

July 2, 2015

ADDRESSING HIGH OZONE BACKGROUND LEVELS UNDER THE CLEAN AIR ACT

Summary and Conclusions

On December 17, 2014, the Environmental Protection Agency (“EPA”) published proposed National Ambient Air Quality Standards (“NAAQS”) for ozone.¹ The proposed rule would lower the threshold for attainment of the ozone NAAQS from 75 parts per billion (“ppb”) to between 65 and 70 ppb.²

Many areas of the country experience high background levels of ozone, resulting from a combination of international transport, stratospheric intrusion, biogenic emissions, forest fires and lightning. In the Intermountain West, modelled background ozone levels approach or exceed the proposed standard, without any significant contribution from U.S. anthropogenic emissions. At such high background levels, it will be impossible to attain the new standard. Thus, non-attainment designations and resulting implementation efforts will not produce any improvement in public health in these areas. States in the Western US have expressed deep concern that, because of high background, compliance with a lower NAAQS will be difficult if not impossible and have asked EPA for relief.

In the proposed NAAQS, EPA recognizes that “certain high-elevation sites in the western U.S. are impacted by a combination of non-local sources.”³ EPA acknowledges that in these areas, “there can be episodic events with substantial background contributions where ozone concentrations approach or exceed the level of the current NAAQS.” However, EPA claims that these events “are relatively infrequent” and then points to three “relief mechanisms” that it argues will ameliorate the impact of high background levels: 1) designation as a Rural Transport Area; 2) regulatory relief through the international transport provisions of the CAA; and 3) flagging of background-related exceedances as “exceptional events” under the Exceptional Events Rule (“EER”).⁴

These policies as now constructed do not provide meaningful relief to states with high background ozone levels. The rural transport and international transport provisions of the CAA have been used rarely. They authorize a modest reduction in regulatory burdens for eligible states but do not provide a means to avoid non-attainment designation in the first instance. Being designated as non-attainment initiates a cascading set of costly requirements on the state and regulated community. Even where the rural and international transport provisions apply, states will remain obligated to submit state implementation plans (“SIPs”) and thus will be required to develop a baseline emissions inventory, implement

¹ 79 Fed. Reg. 75234 (Dec. 17, 2014).

² Although this paper proposes a framework for addressing high background levels in the attainment designation process, we oppose lowering the ozone NAAQS from the current level of 75 ppb for several reasons, including that the relevant health effects data fail to demonstrate that a more stringent standard is necessary to protect public health.

³ 79 Fed. Reg. at 75242.

⁴ *Id.* at 75236.

nonattainment new source review, control existing sources and adopt transportation and general conformity requirements.

The EER likewise provides insufficient relief. It greatly restricts the circumstances under which background can qualify as an “exceptional event” and imposes rigorous causation requirements that are extremely difficult to meet and compel states to incur large costs in making EE demonstrations. Very few demonstrations have been approved by EPA and the review process has been protracted and uncertain.

The CAA requires EPA to set a NAAQS at levels that are “requisite to protect public health.” A standard that will not deliver any improvement in public health because states lack the ability to reduce background ozone would not meet this requirement. The Act’s legislative history confirms that Congress did not expect NAAQS to be set at background levels because such a standard would be impossible to achieve. Similarly, while cost and technical feasibility are not relevant in setting NAAQS, background is in a different category because it cannot be controlled or prevented. Requiring states to implement a standard that cannot be attained would be contrary to the design of the Act, which is focused on practical steps the states can take to improve air quality.

EPA has consistently considered background ozone levels in determining where to set the ozone NAAQS. In its 1979 NAAQS revisions, EPA carefully reviewed the data on background levels, concluding that they were “usually well below the proposed levels of the standards” and in any event exceedances of the standard resulting from background “could be disregarded for regulatory purposes” under established EPA policies.⁵ In its 1997 ozone NAAQS revisions, EPA again considered proximity to background ozone as an important factor in setting the NAAQS and selected a standard at the upper end of the range under consideration to avoid an overlap with background. The DC Circuit then determined that background levels were a permissible consideration in promulgating a NAAQS under the CAA.

EPA is now considering NAAQS levels significantly lower than the 1979 and 1997 standards and, in the intervening years, background ozone has increased and the evidence documenting high background levels has become more robust and compelling. For EPA to disregard this evidence and set a standard that cannot be achieved in large portions of the country because the standard is near, at or below background levels would be arbitrary and capricious and unlawful under the CAA. The only defensible course would be to set the standard above background or, alternatively, create meaningful mechanisms for states with high background levels to obtain relief from being designated in non-attainment.

Because existing policies fail to provide such relief, EPA must develop a new, more effective and workable mechanism by which states can exclude exceedances attributable principally to background ozone from non-attainment designations. The revisions to the EER that EPA is reportedly developing will fall well short of this objective and must be replaced by a more comprehensive approach.

Under this approach, EPA should not limit relief to some sources of background and exclude others. Instead, an exceedance principally attributable to background should qualify for relief whether the background is due to biogenic emissions, wildfires, stratospheric intrusions,

⁵ 44 Fed. Reg. 8202, 8212 (February 8, 1979).

lightning, and/or international transport. In addition, there should be no requirement to identify and quantify the precise role played by these factors, a task that would be time-consuming, technically challenging and cost-prohibitive. Rather, a state should be required to show, by monitoring or modelling, that overall background ozone is the principal contributor to the exceedance. Benchmark criteria that would give states different paths to make this showing are described below.

The best vehicle for adopting this new framework would be revisions to Appendix I to 40 C.F.R. Part 50. This Appendix provides methodologies and data handling conventions for determining whether the ozone NAAQS is met at ambient ozone air quality monitoring sites. As recognized in the 1997 NAAQS revisions and reinforced by the Clean Air Scientific Advisory Committee (“CASAC”), EPA has broad policy discretion in determining the conditions under which standard exceedances at particular monitoring locations will be deemed to demonstrate non-attainment. This discretion can be used to establish criteria for disallowing exceedances resulting principally from high background rather than controllable anthropogenic emissions.

Another path to provide this relief would be modification of the EER. This would require reexamination of key elements of both the EER itself and EPA guidance that broadly restrict when international transport of anthropogenic emissions and even naturally occurring ozone can form the basis for an approvable EE demonstration. While EPA’s efforts to revise the EER are commendable, the Agency needs to make changes far broader than those under consideration if it seeks to rely on the EER as the basis for excluding background-related exceedances from non-attainment designations. As discussed below, we believe section 319(b) of the CAA can be interpreted to give EPA significantly broader authority to disallow these exceedances and therefore recommend a significant overhaul of the EER if EPA chooses not to provide relief under Appendix I to Part 50.

Whatever vehicle EPA uses, it must afford greater simplicity and speed of decision-making than the current cumbersome EE demonstration process. States have been deterred from using this process by the resource-intensive and costly data and documentation requirements, the lack of regional consistency and the lengthy delays that have occurred before EPA takes action on demonstration packages. Our recommendations for a streamlined, cost-effective process are outlined below.

With many states and industry expressing deep concern about high background levels, EPA must give the highest priority to addressing this issue at the same time that it releases a final NAAQS this fall. The final rule should be accompanied by a proposed rule modifying either Appendix I or the EER and EPA should set an expeditious schedule for finalizing this rule early in 2016.

I. High Background Levels Will Make a Lower Ozone Standard Unattainable in Large Parts of the U.S.

A. The Prevalence of High Background Levels

Background ozone comes from natural sources and long-range ozone transport. Natural sources of ozone include emissions of ozone precursors (VOCs and NO_x) from events such as wildfires or lightning, biogenic emissions tied to natural processes in soil, plants and animals, and the intrusion of ozone into the troposphere from the ozone layer in the stratosphere (SST

events). Long-range transport of ozone comes from emissions of ozone precursors outside the U.S. (Asia in particular) and in distant regions within U.S. boundaries and the movement of these pollutants into downwind areas.

