December 14, 2018

Mr. Ben Gibson  
Air Quality Policy Division  
Office of Air Quality Planning and Standards  
U.S. Environmental Protection Agency  
109 T.W. Alexander Drive, C539-04  
Research Triangle Park, NC. 27711

Dear Mr. Gibson,

The Western States Air Resources (WESTAR) Council would like to thank the Environmental Protection Agency (EPA) for the opportunity to comment on the Guidance on the Preparation of Demonstrations in Support of Requests to Exclude Ambient Air Quality Data Influenced by High Wind Dust Events Under the 2016 Exceptional Events Rule (i.e., the Guidance). Over the years, there have been many conversations between western states and EPA on high wind dust events and how to most efficiently prepare demonstrations and provide the appropriate level of detail for these events. Thank you for incorporating much of our feedback into the new guidance. Our input was based on our experience developing high wind event demonstrations and working to obtain concurrence from our regional offices under the previous guidance and 2007 rule. Following are our comments and suggestions on the Guidance.

General Comments

The draft guidance shows that EPA recognizes the challenges associated with meeting the requirements of the Exceptional Events Rule (EER). These changes should help state/local air agencies satisfy the criteria more effectively and concisely. We appreciate:

- The change from historical fluctuations to historical concentrations. This new emphasis better fulfills the purpose of the criteria: to highlight the difference between event concentrations and normal/typical values.
- The process flow chart on page 14. This figure helps communicate the steps and responsibilities of both states/local air agencies and EPA at each stage of demonstration development and review. Thank you for building in accountability to the timeline for regional offices to respond to high wind demonstrations.
• Recognition of USDA conservation management practices as the appropriate controls on agricultural lands, when effective implementation and enforcement of these voluntary measures can be shown.

Additionally, some clarification or elaboration on the following would be useful:

• We would like more information on how to estimate visibility from nephelometer values or other methods, such as a transmissometer to potentially qualify for a Tier I demonstration.

• The document would benefit from actual examples of documentation (listed in Table 3) that could meet the EER criteria.

We also request that EPA strive for regional consistency in the application of the Guidance.

Not Reasonably Controllable of Preventable Criteria

WESTAR appreciates the EPA’s acknowledgement that high wind blowing dust events have a varying nature with some events being more obvious than others in their ability to overwhelm dust mitigation control measures that were in place at the time of the event. We concur that recognizing that these clear-cut “large-scale and high-energy high wind dust events” (LS/HE/HWD) should not necessitate the same demonstrative rigor as other high wind dust events when considering EPA’s “weight of evidence” approach. These streamlined demonstrations are a step in the right direction for freeing up already limited state and EPA resources dedicated to environmental welfare and regulation.

Additionally, we find it beneficial that a shared understanding between the EPA and the states exists for defining a “dust storm”. WESTAR agrees that the National Weather Service (NWS) definition being “a severe weather condition characterized by strong winds and dust-filled air over an extensive area” is appropriate. While WESTAR agrees with the concept of a tiered approach to demonstrations, the tier criteria themselves would benefit from refinement, as discussed below.

Tier 1: Large-Scale, High-Energy High Wind Dust Events

The overriding concern pertains to the criteria for a Tier 1 demonstration. The initial reference within the Guidance can be found in Section 1.5, Page 10, in the 4th bullet point. It states that a large-scale and high-energy high wind dust event, “will generally be considered those high wind dust events that are the focus of a Dust Storm Warning, has sustained winds that are greater than or equal to 40 mph; and has reduced visibility equal to or less than 0.5 miles.”
The first issue with this statement is that there is an immediate conflict with the National Weather Service (NWS) definition of a Dust Storm Warning. According to the NWS, the definition of a Dust Storm warning is, "Widespread or localized blowing dust reducing visibilities to ¼ mile or less." This conflicts with the Guidance’s criteria of "reduced visibility equal to or less than 0.5 miles." Considering that a NWS Blowing Dust Advisory would be issued during a, "Long duration event of widespread or localized blowing dust reducing visibilities to one mile or less, but greater than ¼ mile." the issuance of an NWS Blowing Dust Advisory should also qualify for a large-scale and high-energy high wind dust event based on the EPA Guidance criteria. Given NWS specifications characterizing blowing dust events, we would like to understand the evidence that supports a 40 mph with ≤ ¼ mile visibility restriction declaring an event as LS/HE/HWD by the EPA versus the 25 mph and ≤1-mile visibility reduction threshold set by the NWS for warning of dust storm conditions.

