work in advance of the area's official 2012 designation. Wyoming and its partners took the initiative to solve this unique issue in the absence of EPA regulatory tools for our situation. Since the designation, we have not had any further exceedances of the ozone NAAQS. The work that we have done will be useful for other states struggling to understand and control wintertime ozone formation in rural areas.

Wyoming recognizes EPA's statutory responsibility to research and propose revisions to the primary and secondary ozone NAAQS to provide requisite protection of public health, with an adequate margin of safety, and public welfare. This testimony focuses on implementation issues that are of particular concern to Wyoming, in inter-mountain west, and rural and agricultural states in general: background and transported ozone; rural area nonattainment; and the available policies for addressing nonattainment issues, in particular exceptional events.

Whatever level EPA chooses for the ozone standard, implementation in the west will require a much better understanding of the role of natural and transported ozone, and we are looking to EPA to provide the resources needed to advance our knowledge in these areas. In addition, we call on EPA to improve upon the tools states may use to address areas that exceed the standard due to sources over which they have little or no control. Wyoming has shown leadership in the past to solve a unique ozone issue that was locally generated. However, it will be difficult for Wyoming and other states in the inter-mountain west to tackle issues of naturally formed and transported ozone without a cooperative and concerted effort by EPA and western states.

2. Ambiguity and Implications of Background Ozone

The term "background ozone" has been used in many different contexts. In the NAAQS proposal, the background ozone discussion refers to components of international transport of ozone and precursors, ozone transported into rural areas from anthropogenic sources, and ozone from natural sources including wildfire and ozone from the stratosphere that has intruded into the troposphere. Background levels of ozone in rural and remote locations, including many inter-mountain west national parks, can exceed the range of the ozone NAAQS proposed by EPA (65-70 ppb). In many of these areas, very little of the ozone can be attributed to emissions from nearby sources. Depending on the level of the 2015 ozone standards, many of these areas could end up being classified as non-attainment areas. This will be a new challenge for rural inter-mountain west states because ozone nonattainment planning policies and strategies have historically been focused on solving urban ozone exceedances.

Ozone exceedances in areas like these remote western national parks originate from a mix of anthropogenic and non-anthropogenic sources. That source mix, transport of pollutants over the complex terrain common in western states, and the role of natural events such as wildfires and stratospheric intrusions are just a few examples of scientific issues that are not well understood. The Clean Air Scientific Advisory Committee (CASAC) recommended “that EPA facilitate research to better characterize background levels.” In the NAAQS proposal, EPA does not adequately address data from rural, high-elevation sites when considering background concentration.

Because of this, EPA’s analysis and conclusions of the influence of background on total ozone levels is incomplete and not representative of observed conditions in the inter-mountain West. Given the high fractional contribution of background to total measured and modeled ozone concentrations in the inter-mountain west, a lower primary standard would put an undue responsibility on Wyoming and other high-elevation rural states to address high ozone concentrations that are beyond the states’ abilities to control. Without a better understanding of background and what the anthropogenic contribution to background is, it will be difficult and ineffectual for rural western states to develop plans that focus on controlling anthropogenic sources.

For these reasons, EPA should commit to developing timely implementation guidance specific to high-elevation rural areas to address the treatment of background ozone, and to provide supportive resources commensurate with the relative burden of the new standard on high-elevation rural states.

In the NAAQS proposal, EPA downplays the ongoing significance of background ozone in the west and overstates the capability of the tools available to address the regulatory requirements imposed on states. To address this issue, EPA must take a different approach than used for urban ozone issues. EPA must research and develop tools to determine the relative contribution of the elements of background ozone; streamline the efforts for states to document these contributions; and allow states to focus resources on pollution that can be controlled, thereby improving air quality.

In its proposal, EPA suggests that these background contributions can be addressed by existing “regulatory relief” mechanisms, including the Exceptional Event Rule. The tools available to states to account for non-anthropogenic or not locally generated ozone are administratively burdensome and require resources and technical expertise that may not be available to state agencies. The DEQ recognizes that EPA intends to make improvements to the regulatory requirements to make these mechanisms viable options. However, the timing on these elements is critical and EPA has not yet committed to firm deadlines to accomplish this work. Nonetheless, a fundamental lack of data and understanding of the components causing ozone in an area will continue to hamper efforts to improve air quality.