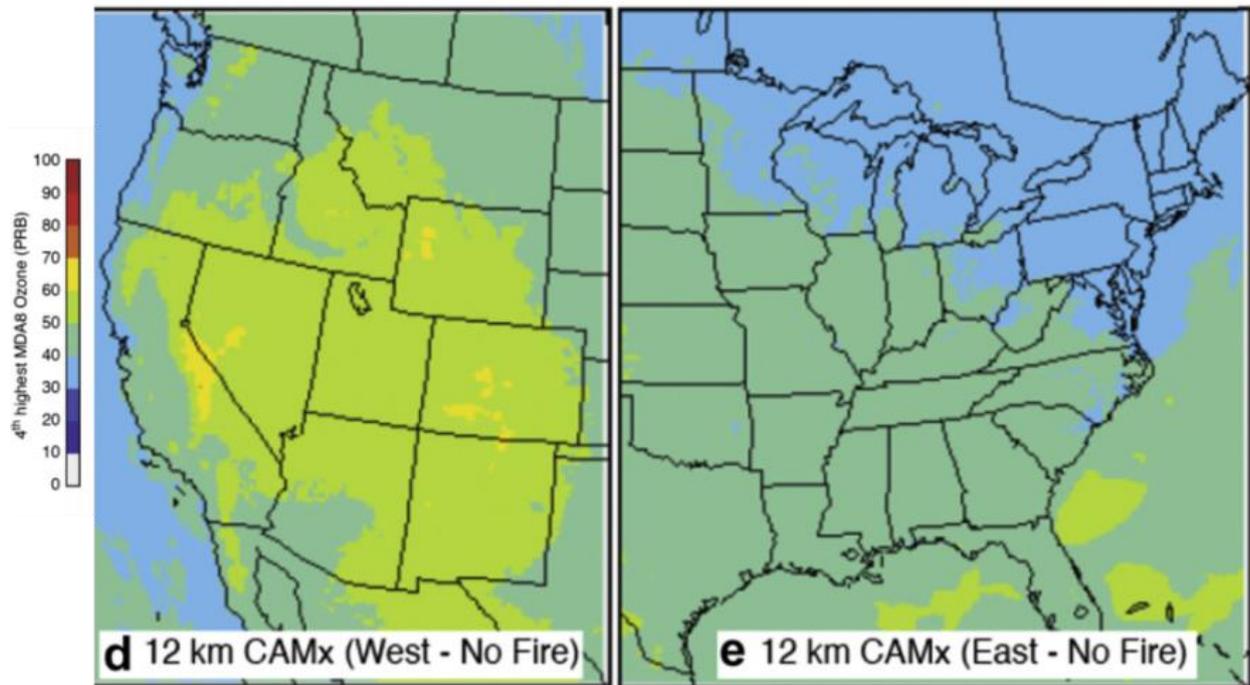
Figure 1 is a map that shows that background ozone concentrations in the Western half of the U.S. are as high as 50 and 70 ppb. In particular, high elevation sites in the West are disproportionately impacted by a combination of non-local sources like international transport, stratospheric ozone and ozone originating from wildfires. These concentrations were determined by a modelling exercise that zeros out all anthropogenic sources in North America from current concentrations, leaving only background to account for the remaining ozone concentrations. Notably, these estimates do not include ozone and ozone precursors that are internationally transported from Canada and Mexico or background ozone from forest fires.⁶ Moreover, this modelling likely underestimates peak background ozone as the models are not good at replicating the peak concentrations.⁷ The concern raised by the modeling results, as noted by Zhang et al. 2011, is that “[i]f the NAAQS is lowered in the 60-70 ppbv range, areas of the intermountain West will have little or no ability to reach compliance through North American regulatory controls.”⁸

⁶ With forest fires, ozone can be as high as 90 ppb.

⁷ EPA’s own model performance evaluation showed that the model was consistently under-predicting ozone by 5 to 10 ppb on a mean basis (not maximum).

⁸ Lin Zhang et al., *Improved estimate of the policy-relevant background ozone in the United States using the GEOS-Chem global model with 1/2 × 2/3 horizontal resolution over North America*, 45 *ATMOSPHERIC ENVIRONMENT* 6769, 6773-6774 (2011).

Figure 1: North American Background Ozone⁹



Langford *et al.* (2014)¹⁰ conducted a study in Clark County, Nevada that found that stratosphere-troposphere transport directly contributed in excess of 30 ppb ozone to the three ozone NAAQS exceedances observed over six weeks of study. Additionally, they found that international transport from Asia contributed > 10 ppb on two of those occasions. Langford *et al.* (2014) argue that if the ozone NAAQS is lowered below 75 ppb --

The shrinking margin between the NAAQS and increasing springtime background concentrations means that even modest episodic additions of 5-10 ppbv from STT or Asian pollution can potentially lead to exceedances of the NAAQS. Exceedance events will become increasingly frequent if the NAAQS is decreased to 70 ppbv or less . . .¹¹

⁹ C.J. Emery *et al.*, *Regional and global modeling estimates of policy relevant background ozone over the United States*, 47 *ATMOSPHERIC ENVIRONMENT* 206, 213 (2012) (emphasis added).

¹⁰ A.O. Langford *et al.*, *An Overview of the 2013 Las Vegas Ozone Study (LVOS): Impact of stratospheric intrusions and long-range transport on surface air quality*, 109 *ATMOSPHERIC ENVIRONMENT* 305 (2015).

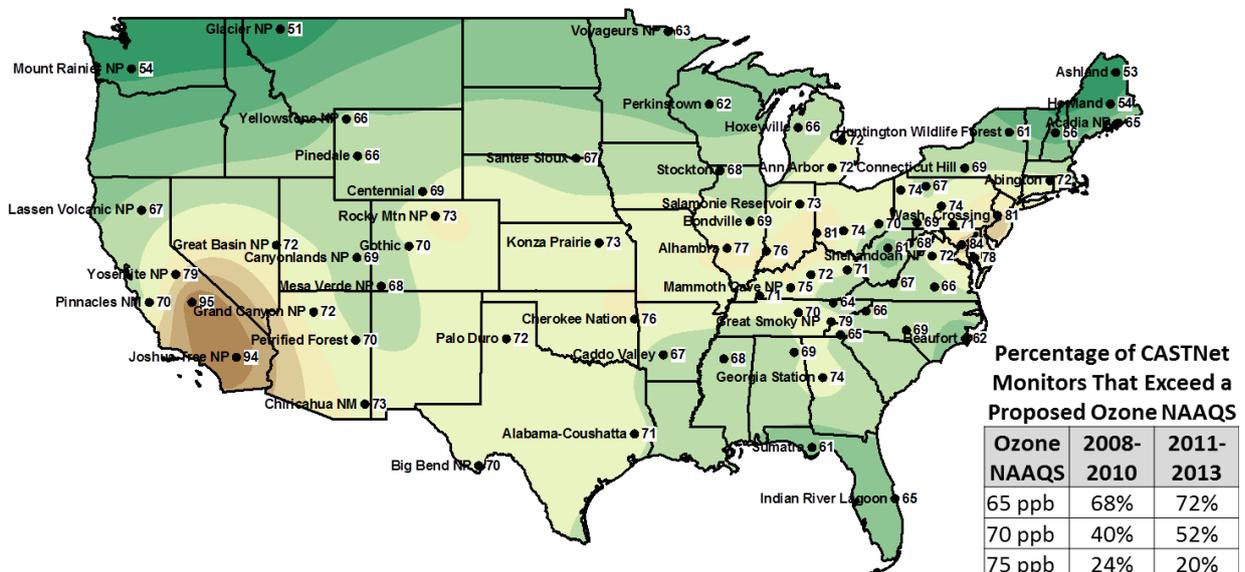
¹¹ *Id.* at 307.

They go on to state that:

The mean surface MDA8 ozone at Jean, NV in rural Clark County was 66 ppbv during May and June of 2012, which is only 9 ppbv less than the current 2008 NAAQS and greater than some values that are currently being considered (www.epa.gov/oaqps001/greenbk/hindex.html). The number of exceedance days in Clark County during the 43-day LVOS field campaign would have increased from 3 to 14 if the NAAQS had been 70 ppbv instead of 75 ppbv, and from 3 to 25 if the NAAQS had been 65 ppbv. In other words, exceedances of the NAAQS generated by high background concentrations and stratospheric intrusions would have occurred on 60% of the days during LVOS, making these events the rule rather than the exception.¹²

Strong evidence of high background levels, particularly in the West, is provided by CASTNET monitoring at National Parks and National Forests across the US. Results are summarized in Figure 2 below:

Figure 2: CASTNET 2010-2012 Ozone Design Values¹³



Values are three-Year Average of Fourth Highest Daily Maximum 8-Hour Average Ozone Concentrations (ppb) for 2010-2012

Many if not most of the National Parks and Forests across the country exceed the proposed ozone NAAQS of 65-70 ppb. Some 68-89% of the National Parks and Forests exceed 65 ppb ozone depending on the three years averaged. 35%-52% of the National Parks and Forests exceed 70 ppb. Yellowstone National Park, which has little influence from domestic

¹² *Id.* at 320 (emphasis added).