Additionally, the language used by the NWS for high wind events (with no mention of dust in the heading) states that "a High Wind Warning is issued when the following conditions are expected: 1) for valley locations: sustained winds of 40 mph or higher and/or gusts of 58 mph or higher OR 2) for mountain locations: sustained winds of 50 mph or higher and/or gusts of 75 mph or higher." Both situations conform to the expectations of the large-scale/high-energy/high-wind event for locations that could easily experience blowing dust under the identified conditions. The NWS may not always have in mind the same considerations that states/air agencies do when issuing these advisories/warnings, though they may lead to the same or similar outcomes (i.e., NWS issues Dust Storm Warnings mainly based on safety concerns related to visibility while state agencies will often focus on public health risks due to dust inhalation.).

There are also several sections within the Guidance where it is unclear if an NWS-issued Dust Storm Warning is required for Tier 1 consideration. Under Section 4.2, Page 21 in the first paragraph, "The National Weather Service (NWS) definition of a dust storm referenced in the preamble is "a severe weather condition characterized by strong winds and dust-filled air over an extensive area." Evidence of a Dust Storm Warning, either from the NWS or a similar

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1 https://www.weather.gov/otx/Watch.Warning.Advisory.Definitions#Dust%20Storm%20Warning
3 https://www.weather.gov/otx/Watch.Warning.Advisory.Definitions#High%20Wind%20Warning
4 http://w1.weather.gov/glossary/
scientifically based government entity may be used to satisfy the Dust Storm Warning criterion above,”, yet in the very next paragraph it states, “Although events that are the subject of other types of blowing dust advisories and alerts (not a “Dust Storm Warning”) generally would not qualify for the more streamlined documentation requirements to satisfy the “not reasonably controllable” criterion for large-scale and high-energy high wind dust events, such events may still satisfy the “not reasonably controllable criterion” using Tier 2 or Tier 3 analyses.” These conflicting statements make it unclear as to what types of advisories would satisfy the Tier 1 requirement. Several public health agencies (for example, Colorado) issue advisories regarding blowing dust, and it is uncertain if these types of advisories would be accepted by the EPA to fulfill the Tier 1 criteria. Our view is that these types of advisories should be accepted, particularly considering the EPA reference to “similar scientifically based government entity” as stated above.

The general concern with the Guidance document is the lack of clarity regarding the warning or advisory criteria for a Tier 1 demonstration. WESTAR suggests that EPA use the wording from Section 4.2, Page 21 in the first paragraph consistently throughout all sections regarding Tier 1 criteria, particularly in the beginning of Section 4.2, page 20. Using this wording would allow scientifically based government entity advisories, pertaining to dust, as qualifying criteria for a Tier 1 demonstration.

We believe that the guidance should clearly state that the absence of any warning, advisory, or alert type products for an event (by the NWS or otherwise) should not preclude an event from being classified as LS/HE/HWD, if evidence supports dust storm conditions meeting appropriate thresholds are found (e.g., from airport visibility measurements, nephelometers readings, photo or video documentation, official weather station observations, available remote sensing such as Doppler radar products, storm damage reports, NWS trained storm spotter reports, social media coverage, etc.).

WESTAR also believes that EPA should use a lower wind speed threshold and allow shorter averaging periods to be used to calculate sustained wind speeds to qualify for Tier 1 demonstrations. On page 20 of the draft guidance, EPA discusses how to evaluate sustained wind speed and concludes that the default threshold of 25 mph based on 1-hour average wind speed is appropriate when evaluating the not reasonably controllable requirement. This discussion does not extend to the Tier 1 criteria and the assumption can be made that the 40 mph threshold would be based on 1-hour averages. In addition, EPA states that they “will generally accept that the hourly average wind speed was above the threshold if the reported short-period wind speed was above the threshold.” If EPA is willing to evaluate 1-5 minute wind speed data in cases where there are data gaps, they should accept this data across the board. This would
provide certainty and consistency in a wider set of circumstances and air agencies would be able to rely on broader, readily available data sets for supporting evidence in demonstrations. Furthermore, the study (Watson and Chow, 2000) EPA uses to base the 25 mph 1-hour average threshold on, suggests using wind speeds with 1-5 minute averages to better determine the threshold friction velocity for a source. The 1-hour wind speed data was used in that study because it was the available data set, not because it better reflects the mechanics of wind erosion.

The NWS defines sustained winds as wind speeds that are “determined by averaging observed values over a two-minute period.” In many arid areas of the Western U.S., it is highly possible for reasonable controls to become overwhelmed in periods much shorter than one hour. Additionally, wind gusts may quickly deplete a substantial portion of the erosion potential of a dust source. The WRAP Fugitive Dust Handbook relies on AP-42, Chapter 13.2.5, to identify the appropriate meteorological variable to reflect the magnitude of wind gusts as the fastest mile. The duration of the fastest mile corresponds to two minutes for wind speeds of 30 mph. The half-life of the erosion process, or the time required to remove one-half of the erodible particles on the surface of a source, roughly equals two minutes (ranging from one to four minutes). Therefore, erodible particulate matter from a source can be depleted within minutes once threshold wind speeds impact the surface of the source.