3. Regulatory Relief Mechanisms

In its proposal, EPA suggests that these background contributions can be addressed by existing “regulatory relief” mechanisms, including the Rural Transport Area designation, International Transport Area Designation and the Exceptional Event Rule. This section outlines the DEQ’s suggested improvements and experience with these relief mechanisms.

Rural Transport Areas

In the preamble to the proposed rule, the EPA discusses the various methods of regulatory relief available that are associated with U.S. background ozone, including the classification of eligible nonattainment areas as Rural Transport Areas (RTAs). The DEQ commends the EPA for retaining and expanding these regulatory relief mechanisms in light of the increasing relative importance of background ozone to overall ozone levels in rural, high-elevation areas with a lower standard. However, the fact that this classification has only been approved for two areas since the RTA’s inception calls into question the RTA’s usefulness as a nonattainment regulatory relief mechanism.

Therefore, the DEQ recommends that EPA reexamine its criteria for the acceptance of nonattainment areas as RTAs, as outlined in 42 U.S.C. § 7511a (h) (1). The EPA should also review its 2005 draft guidance, Criteria for Assessing Whether an Ozone Nonattainment Area is Affected by Overwhelming Transport, which has not been updated for nearly a decade. As EPA

further researches the components of background it will be critical to update this draft guidance, with state-of-the science information.

International Transport Areas

The DEQ also considers the EPA's recognition of the influence of International Transport on ozone levels under Section 179B of the Clean Air Act (CAA) to be too limiting, with little to no effective applicability in non-border states. Section 179B allows a state to consider in its attainment demonstrations whether an area might have met the NAAQS' "but for" emissions originating from outside of the U.S. While the EPA does not preclude non-border states from invoking Section 179B of the CAA, the precedent set by previous rulings suggests otherwise.

While the DEQ agrees that "the influence of international sources on U.S. O₃ levels will be largest in locations that are in the immediate vicinity of an international border with Canada or Mexico," there is a growing body of evidence that long-range transport of international emissions impacts ozone levels in the Western U.S. The EPA should continue to conduct and review research in the area of long-range international transport, and translate its findings into a stronger regulatory framework.

Similar to the EPA's draft guidance on RTA demonstrations, the only existing guidance for the development of "but for" demonstrations of the influence of International Transport under Section 179B is extremely outdated (Criteria for Assessing the Role of Transported Ozone/Precursors in Ozone Nonattainment Areas, May 1991). The EPA should update its 1991 guidance to include technology and tools developed in the past 24 years and reflect current research on international transport.

Exceptional Events

The EPA identifies several natural sources of ozone including wildfire and stratospheric intrusion. The EPA relies on the Exceptional Event Rule to account for these natural sources. The DEQ agrees with the premise that these events are natural and should allow for flags under the Exceptional Event Rule for these occurrences. Without this mechanism, areas could be

designated non-attainment due to natural sources beyond their control, and any required implementation actions would not result in an improvement to air quality. However, there are several implementation challenges associated with the Exceptional Event Rule that the EPA should consider.

As stated in the preamble, the extent to which ozone related to wildfire and stratospheric intrusions contributes to a measured ozone concentration on a given day can be uncertain and requires a detailed investigation and analysis to determine. This analysis serves as a basis for the demonstration that is required when requesting concurrence from the EPA Region under the Exceptional Event Rule. The demonstrations for both stratospheric intrusion and ozone from wildfire that the EPA has concurred with are lengthy and complicated. With the frequency of these events, there will be an overwhelming amount of resources needed from both state agencies and the EPA in order to use the Exceptional Event Rule as a viable method of relief.

The DEQ has extensive experience in implementation of the Exceptional Event Rule, since the rule promulgation in 2007. We have produced several demonstrations showing that fire, high wind and stratospheric intrusion have clearly caused exceedances of the NAAQS for PM₁₀, PM_{2.5}, and ozone. Specifically, the DEQ has submitted five (5) demonstrations to EPA Region 8 for stratospheric intrusion of ozone causing exceedances of the NAAQS at Wyoming ambient monitors, with one (1) concurrence from EPA. The other four (4) demonstrations to date have not been acted on by EPA.