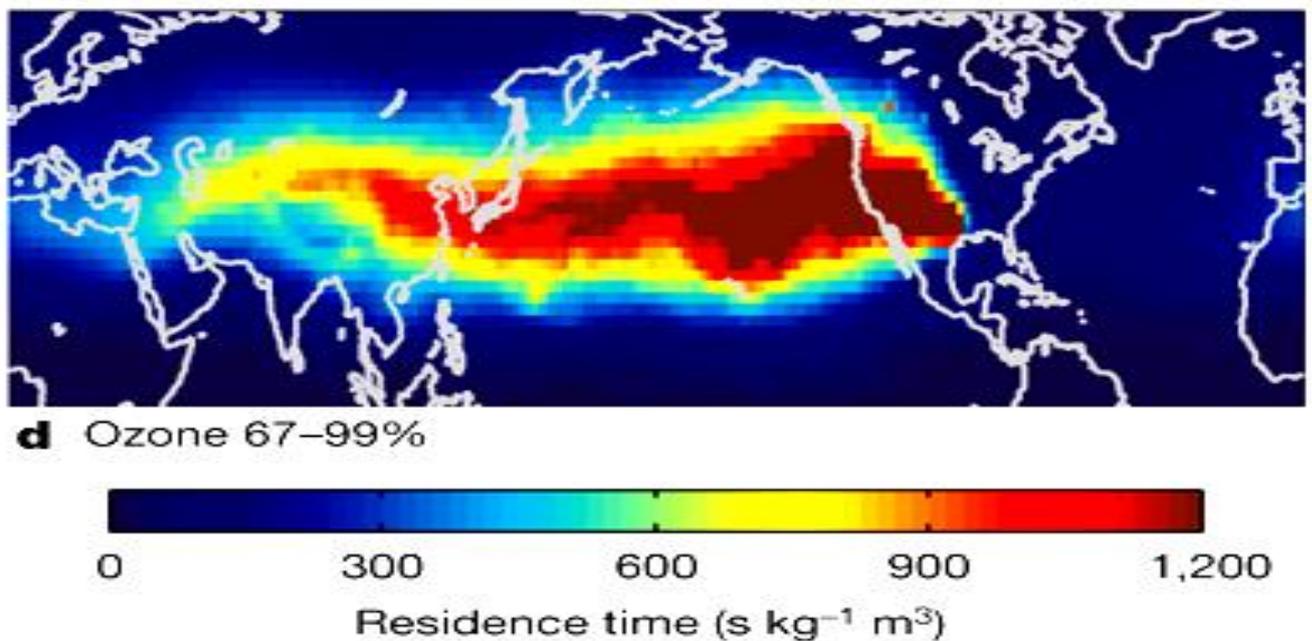
¹³ Data were accessed from <http://epa.gov/castnet/javaweb/index.html> on February 20, 2013 by A. Hendler, URS Corporation, Austin, TX.

transport, has an ozone level of 66 ppb. Big Bend, which borders Mexico, has a level of 70 ppb.

A recent article by NOAA researchers in *Science* highlights the contribution of international transport to these high ozone levels. The authors cite the trend of higher ozone levels “at rural high-elevation sites in the Western United States” and attribute this trend to “greater exposure to enhanced ‘baseline ozone’ that flows across the Northern Pacific Ocean or is transported down from the lower stratosphere.” They emphasize that “[o]bserved springtime baseline ozone 3 to 8 km above western North America has increased significantly since the 1980s and 1990s, and the trend is strongest in air masses that are transported directly from South and East Asia.”¹⁴

Figure 3 shows the 15-day transport history of air masses with high ozone values (67-99 percentiles). It demonstrates that air descending on the western US spent a significant period of time in the western Pacific and East Asia, where ozone and ozone precursors were picked up and lofted to the United States.

Figure 3: Asian Transport of Ozone Precursors¹⁵



Furthermore, background ozone is high in the West when ozone is high. As shown in Table 1 by the Western States Area Resources (“WESTAR”) Council, representing air directors from 15 states in Table 1, more than 75% of total ozone in the west at sites greater than 65 ppb was from background ozone. The West-e Jump-Start Modelling Study

¹⁴ Owen R. Cooper et al., *Challenges of a lowered U.S. ozone standard*, 348 (Iss. 6239) SCIENCE 1096-1097 (June 5, 2015).

¹⁵ O.R. Cooper et al., *Increasing springtime ozone mixing ratios in the free troposphere over western North America*, 463 NATURE 344, 346 (January 21, 2010).

(WestJumpAQMS) – Final Report from September 2013 showed similar results for the entire West.¹⁶

Table 1: Modelled Percent Background and Non-US ozone (ppb) at Western Sites with Average Design Values above 65 ppb and Total Background Values above 75 Percent¹⁷

State	County	Design Values		Other (ppb)	Biogenic (ppb)	Boundary Conditions (ppb)	Total Background (ppb)	Background % of Avg Design Value
		2018 Average (ppb)	2018 Max (ppb)					
Nevada	Clark	70.0	70.7	2.0	2.3	52.8	57.1	82%
New Mexico	Dona Ana	69.3	70.3	16.6	4.9	34.8	56.3	81%
Arizona	Cochise	69.2	70.1	4.2	2.9	56.4	63.5	92%
Nevada	Clark	68.7	68.7	1.8	2.6	51.3	55.7	81%
Nevada	White Pine	68.6	70.5	4.9	2.2	52.6	59.7	87%
Arizona	Coconino	68.4	69.4	2.5	2.2	53.0	57.8	84%
New Mexico	Dona Ana	68.3	72.9	18.8	4.6	34.2	57.6	84%
Utah	Washington	68.1	69.3	2.5	3.1	48.5	54.0	79%
Arizona	La Paz	67.6	68.3	1.7	2.8	48.2	52.7	78%
New Mexico	Bernalillo	66.7	68.5	2.7	2.6	49.5	54.8	82%
Utah	Utah	66.4	69.3	1.1	2.3	50.5	53.8	81%
Utah	Carbon	66.2	66.2	0.8	1.9	50.5	53.2	80%
Utah	Utah	65.9	66.6	1.1	2.5	48.8	52.4	80%
New Mexico	Bernalillo	65.8	66.7	5.4	3.9	41.1	50.4	77%
Utah	San Juan	65.7	66.0	1.1	2.2	52.3	55.6	85%
Arizona	Coconino	65.1	65.8	1.6	1.7	54.8	58.1	89%
Utah	Duchesne	65.1	65.1	0.8	1.6	52.9	55.3	85%
New Mexico	Dona Ana	65.1	66.4	15.6	4.6	32.7	52.9	81%

Source: Air Quality Modeling Technical Support Document for the 2008 Ozone NAAQS Transport Assessment, Office of Air Quality Planning and Standards, U.S. EPA, January 2015

In sum, background is a predominant contributor to high ozone levels within the range of the proposed NAAQS across the Intermountain West.

¹⁶ <http://www.wrapair2.org/WestJumpAQMS.aspx>.

¹⁷ The Western States Air Resources (WESTAR) Council, Comments on the Proposed Revision to the National Ambient Air Quality Standards for Ozone, Docket No. OAR-HQ-OAR-2008-0699, March 16, 2015, p. 7.

B. Western State Concerns

With remarkable unanimity, in their comments on the proposed NAAQS, Western states and their representatives expressed deep concerns about high ozone background and the impossibility of attaining a lower standard on the basis of local controls. Excerpts from these comments underscore the high level of concern.

An example is Nevada's comments, which state:

Recent air quality modeling by the USEPA, the Western Regional Air Partnership (WRAP), other federal agencies, and academia has demonstrated the significance of long-range transport (LRT), stratospheric intrusions (SI), and fire emissions to local ozone concentrations in Nevada and the western U.S. generally. The effects of these background emissions sources can overwhelm local efforts to attain the NAAQS. Studies have shown that background ozone levels are increasing over time. . . . The USEPA's assertion that its modeling shows that ozone levels are primarily due to U.S. anthropogenic sources is belied by USEPA's own ozone transport analysis for Nevada. The NDEP suggests the USEPA's modeling may under predict the role of background sources on monitored concentrations in Nevada and other portions of the western U.S. as a result of the treatment of boundary conditions and fire emissions in the model as well as model performance in the West.