A cursory review of four western states exceptional events data shows that only one event in the past five years would qualify for treatment as a Tier 1 event. WESTAR believes that the wind speed criterion for a Tier 1 event should be lowered to 30 mph. The amount of emissions resulting from wind erosion is approximately related to the cube of the wind speed above the threshold velocity. Using wind speeds of 30 mph as the criterion for a Tier 1 event would be sufficiently above the threshold velocity and would be expected to result in 125 times the amount of emissions produced by a 25 mph wind speed.

Thunderstorms produce downdraft wind energy or DCAPE ≥ 1000 J/KG, which is roughly the same as an F3 tornado. These winds are highly localized, occur rapidly and with little notice or advance forecasting. The resulting dust storms from microbursts, referred to as Haboobs, often create the most dramatic and memorable scenes as the intense wind energy released causes a defined wall of dust that can extend for nearly two miles above ground level. Sustained wind speeds generated as the result of these events rarely last an hour or more and they would not qualify as Tier 1 event, but they should.

The purpose of the EER revisions was to streamline the demonstration process to help states focus resources on programs that better protect public health (i.e. public outreach and education). This may be better accomplished using a 30-mph threshold based on 1-5 minute
wind speed data as criteria for a Tier 1 event. Finally, qualification for a Tier I demonstration on
air quality data influenced by a LS/HE/HWD event should be applicable beyond the origin point
of that event. Once excessive entrainment of dust occurs due to stronger winds, long-range
transport of particulates can still overwhelm local control and enforcement measures at the
affected monitor, despite wind speeds being less than peak winds experienced with a mature
LS/HE/HWD. From a meteorological standpoint, the extent of entrained dust from LS/HE/HWD
events (e.g., a thunderstorm microburst) ultimately covers a larger geographical area than the
radius experiencing sustained winds ≥40 mph. If sustained winds at the affected monitor remain
at or above the EPA high wind speed threshold (i.e., 25 mph), but dust entrainment was initially
caused by a LS/HE/HWD at an upwind location, then we believe that a Tier I demonstration
should be appropriate.

Reasonable Control Analysis for Tier 2 and Tier 3 Events

Table 1: Summary of Recommended Controls Analysis Elements for not Reasonably
Controllable Demonstration.

Included in this table for a Tier 3 analysis is a PM filter chemical speciation analysis.
Many air agencies have moved from filter-based monitors to continuous monitors that are not
suitable for chemical speciation. An additional consideration is that source apportionment using
chemical speciation has not been successful for crustal-derived PM, which is the primary
component of PM generated by high winds.

Approved SIP/TIP/FIP within 5 years

The guidance strongly relies on whether the EPA has acted within the last 5 years to
approve a State, Tribal, or Federal Implementation Plan (SIP/TIP/FIP) for PM2.5 or PM10 in
satisfying the Reasonable Controls portion of the Not Reasonably Controllable or Preventable
(nRCP) criterion for Tier 2 and Tier 3 events. In Section 4.4.1, EPA indicates that this reliance
was intended to streamline and simplify the documentation required for a Tier 2 demonstration.
Section 4.4.2 provides a lengthy discussion on how to address nRCP for Tier 2 demonstrations in
the absence of an approved SIP/TIP/FIP. EPA’s proposal to rely only on a SIP/TIP/FIP
approved in the last 5 years will not streamline the process, but rather encumber it. Agencies
that prepared BACM and most stringent measures SIPs developed extensive documentation
demonstrating that these controls were effective. Emission rates and wind thresholds for
overwhelming control measures have not changed over the years, making this requirement
unwarranted. Agencies will be required to repeat voluminous discussions of control measure
effectiveness from the older SIP/TIP/FIP along with supporting documentation such as wind

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tunnel studies in order to meet the Tier 2 requirements. For Tier 3 demonstrations, however, EPA states (in Section 4.5) that, “In situations where wind speeds are below the high wind threshold, an area must submit documentation that winds were high enough to overwhelm controls that address the event-related pollutant, identified in a SIP/TIP/FIP that was approved within 5 years of the date of the event.” [emphasis added]. The wording in this section effectively limits the applicability of Tier 3 demonstrations to events that occur in areas with recently approved SIP/TIP/FIPs, a significant reduction of areas eligible to submit Tier 3 demonstrations. To walk back this limitation on applicability, WESTAR suggests adding “…or other documented controls as outlined in Section 4.4.2” to the sentence in Section 4.5 quoted above.

Identification of natural and anthropogenic sources

The guidance document would benefit from more detailed information and/or examples on specifically how to determine the contribution from local sources.

Finally, I wish to reiterate our appreciation that EPA has sought out comment on the Guidance. Please do not hesitate to contact Kerwin Singleton of the New Mexico Environment Department – Air Quality Bureau, or Bob Lebens at WESTAR, if you have any questions or need additional information about our comments.

Sincerely,

Nancy Vehr, President
Western States Air Resources Council