So far, we are the only agency in the nation that has received concurrence for a stratospheric intrusion event. Based on this experience, each demonstration took between four and eight months to produce. The effort to produce those demonstrations used internal staff with meteorological expertise as well as assistance from the EPA's stratospheric ozone intrusion workgroup, a group of state regulators, Federal regulators, and academics focused on researching and diagnosing stratospheric ozone intrusions.

While the DEQ has not produced a demonstration to show a clear causal relationship between a wildfire and ozone exceedance, the DEQ is familiar with the demonstrations that the EPA has

posted as examples for wildfire impacts and ozone. The DEQ has concluded that it would require 15 months and contractor assistance of \$150,000 to produce one of these demonstrations and any future demonstrations will require comparable resource commitments.

Securing funding and additional staff resources for new NAAQS implementation is always a challenge, but this process will be even more difficult for low-population, rural states facing additional workloads under a more-stringent ozone NAAQS. Wyoming is a one half of one percent funded state based on the EPA's current allocations of state air grants (42 U.S.C. § 7405). Population-based grants made more sense at a time when air pollution workloads were more directly tied to population. However, a lower ozone NAAQS leaves states in the Intermountain West – specifically those that have large, rural tracts with low population – grossly underfunded and understaffed given the current funding formulas. The traditional EPA provided tool-kits for ozone attainment in densely populated urban areas are inappropriate for our situation, leaving the DEQ to develop the appropriate tools with no additional funding or staffing.

EPA needs to examine the current mechanism for federal funding through State and Tribal Air Grants (STAG) in order to find alternatives for states facing these challenges. The funding that inter-mountain west states require for addressing this important new challenge should not come from a reallocation of existing funds that are currently used to carry out other important air quality management programs, nor should it adversely impact ongoing air quality improvement efforts in other regions of the country.

Improvements to the EER

In order for states to utilize the provisions of the Exceptional Events Rule in a practical fashion, EPA needs to streamline the process, provide the tools and guidance required to prepare demonstrations, and respond to exceptional event demonstrations in a timely fashion.

The EPA has plans to revise the Exceptional Events Rule, and it is DEQ's understanding that the proposed Rule is ready to send to OMB, with an expected release in fall of 2015. It is

imperative that this rule contain solutions to streamline the Exceptional Event process with clear requirements to demonstrate an exceptional event, updated technical tools needed to produce strong scientifically based demonstrations, and clear approval processes.

The EPA needs to develop workable technical tools to streamline the investigation and analysis process. The EPA and other governmental agencies already have several different online systems to provide data and analyses of different events. There should be a concerted effort by the EPA to consolidate these tools into a workable system to produce technical work products and analyses. Concurrently, the EPA should follow through on plans to produce guidance for ozone occurring due to wildfire demonstrations and stratospheric intrusion events.

Furthermore, to streamline the Exceptional Event process, the EPA must commit to well-defined timelines for the EPA Region's review and decision on exceptional event demonstrations. At this time, EPA has no time schedule requirements for the review and decision-making, while the state, local and tribal air agencies have required deadlines for flagging and submitting demonstrations. This leaves air agencies with uncertainty when making regulatory decisions that can be affected by the inclusion or exclusion of event-affected data. It is imperative that the EPA follows through with these activities in the ongoing tool to appropriately characterize natural events.

4. Summary

Making the right choices about how to improve air quality in the inter-mountain west and rural areas in general will depend on how well we understand background and how we implement the tools to account for it. EPA must implement these streamlining efforts so states are not spending excessive resources documenting pollution outside of their control. If technically sound research and streamlining efforts are implemented by EPA in a timely fashion, states can use their limited resources to focus on appropriate improvements to air quality.

We recognize that EPA's responsibility to protect public health is the driving cause of lowering the ozone standard. However, overburdening State resources with administrative exercises will not be conducive to attaining this objective. In addition to protecting public health, it is also

the EPA's responsibility, as the promulgators of this rule, to provide the states with tools and guidance necessary to implement its standards. Therefore, we call on EPA to devote the resources to this issue for the inter-mountain west.

Attachment: Wyoming Department of Environmental Quality – Air Quality Division Comments on the Proposed National Ambient Air Quality Standards for Ozone.