USEPA must recognize the broad implications of the under prediction of the impacts of boundary concentrations and fire emissions to western states as they strive to implement the proposed ozone standard, given the few implementation tools available to states (e.g., exceptional events exclusions, rural transport areas, and international transport). Control of local sources in western states will have little effect on lowering monitored ozone concentrations at remote monitors across the West. Local contributions are so minor that, if areas within Nevada's jurisdiction are in nonattainment with the new proposed standard, the NDEP will be in the untenable position of having no meaningful control strategies to achieve attainment with the new standard. Therefore, the NDEP requests USEPA provide common-sense approaches to implementation of a new ozone standard that take into account the limited actions that western states may take to achieve meaningful reductions.¹⁸

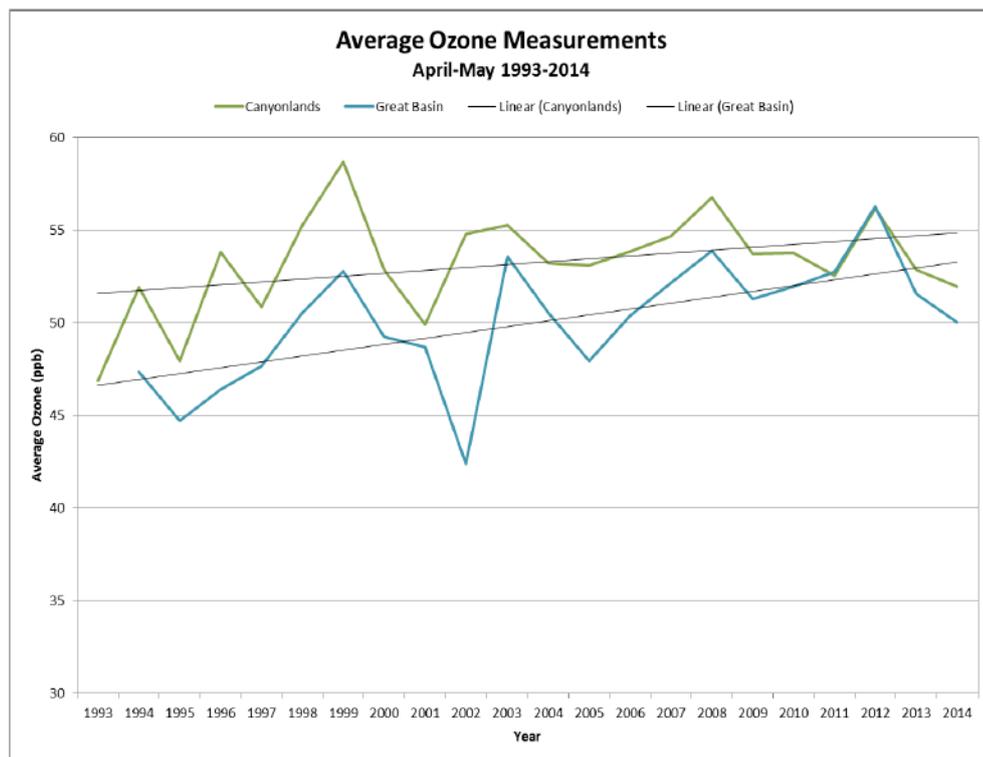
The immense challenges of high background in the West were also highlighted by the WESTAR comments:

If EPA adopts a standard in the proposed range of 65 to 70 parts per billion, it is inevitable that new non-attainment areas will be designated in the west. Some of these areas will also inevitably be designated predominantly as a result of ozone transported from outside the non-attainment area boundaries. In a recent assessment of ozone monitoring data, it was estimated that background ozone concentrations -

¹⁸ Nevada Division of Environmental Protection, Technical Comments by the Nevada Division of Environmental Protection regarding USEPA's National Ambient Air Quality Standards for Ozone; Proposed Rule (79 FR 75234), March 12, 2015, p. 3 (emphasis added).

non-anthropogenic background and transported anthropogenic ozone combined - ranged from 47 ppb to 68 ppb at six western cities during ozone episodes. There are also indications that these background and transported levels are increasing. Figure 1 is an example of increasing ozone levels in two western national parks. Several researchers have suggested that these increases may be due to increases in ozone transported from Asia. A contributing factor may also be increases in wildfire across the west and emissions growth in Mexico and Canada.¹⁹

Figure 1: Monitored ozone trends at Canyonlands and Great Basin National Parks (Hourly average of all values for April and May)



Echoing these concerns in strong terms were the comments of Colorado:

EPA data shows substantially higher background ozone is present in the western U.S., including Colorado. The Integrated Science Assessment (2013) demonstrates that spring and summer western background levels of ozone are substantially higher than those found in the east. In its proposal, EPA states that as of 2007, background levels range between 25-50 ppb, noting that the largest seasonal averages occur in the western states. CDPHE submits that this data is outdated, and notes that Colorado's background levels are often higher than 50 ppb, reaching levels as high as 65-74 ppb. Such levels are well within, and even above, the proposed range. For example, between 2003 and 2014, the Gothic site near Crusted Butte has had an average design

¹⁹ The Western States Air Resources (WESTAR) Council, Comments on the Proposed Revision to the National Ambient Air Quality Standards for Ozone, Docket No. OAR-HQ-OAR-2008-0699, March 16, 2015 , p. 4-5.

value of between 65 and 69 ppb. The United States Forest Service's Shamrock site has an average design value for the same time period of between 68 and 74 ppb. Both of these sites are in remote areas with few, if any, anthropogenic sources of ozone precursor emissions. The elevation of certain sites is just one contributing factor to the higher background levels. Colorado's elevated background levels have four primary sources: 1) stratospheric intrusions; 2) interstate transport; 3) international transport, primarily from Asia; and 4) wildfires and other smoke events.

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CDPHE reiterates that as a revised ozone standard approaches background levels – as the values discussed in the proposal quickly do in Colorado – attainment is made exceedingly difficult, unless EPA takes steps to specifically deal with this issue. Colorado strives to protect public health and welfare through targeted, cost-effective regulations. EPA should follow the same principles, and should not adopt a standard that imposes an undue burden on the state and its sources. Nor should EPA adopt a standard that could be unattainable due to background levels and transport issues.²⁰

Wyoming's concerns were equally fundamental:

The AQD is concerned about the effect that background ozone has on monitored ozone levels, and the difficulty of implementation of controls as the ozone standard is reduced.

Because of its dismissal of data from high-elevation sites, exclusionary date range, and omission of rural data, the AQD considers the EPA's analysis and conclusions of the influence of background on total ozone levels to be incomplete and not representative of observed conditions in the Intermountain West. Given the high fractional contribution of background to total measured and modeled ozone concentrations in the West, and more specifically in Wyoming, the AQD considers that 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.²¹

²⁰ Colorado Department of Public Health and Environment, State of Colorado Comments, Docket ID EPA-HQ-OAR-2008-0699; FRL-9918-43-OAR, March 17, 2015, p. 3-4 (emphasis added).

²¹ Wyoming Department of Environmental Quality, The State of Wyoming, Department of Environmental Quality -Air Quality Division Comments on the Proposed National Ambient Air Quality Standards for Ozone, March 17, 2015, p. 1-2 (emphasis added).

These concerns are shared broadly across the states, according to a recent survey by the Association of Air Pollution Control Agency (“AAPCA”), which concluded that:

A majority of state agency comments raised concerns about the role of background ozone, including both naturally-occurring and internationally-transported contributions to ground-level ozone, as an achievability or implementation challenge (26 states). Similarly, a majority of state comments identified limitations to the Clean Air Act tools highlighted by U.S. EPA for regulatory relief to address background ozone (24 states).²²

In short, if EPA lowers the NAAQS, states that have previously been in attainment will likely come into non-attainment largely because of high background levels approaching or exceeding the new limit. These areas may have to develop costly state implementation plans, yet it will be difficult, if not impossible, to achieve the standard because states simply cannot control background ozone sources.

II. The CAA Requires EPA to Set the NAAQS Above Background Levels or Provide a Meaningful Remedy for Background-Related Exceedances

CAA Section 109 requires that NAAQS be set at a level “requisite to protect” the public health and welfare with an adequate margin of safety.²³ The Supreme Court has interpreted this directive to mean that the NAAQS must be “not lower or higher than is necessary ... to protect the public health,” *Whitman v. Am. Trucking Ass’ns*, 531 U.S. 457, 475–76 (2001). A standard set near, at or below background levels that states lack any ability to reduce would not improve public health and thus would not be “requisite” under the CAA. As EPA itself has recognized, “states are not responsible for reducing emissions that are not in their control.”²⁴

²² Association of Air Pollution Control Agencies, *State Environmental Agency Perspectives on Background Ozone & Regulatory Relief*, http://www.csg.org/aapca_site/documents/AAPCASurvey-StateEnvironmentalAgencyPerspectivesonBackgroundOzoneandRegulatoryRelief-June201.pdf, June 2015, p. 2.

²³ 42 U.S.C. § 7409.

²⁴ “EPA’s Proposal to Update the Air Quality Standards for Ground-Level Ozone: Tools for Addressing Background Ozone,” <http://www.epa.gov/glo/pdfs/20141125fs-tools.pdf> (Nov. 25, 2014).

While cost and technical feasibility are not relevant factors in setting the NAAQS,²⁵ background is in a different category because it cannot be controlled or prevented. Requiring states to implement a standard that cannot be attained would be contrary to the design of the Act, which is focused on the practical steps the states can take to improve air quality. For example, section 107(a) provides that SIPs must specify the manner in which the NAAQS “will be achieved and maintained” (emphasis added). Similarly, section 110(a)(2)(C) requires that SIPs must include enforcement and regulatory measures “necessary to assure that [NAAQS] are achieved” (emphasis added). This focus on implementability would be undermined if EPA could set a NAAQS at a level which states cannot meet because they lack the ability to control background.

The relationship between the proposed standard and background has long been recognized as an important consideration in the standard-setting process. In its report on the 1977 Amendments to the CAA, the House of Representatives explained that it did not intend NAAQS to be set at background levels:

Some have suggested that since the standards are to protect against all known or anticipated effects and since no safe thresholds can be established, the ambient standards should [b]e set at zero or background levels. Obviously, this no-risk philosophy ignores all social and economic consequences and is impractical.²⁶

²⁵ As the DC Circuit concluded in *Lead Industries Ass’n v EPA*, 647 F.2d 1130,1149 (DC Cir. 1980), “the Administrator may not consider economic and technological feasibility in setting air quality standards . . . [because] of a deliberate decision by Congress to subordinate such concerns to the achievement of health goals.” The court invoked this principle in rejecting challenges to the 1979 ozone NAAQS revisions in *API v Costle*, 665 F.2d 1176, 1185 (DC Cir. 1981), further explaining that the “‘technology-forcing’ requirements of the Act were expressly designed to force regulated sources to develop pollution control devices that might at the time appear to be economically or technological infeasible.”

The DC Circuit in *API* also rejected the City of Houston's argument that "natural factors" made attainment of the NAAQS impossible. Insofar as the court concluded that background is not relevant in setting the level of the NAAQS, *API* is no longer controlling in light of EPA's explicit consideration of background during the 1997 standard revisions and the DC Circuit's approval of EPA's approach in *American Trucking Ass'ns*. See page 15 and footnote 35.

²⁶ H.R. Rep. No. 294, 95th Cong, 1st Sess. 127 (1997).

Consistent with this principle, EPA’s Policy Assessment for the proposed NAAQS observed that the CAA “does not require the Administrator to establish a primary NAAQS at a zero-risk level or at background concentration levels..., but rather at a level that reduces risk sufficiently so as to protect public health with an adequate margin of safety.”²⁷

Thus, although EPA has declined to consider cost and technological feasibility in setting NAAQS levels, the Agency has consistently sought to avoid adopting standards that are at or below ozone background.²⁸

For example, in the preamble to the 1979 ozone NAAQS, EPA took pains to point out that it was “cognizant of the background levels that can be attributed to natural sources,” that it had been conducting an active “research program seeking to determine the nature and extent of background concentrations of ozone” and that this issue “was treated extensively” in the standard development process.²⁹ It then discussed the available data, concluding that background “levels are usually well below the proposed levels of the standard, especially during the season of the most active production of photochemical ozone.” EPA also noted the potentially “significant role” of stratospheric ozone in the buildup of background levels but concluded that “even if commonly occurring ozone were increased by 40 percent, the resulting concentration would be insufficient to exceed the standard levels being promulgated.”³⁰

While finding that background would generally be below the new standard, however, EPA recognized that “natural events could occasionally cause contravention of the promulgated standard levels.” The Agency stressed that such exceedances would not place areas in non-attainment because “EPA policy . . . permits data for such occurrences to be disregarded for regulatory purposes.”³¹

In issuing the 1997 ozone standard, EPA went further and rejected a standard of 70 ppb, as opposed to the 80 ppb level adopted, because of its proximity to background levels. The preamble to the 1997 standard explained to this decision as follows:

²⁷ U.S. Environmental Protection Agency, *Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards* (Policy Assessment), p. 3-133 (2014), p. 1-4 (citations omitted), available at <http://www.epa.gov/ttn/naaqs/standards/ozone/data/20140829pa.pdf>.

²⁸ While the technology-forcing goals of the Act leave no room to consider the performance of available emission controls in setting the NAAQS, background is fundamentally different because it cannot be controlled or reduced even with the highest degree of technological innovation.

²⁹ 44 Fed. Reg. 8202, 8212 (Feb. 8, 1979).

³⁰ *Id.*

³¹ *Id.*

. . . the Administrator gives significant weight to the following considerations: * * * (3) As many commenters have noted, based on information in the Criteria Document with regard to ambient concentrations of O₃ from background sources, an 8-hour standard set at [a 70 ppb] level would be closer to peak background levels that infrequently occur in some areas due to nonanthropogenic sources of O₃ precursors, and thus more likely to be inappropriately targeted in some areas on such sources.³²

In its initial decision reviewing the 1997 ozone NAAQS, the DC Circuit noted EPA's determination that a lower standard 'would be "closer to peak background levels that infrequently occur in some areas due to non-anthropogenic sources of O₃ precursors."³³ The court explained that:

EPA's language, coupled with the data on background ozone levels, may add up to a backhanded way of saying that, given the national character of the NAAQS, it is inappropriate to set a standard below a level that can be achieved throughout the country without affirmatively extracting chemicals from nature. That may well be a sound reading of the statute but EPA has not explicitly adopted it³⁴

Reviewing the NAAQS again on remand from the Supreme Court, the DC Circuit agreed that "relative proximity to peak background ozone concentrations" was a factor that "EPA could consider" when choosing among alternative levels.³⁵

Now, nearly 20 years after the 1997 NAAQS revisions, EPA is considering a standard 10-15 ppb lower, background levels have increased significantly in many states and the evidence of high background from modelling and monitoring is more extensive and compelling. Thus, for EPA to now disregard background after assigning significant weight to it in setting the 1979 and 1997 standards would be arbitrary and capricious and would likely be set aside as contrary to the CAA. The only defensible course to avoid this outcome would be to set the standard above background or, alternatively, create meaningful mechanisms for states with high background levels to obtain relief from being designated in non-attainment.³⁶

³² Environmental Protection Agencies, National Ambient Air Quality Standards for Ozone, Final Rule, 62 Fed. Reg. 38856, 38868 (July 18, 1997).

³³ *American Trucking Ass'ns v EPA*, 175 F.3d 1027, 1036 (DC Cir. 1999), *reversed in part and affirmed in part on other grounds in Whitman*, 531 U.S. 457 (2001).

³⁴ *Id.* (emphasis in original).

³⁵ *Am. Trucking Ass'ns v. EPA*, 283 F.3d 355, 379 (DC Cir. 2002).

³⁶ These mechanisms should apply not only to any new standard but to the existing 75 ppb standard, since high background is creating compliance challenges under this standard which the EER and other mechanisms are inadequate to remedy.

III. Why the Relief Mechanisms Outlined in EPA’s Proposal Are Inadequate To Address High Ozone Background Levels

Seeking to demonstrate that states will not be designated in non-attainment because of high background levels, EPA maintains in its proposal that “it has policies that allow for the exclusion of air quality monitoring data from design value calculations when they are substantially affected by certain background influences.”³⁷ However, as shown below, the three mechanisms identified by EPA will not provide meaningful relief to states experiencing exceedances of the new standard because of high background levels and thus will put the final NAAQS in legal jeopardy if it is set at levels at or below background in many parts of the country.

A. Rural Transport Areas

In its ozone proposal, EPA argues that some high background ozone areas which are in nonattainment may be treated as “Rural Transport Areas” under Section 182(h) of the CAA. A nonattainment area may qualify for this designation if it: 1) does not contain emissions sources that make a significant contribution to monitored ozone concentrations in the area; and 2) does not include and is not adjacent to a Metropolitan Statistical Area. If a nonattainment area is recognized as a Rural Transport Area, it is subject to less stringent non-attainment ozone requirements.³⁸ Nonetheless, states would still be required to develop SIPs and prepare emissions inventories, nonattainment NSR permitting still applies, offsets are still required, and control requirements for new and existing sources are still necessary.

This provision obviously would not help an area avoid designation as nonattainment in the first place; it only lessens a nonattainment area’s regulatory burden. In addition, EPA has rarely designated areas under this provision. The proposed ozone rule only lists two counties as having been recognized as Rural Transport Areas, both of which were designated as such for the 1979 one-hour ozone standard.³⁹ As the Agency acknowledges, “[h]istorically the EPA has recognized few nonattainment areas under this provision.”⁴⁰ Furthermore, as Colorado emphasized in its comments, “in many western states, counties can be much larger than in the east [and] [a]s a result, rural counties that are located adjacent to a county with a Metropolitan Statistical Area (MSA) are excluded from designation as a rural transport area . . . [even though] many of these rural counties have few sources and low population figures, considerations that actually support their designation as rural transport areas.”⁴¹

³⁷ 79 Fed. Reg. at 75242.

³⁸ *Id.* at 75384.

³⁹ *Id.*, fn. 278 (for the 1979 1-hour ozone standard in Essex County, New York and Smyth County, Virginia).

⁴⁰ *Id.* at 75384.

⁴¹ Colorado Comments at 6.

B. International Transport

EPA's proposal also argues that states with high background levels of ozone can seek relief in their attainment demonstrations by showing that "an area might have met the O₃ NAAQS by the attainment date 'but for' emissions contributing to the area originating outside the U.S." States bordering Canada and Mexico will be most influenced by international ozone levels, "but other locations can also potentially be affected when conditions are favorable for long-range transport."⁴²

Under Section 179B of the CAA, states that demonstrate that international ozone was the "but-for" cause of their nonattainment and that have adopted all Reasonably Available Control Measures can still receive approval from EPA for their SIPs. In such a case, there would be "no adverse consequence for a finding that the area failed to attain the NAAQS by the relevant attainment date." However, as with Rural Transport Areas, Section 179B does not relieve states from the burden of developing and implementing SIPs but merely protects them from the automatic "bump ups" to higher nonattainment classifications and precludes sanctions for not attaining the standard. Furthermore, the ozone proposal only identifies three occasions when EPA has ever used Section 179B authority; only one of these instances involved ozone.⁴³ And EPA has indicated that "all section 179B approvals should be on a contingency basis" and are "valid only as long as the area's modelling data continue to show . . . attainment, but for emissions from outside the United States."⁴⁴

Whether and how the provisions of section 179B would apply to transport from Asia or other non-continental sources are uncertain. EPA's Phase 2 Implementation Rule for the 1997 8-hour O₃ NAAQS states:

With respect to the applicability of section 179B to areas affected by emissions from very distant, foreign sources, EPA currently has not taken a position. If and when there are any SIP submittals that request a section 179B dispensation of such a basis, EPA will examine those submittals on a case-by-case basis, including focusing on the sufficiency of the technical demonstration, in order to make a determination of section 179B applicability.⁴⁵

In short, section 179B provides limited relief to areas impacted by international transport but does not provide a mechanism to exclude exceedances resulting from international transport from consideration in non-attainment designations.

⁴² 79 Fed. Reg. at 75384.

⁴³ *Id.* at 75385 (to approve attainment plans for Mexican border areas – ozone, PM₁₀, and carbon monoxide in El Paso, TX; PM₁₀ in Nogales, AZ; and PM₁₀ in Imperial Valley, CA).

⁴⁴ 69 Fed. Reg. 32450, 32452 (June 10, 2004) (approving SIP for El Paso).

⁴⁵ 70 Fed. Reg. 71612, 71624 (Nov. 29, 2005).

C. Exceptional Events Rule (EER)

Of the three options for flexibility proffered by EPA, two (the rural and international transport designations) are very rarely used, and also do not authorize EPA to provide relief from nonattainment status based on high background levels. The third mechanism identified by EPA, the EER, is likewise a poor vehicle as now constituted to exclude high background levels from attainment determinations.

Section 319(b) of the CAA, enacted by Congress in 2005, establishes an exclusion from non-attainment demonstrations for ozone exceedances caused by exceptional events. It requires EPA to promulgate regulations “governing the review and handling of air quality monitoring data influenced by exceptional events.”⁴⁶ Section 319 defines “exceptional event” as an event that:

- (i) affects air quality;
- (ii) is not reasonably controllable or preventable;
- (iii) is an event caused by human activity that is unlikely to recur at a particular location, or is a natural event; and
- (iv) is determined by the Administrator through the process established in the regulations to be an exceptional event.⁴⁷

In order for air quality data to be excluded on the basis of the occurrence of an exceptional event, the CAA further requires a clear causal relationship between the measurement under consideration and the event that is claimed to have affected the air quality in the area.⁴⁸

EPA’s implementing regulations, promulgated in 2007, add two requirements to the statutory provisions that create further challenges in making an exceptional events demonstration. A state’s demonstration to EPA must show that:

- (i) The event is associated with a measured concentration in excess of normal historical fluctuations, including background; and
- (ii) There would have been no exceedance or violation but for the event.

These conditions not only preclude basing a demonstration on background ozone levels (from biogenic or non-US anthropogenic sources) but impose a high burden of proof to exclude all other possible causes of the exceedance other than the exceptional event.

⁴⁶ 42 U.S.C. § 7619(b)(2)(A).

⁴⁷ 42 U.S.C. § 7619(b)(1)(A).

⁴⁸ 42 U.S.C. § 7619(b)(3)(B)(ii).

EPA's May 10, 2013 guidance and accompanying Q&As further explain EPA's position that background levels of a pollutant that fall within "normal historical fluctuations" cannot constitute an exceptional event:

An exceptional event is a natural event (excluding stagnations, inversions, high temperatures, or precipitation) or an anthropogenic event that is unlikely to recur in the same location. Both exceptional events and North American background can involve emissions from natural events like forest wildfires or stratospheric ozone intrusions. However, exceedances due to natural emissions that occur every day and contribute to policy relevant background, such as biogenic emissions, do not meet the definition of an exceptional event and are thus not eligible for exclusion under the EER. Routine anthropogenic emissions outside of the U.S. contribute to policy relevant background, but are not exceptional events. Air agency preparation of a demonstration package and the EPA's subsequent review of the demonstration package is case-by-case based on a weight-of-evidence approach and does not explicitly consider whether the event type might contribute to North American background, or any other background definition. However, if a natural event that contributes to background ozone causes an observed concentration that meets the statutory definition of an exceptional event and fulfills all of the exceptional event criteria, the EPA would consider the event to be an exceptional event."⁴⁹

In short, while acknowledging that increases in background levels due to unusual occurrences such as wildfires and stratospheric intrusion might be considered exceptional events,⁵⁰ EPA precludes states from any reliance on high biogenic emissions or international transport in making an exceptional events demonstration.

Even apart from EPA's position that high biogenic emissions or long-range ozone transport are ineligible for treatment as exceptional events, the EER process is yielding minimal benefits because of the highly inefficient case-by-case analysis and decision-making required for each individual EE package submitted by states. Packages require expensive modelling and monitoring, which few consulting firms have the expertise to complete and which states find difficult to afford. Also, there are very few co-located monitors with CO or PM, making it difficult to identify the source of ozone and ozone precursors. Moreover, there are no protocols for identifying exceptional events. States must determine on their own what information might be required to make their case. Each EPA Regional Office has different criteria for reviewing and approving EE demonstrations.

⁴⁹ US EPA. 2013. "Interim Exceptional Events Rule Frequently Asked Questions." Accessed at http://epa.gov/ttn/analysis/docs/EER_QA_Doc_5-10-13_r3.pdf, Question 16a, p. 20 (emphasis added).

⁵⁰ Ozone formation due to lightning is also excluded by EPA as the result of "routine natural emissions."

The result of these problems is that decisions on EE packages are typically delayed for many months and few are granted. EPA has only approved three EE demonstration packages for ozone: a stratospheric intrusion event for Wyoming, an associated fire event for Kansas, and a wildfire event for Sacramento. This is less than 0.01% of total observations of exceptional events for 2006-2010.⁵¹

With a more stringent ozone standard, the number of EE packages could increase significantly. This will only result in more delay, cost and uncertainty if the current process remains in place.

The states have voiced deep concern about the workability of the EE process as now structured to address high background under a lower standard. For example, on June 12, 2013, Amanda Smith, the Executive Director of Utah's Department of Environmental Quality testified to the House Subcommittee on Environment of the Space, Science, and Technology Committee that:

Since 2008 Utah has submitted 12 exceptional event demonstrations for particulate matter, requiring about 4,000 hours of technical work, that have not been approved by [EPA] Region 8. There were many other events, including ozone levels affected by western wildfires that we did not even attempt to demonstrate as exceptional events because the technical criteria were too difficult to meet. If the exceptional event process doesn't work for particulate matter – it certainly won't work for the complicated science behind rural background ozone (emphasis added).

In its comments on EPA's proposal, WESTAR, representing air directors in 15 Western states, was unflinching in its criticisms of the current EE process:

Inaction by EPA will result in failure for many areas within the western U.S to attain or maintain the ozone NAAQS. The current EPA tools available to the western states to address natural background, transported ozone within rural areas, and international background do not and cannot effectively address these constraints and, in most cases, require states to spend additional resources on efforts that provide little to no improvement in air quality or assist in attainment of the ozone NAAQS. In actuality, these tools either saddle areas with the burden of a nonattainment designation for emissions that are outside of their control or force states to develop costly demonstrations for exceptional events that are not exceptional in nature or occurrence.

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[P]ast experience shows that a large portion of state and local air quality management agencies' resources have been consumed by investigating, analyzing and preparing demonstrations for suspected exceptional events. Due to the intense amount of work required to prepare these demonstrations, few resources are left to focus on providing public health protections

⁵¹ US EPA. 2012. "Health Risk and Exposure Assessment for Ozone: First External Review Draft." EPA 452/P-12-001. Accessed at <http://www.epa.gov/ttn/naaqs/standards/ozone/data/20120816healthrea.pdf>.

In order for states to utilize the provisions of the Exceptional Events Rule in a practical fashion, EPA must streamline the onerous process, provide the tools and guidance required to prepare demonstrations, and respond to demonstrations in a timely fashion. . . . Modeling of exceptional events will likely play a large role in meeting the rule's technical requirement to demonstrate that there would have been no exceedance or violation but for the event. Many air quality agencies do not have the expertise to run models for exceptional events, nor do they have the staffing levels required to maintain an updated emissions inventory for modeling. Most western states would likely need to hire additional staff or contract the work out, both difficult processes in a time of constrained budgets, tight deadlines and increased workloads.⁵²

In its comments, Colorado was equally pointed:

Repeatedly throughout the proposal, EPA recognizes that western states are faced with higher background concentrations of ozone, and more frequent events causing higher background levels. EPA points to its exceptional events rule as the primary means of addressing this issue. However, under EPA's existing procedures, submitting exceptional events is a huge administrative burden without a corresponding public health and environmental benefit. Further, a lower primary standard will mean more exceptional events in the west. CDPHE welcomes EPA's proposal to streamline the exceptional events rule, but notes that even a revised exceptional events rule likely would not completely address concerns about a NAAQS set at a level that might be unachievable due to elevated background levels.

Colorado has considerable experience with the current exceptional events policy. The burden of documenting an exceptional event is considerable. Such a demonstration amounts to a technical exercise akin to developing a SIP for a small area. Furthermore, the resources involved in preparing an exceptional events request are significant. Substantiating an exceptional events application can easily overburden a state's resources of time, staff and modeling capabilities. Obtaining EPA approval is a lengthy process that usually involves multiple rounds of review, challenges, added analysis, and new data retrieval and processing. EPA does not always act on exceptional events requests in a timely fashion. Colorado has numerous exceptional event evaluations being developed, and others already submitted to the EPA that remain in limbo. A lower standard would likely result in more exceptional event submittals, burdening both the states and EPA.⁵³

Wyoming, which submitted the only successful EE demonstration for ozone, was likewise highly critical:

⁵² The Western States Air Resources (WESTAR) Council, Comments on the Proposed Revision to the National Ambient Air Quality Standards for Ozone, Docket No. OAR-HQ-OAR-2008-0699, March 16, 2015, p. 9-10 (emphasis added).

⁵³ Colorado Department of Public Health and Environment, State of Colorado Comments, Docket ID EPA-HQ-OAR-2008-0699; FRL-9918-43-OAR, March 17, 2015, p. 5 (emphasis added).

The AQD contends that, 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 EER as a viable method of relief.

The AQD is the only agency in the nation so far that has received concurrence for a stratospheric intrusion event. Based on this experience, each demonstration took between four and eight months to produce with assistance from the EPA's stratospheric intrusion workgroup. Demonstrations that the EPA has posted as examples for wildfire impacts and ozone would require from the AQD 15 months and contractor assistance of \$150,000 to produce. The AQD has determined that future demonstrations will require comparable resource commitments. The amount of state agency staff time and funding necessary for producing demonstrations of this complexity is unworkable for the AQD. The EPA must work to streamline the EER process and provide working technical tools if the EPA intends to rely on the EER as the method of relief.⁵⁴

In short, EPA's reliance on the current EE process to provide relief from non-attainment designations for exceedances resulting from high background levels is unwarranted and would not justify setting a NAAQS at a level below background in many areas of the US. While EPA is considering revising the EER to make limited improvements, these improvements (as we understand them) would fall significantly short of providing a workable mechanism to take background into account in making non-attainment designations.

IV. To Comply with the CAA, EPA Must Adopt a Workable and Efficient Process that Excludes Exceedances Resulting from High Background Levels from Non-Attainment Determinations

A. Proposed Framework for Addressing Background in the Attainment Process

If EPA sets a standard at or below background in many parts of the U.S., the Agency must develop a comprehensive framework that provides meaningful tools that states can use to exclude exceedances attributable principally to high background levels from non-attainment designations.

We propose that states should be allowed to remove exceedances from attainment designations if they meet one or more of certain benchmark criteria showing that background ozone is the principal contributor to exceedances of the standard, such as:

- A baseline ozone monitor upwind of local sources that exceeds the standard (*i.e.*, ozone exceedance is not controllable by local sources) along with trajectory analyses showing that local sources were not impacting the upwind baseline monitor.

⁵⁴ Wyoming Department of Environmental Quality, The State of Wyoming, Department of Environmental Quality -Air Quality Division Comments on the Proposed National Ambient Air Quality Standards for Ozone, March 17, 2015, p. 15 (emphasis added).

- Modeling data indicating that background ozone is the principal cause of the ozone exceedance.
- Other monitoring data demonstrating that background ozone was the principal contributor to the ozone exceedance, including but not limited to, relative humidity, particulate matter and carbon monoxide concentrations, and high nighttime/ low daytime ozone levels.

Refinement of these benchmark criteria and development of additional criteria could be accomplished through further technical discussions with EPA experts.

In contrast to the current EER, this approach would not limit the types of background eligible for consideration but would include all sources of ozone that are not controllable or preventable by the state. This includes biogenic emissions from plants and animals, stratospheric intrusions, wildfires, lightening and international transport. In addition, it would be unnecessary to determine whether the exceedance reflects infrequent or common sources of background so long as background levels are the principal contributor to the exceedance.

In most areas, background ozone is a combination of naturally occurring and internationally transported ozone and ozone precursors and determining the precise sources of background at a particular monitoring location is difficult if not impossible. Under our proposed criteria, there would be no requirement to differentiate and quantify the contributions of different background sources. Instead, the focus would be on demonstrating that controllable anthropogenic emissions are not a significant factor in the exceedance. This would greatly reduce costs and simplify demonstrations.

To avoid the long delays and uncertainty in EPA's review of current EE packages and the resources required to meet EPA requests for data, we also propose that, if demonstrations meet benchmark criteria like those described above, they should be automatically approved by EPA if there are no Agency objections within 90-120 days of submission of the demonstration package. Given the large number of background-related exceedances likely to be flagged under the new standard, an expedited process that results in rapid decisions is essential to afford certainty to states and EPA itself during the non-attainment designation process.

In this regard, the current deadlines in the EER for flagging exceedances and submitting demonstrations are too stringent and will overwhelm state resources. Phased deadlines that give states greater latitude to plan and manage their workloads but do not delay non-attainment designations are highly desirable. The schedule for flagging exceedances and submitting demonstration packages in EPA's ozone proposal is an improvement but is still too tight in some respects and can be loosened further.

B. Implementing the Proposed Framework Under Appendix I to Part 50

We recommend that EPA implement the above approach by revisions to Appendix I to Part 50.⁵⁵ This Appendix was first adopted when EPA issued the 80 ppb 8-hour ozone standard in 1997.⁵⁶ It is entitled “Interpretation of the 8-Hour Primary and Secondary [Ozone NAAQS]” and provides data reporting and handling conventions for applying the standard and determining whether areas are in non-attainment.

The principal purpose of the Appendix was to codify the Administrator’s decision to base non-attainment designations on the three-year average of the annual fourth-highest daily maximum ozone concentration at a particular monitoring location. Although seemingly technical, this approach represented a major policy decision closely linked to the level at which the NAAQS itself was set. The Agency explained that all CASAC members “favored [a standard] that would allow for multiple exceedances”, that such a standard would be appropriate “given the nature of the health effects and the absence of a ‘bright line’ that clearly differentiates between acceptable and unacceptable risks,” and that the form of the standard was a “policy judgment” and not a scientific determination.⁵⁷ Based on CASAC’s advice, EPA concluded that allowing multiple exceedances would “increase the stability of the standard by providing some insulation from the impacts of extreme meteorological events” and that “increased stability in the standard is important to avoid disruption to ongoing control programs, and thus to maintain ongoing public health protection.”⁵⁸

The considerations emphasized by EPA – assuring the stability of the standard by excluding abnormally high ozone levels from attainment determinations and avoiding disruption of air quality programs by unduly stringent criteria for non-attainment -- apply equally to the treatment of elevated background levels in NAAQS implementation. These background levels are not preventable or controllable and, if used as a basis for attainment determinations, would place unmanageable burdens on state air quality control agencies. Exercising the same policy judgment as the Administrator did in 1997, the Agency should revise the form of the new ozone NAAQS in Appendix I to exclude exceedances attributable to background from determinations of attainment. This can be accomplished by incorporating in the Appendix the three benchmark criteria discussed above.⁵⁹

⁵⁵ Because the NAAQS would be unlawful without an effective mechanism to address background-related exceedances, EPA has inherent authority to craft such a mechanism as part of its NAAQS rulemaking. While we believe that Appendix I offers an attractive vehicle for this purpose, there may be others identified by EPA that are also sufficient.

⁵⁶ 62 Fed. Reg. 38895 (July 18, 1997).

⁵⁷ 62 Fed. Reg. at 38869.

⁵⁸ 62 Fed. Reg. at 38871.

⁵⁹ There would be no merit to the argument that because Congress has provided for rural and international transport areas and relief from exceptional events, it intended to foreclose other, more comprehensive approaches to background ozone. These provisions are all intended to

C. Implementing the Framework through a Revised EER

We believe that the policy discretion EPA has to determine the form of a new ozone NAAQS under Appendix I is the best vehicle for providing states the flexibility to discount exceedances principally attributable to background in determinations of attainment. However, the authority in CAA section 319 to address exceptional events offers opportunities for relief that EPA's current regulations and guidance do not reflect and would also provide the basis for an improved mechanism to address background.

EPA's current EER includes two constraints not required by the CAA that EPA should eliminate in its upcoming modification of the EER.⁶⁰

First, as noted previously, the regulations provide that the state must demonstrate that "there would have been no exceedance or violation but for the event."⁶¹ This is an unworkably high threshold. As EPA acknowledges, "background O₃ is difficult to measure."⁶² In some areas, state and local regulatory bodies may have difficulty identifying the causes of high background ozone. In other areas, there will not be a single but-for cause of the background ozone and it may be challenging to isolate the relative contributions of different sources. The stringent "but for" test therefore blocks areas affected by elevated background ozone from availing themselves of the relief that the EER seeks to provide.

EPA should eliminate this "but for" requirement, which is nowhere specified in the statute. The CAA already requires that there be a "clear causal relationship" between the measured exceedance and the exceptional event. This statutory requirement is sufficient to ensure that the state demonstrate a nexus between an uncontrollable contributor to high ozone levels and exceedances of the standard.

address narrow, discrete issues and provide no indication that they represent the only remedies available for high ozone background levels. Indeed, if EPA lacked authority to fashion broad remedies to high background, then its new NAAQS would be unlawful, as explained in Part II above.

⁶⁰ We understand that EPA is planning to propose revisions to the EER in the Fall of 2015 and promulgate a final version in the Summer of 2016 along with guidance addressing EE demonstrations for exceedances resulting from wildfires.

⁶¹ 40 C.F.R. § 50.14(c)(3)(iv)(D).

⁶² 79 Fed. Reg. at 75382.

Second, as also discussed previously, the regulations provide that the event must be “associated with a measured concentration in excess of normal historical fluctuations, including background”.⁶³ Under this provision, areas with historically high levels of background ozone cannot obtain relief under the EER because these levels are not “in excess of normal” fluctuations. For example, the preamble to the EER states that EPA believes that it is unreasonable to exclude “significant, but routine background air quality impacts” from attainment calculations.”⁶⁴ EPA’s position is that even biogenic sources of background are ineligible to be EEs: according to EPA’s Q&As, “exceedances due to natural emissions that occur every day . . . do not meet the definition of an exceptional event.”⁶⁵

These limitations are nowhere specified in the statute. Section 319 provides that an EE is an event that (i) affects air quality and (ii) is not reasonably controllable or preventable. High background levels clearly meet these criteria, regardless of duration or source. Moreover, while the statute provides that events caused by “human activity [must be] unlikely to recur at a particular location,” no such restriction is placed on natural events. Thus, background ozone from biogenic sources, wildfires, lightning and stratospheric intrusion should qualify as EEs, regardless of whether the resulting ozone levels are “normal” or not.

The CAA does not define “natural event,” but the regulations provide that it is “an event in which human activity plays little or no direct causal role.”⁶⁶ We believe that EPA can reasonably conclude that international ozone transport fits this description because, while originating mainly from anthropogenic sources, the ozone reaches the US due to wind patterns and other meteorological mechanisms beyond human control and therefore definable as natural events. Also, because the impact of international transport is complex and difficult to pinpoint, the resulting ozone levels can be deemed “unlikely to recur at a particular location” even if attributable in part to human activity.

Although CAA section 319 never defines what constitutes an “event”, EPA’s apparent interpretation is that an “event” must be limited in duration and thus cannot include contributors to background ozone such as biogenic emissions and international transport

⁶³ 40 C.F.R. § 50.14(c)(3)(iv)(C) (emphasis added).

⁶⁴ 72 Fed. Reg. at 13569.

⁶⁵ US EPA. 2013. "Interim Exceptional Events Rule Frequently Asked Questions." Accessed at http://epa.gov/ttn/analysis/docs/EER_QA_Doc_5-10-13_r3.pdf, Question 16a, p. 20. Although CAA section 319 never defines what constitutes an “event”, EPA’s apparent interpretation is that an “event” must be limited in duration and thus cannot include contributors to background ozone such as biogenic emissions and international transport which are continuous, albeit at fluctuating levels. This is a needlessly restrictive concept of an “event.” Moreover, even though some elements of background may be continuous, exceedances of the NAAQS tend to be exceptional circumstances, in which the different contributors to background combine in a way that produces uniquely high ozone concentrations. These exceedances can be considered “events.”

⁶⁶ 40 C.F.R. § 50.1(k).

which are continuous, albeit at fluctuating levels. This is a needlessly restrictive concept of an “event.” Moreover, even though some elements of background may be continuous, exceedances of the NAAQS tend to be exceptional circumstances, in which the different contributors to background combine in a way that produces high ozone concentrations. These exceedances can clearly be considered “events.”

Accordingly, EPA should revise the EER to delete the requirement that an exceedance can be considered an EE only if in excess of normal historical fluctuations, including background. Instead, the rule should provide that all exceedances attributable principally to background should be treated as EEs, whether the background is the result of biogenic emissions, wildfires, lighting, stratospheric intrusion or international transport. Thus, there would be no requirement to conduct time-consuming and costly analyses to identify and quantify the factors contributing to the exceedance so long as the state could demonstrate that anthropogenic emissions are playing either no role in the exceedance or one that is insignificant.

The three benchmark criteria discussed above would provide a cost-effective and straightforward framework for implementing this approach and should likewise be incorporated in a revised EER. The rule should also provide for a streamlined process, as described above, for submitting and reviewing EE demonstration packages and should not require states to submit these packages when they are proposing designations. Because the EER revisions EPA is reportedly contemplating are far too narrow to provide meaningful and effective relief, the Agency must rethink and broaden its approach if it wishes to use the EER to fully address background ozone.

Conclusion

High ozone background levels are ubiquitous in many parts of the country and will prevent attainment of the new ozone standard unless background-related exceedances are excluded from determinations of non-attainment. Current mechanisms to address background are inadequate despite EPA’s contrary claims and will put states in the impossible position of devoting time and resources to implementing a standard that cannot be attained because of high ozone levels that are beyond their ability to control. A standard set at, below or near background levels would not pass muster under the CAA unless EPA significantly broadens and streamlines the process for excluding background-related exceedances from non-attainment designations. This paper outlines a framework to achieve this goal and identifies two implementation paths – under Appendix I to Part 50 or under a substantially improved EER that goes well beyond EPA’s contemplated EER revisions. It is essential that EPA issue a proposal using these or other vehicles at the time it promulgates a new NAAQS and finalize that proposal early in 2016.