UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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MAR 2 1 2018

OFFICE OF
AIR AND WASTE

Ms. Maia Bellon
Director
Washington Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Ms. Bellon:

This letter responds to the Washington Department of Ecology's submittal dated November 30, 2017, regarding the elevated PM_{10} concentration measured at the Kennewick Metaline Road monitoring station (AQS site # 53-005-0002, POC 3) on August 14, 2015. This PM_{10} concentration exceeded the 150 $\mu g/m^3$ PM_{10} 24-hour National Ambient Air Quality Standard. Ecology has requested that the U.S. Environmental Protection Agency concur that the 24-hour PM_{10} concentration on August 14, 2015, was caused by exceptional events due to dust entrained by high winds and transported to the Kennewick monitor.

In 2016, the EPA revised the Exceptional Events Rule found in 40 CFR 50.14 and 51.930. See "Treatment of Data Influenced by Exceptional Events" rule (81 FR 68216, October 3, 2016). After careful consideration of the information provided, we concur, based on the weight of evidence, that Ecology has made the demonstrations referred to in 40 CFR 50.14(a)(2) and (b)(1). In addition, Ecology has met the schedule and procedural requirements in 40 CFR 50.14(c) with respect to the same information. The EPA has reviewed the documentation provided by Ecology to demonstrate that the elevated PM_{10} concentration recorded at the KENMETA monitoring station on August 14, 2015 meets the criteria for an exceptional event in the EER. The basis for our concurrence is set forth in the enclosed technical support document. My staff has entered or will shortly enter a "concurrence flag" for this data into the EPA's Air Quality System data repository.

The EPA's concurrence is a preliminary step in the regulatory process for actions that may rely on the dataset containing the event-influenced data and does not constitute final agency action. When the EPA takes a regulatory action that is affected by exclusion of the PM_{10} data for the August 14, 2015 event at the KENMETA, the EPA intends to publish notice of its proposed action in the Federal Register. The EPA's concurrence letter and accompanying technical support document will be included in the record as part of the technical basis for that proposal. When the EPA issues that regulatory action, it will be a final agency action subject to judicial review.

Thank you for Ecology's submittal of this exceptional event documentation. If you have any questions or wish to discuss this matter further, please contact me or have your staff contact Justin Spenillo, Air Planning Unit, Office of Air and Waste, at (206) 553-6125.

Sincerely,

Timothy B. Hamlin
Director

Enclosure

cc: Mr. Jason Alberich
Ecology

Ms. Caroline Sun
Ecology

Ms. Laurie Hulse-Moyer
Ecology

EPA, Region 10

Review of Exceptional Event Request
Kennewick, Washington
24-hour PM_{10} NAAQS
Date Analyzed: August 14, 2015

Background

On October 3, 2016, the EPA published a final rule, *Treatment of Data Influenced by Exceptional Events*, with an effective date of September 30, 2016 (Exceptional Events Rule or EER at 81 FR 68216). The 2016 Exceptional Events Rule governs the review and handling of certain air quality monitoring data for which the normal planning and regulatory processes are not appropriate and revises the rule initially adopted by the EPA on March 22, 2007 (72 FR 13560). Under the Exceptional Events Rule, the EPA may exclude data from use in determinations of National Ambient Air Quality Standard (NAAQS) exceedances and violations if a state demonstrates that an "exceptional event" caused the exceedances. Before the EPA can exclude data from these regulatory determinations, the state must notify the Administrator of its intent to exclude data by flagging the data in the EPA's Air Quality System database and engaging in the initial notification process. Then, after notice and opportunity for public comment at the state level, the state must submit a demonstration to justify the exclusion. After considering the weight of evidence provided in the demonstration, the EPA decides whether or not to concur with each flag. Final action on the data exclusion does not occur until it is acted upon as part of a final regulatory action subject to public notice and comment.

Washington Department of Ecology (Ecology) Request

Ecology requested concurrence on flagged 24-hour PM_{10} data on August 14, 2015, at the Kennewick Metaline Road monitoring station (AQS site # 53-005-0002, POC 3). The recorded 24-hour PM_{10} level for which Ecology requests the EPA's concurrence is shown in Table 1. The PM_{10} level from the submitted day exceeded the 150 $\mu g/m^3$ PM_{10} NAAQS.

Table 1. Ecology Flagged 24-hr PM_{10} Values at the KENMETA Monitor Due to a High Wind Dust Exceptional Event

Date	PM_{10} Concentration ($\mu g/m^3$)
August 14, 2015	589

Ecology flagged the monitored values as due to a high wind dust exceptional event. The agency made the documentation available for public comment for 30 days starting on September 25, 2017. The comment period closed on October 25, 2017 and Ecology did not receive any public comments. Ecology submitted the exceptional event demonstration package to the EPA on November 30, 2017. Ecology requests concurrence from the EPA for the flagged day, based on Ecology's conclusion that the data has

regulatory significance with regard to the PM_{10} 24-hour design value at the KENMETA monitor and the upcoming submission of its second ten-year PM_{10} Maintenance Plan.

The EPA's Exceptional Event Evaluation

The EPA has determined that the PM_{10} exceedance on August 14, 2015, has regulatory significance for use in Ecology's second ten-year PM_{10} maintenance plan demonstration currently in development. Therefore, the EPA has evaluated whether the documentation provided by Ecology for the PM_{10} value on August 14, 2015, meets the requirements of an exceptional event under the Exceptional Event Rule.

The matrix below summarizes the requirements of the Exceptional Events Rule and describes how Ecology met each requirement. All references to page numbers, tables, and figures relate to Ecology's November 30, 2017 submittal.

Procedural Requirements:	**The EPA's Evaluation of Flagged Exceedances:**
• The state must notify the EPA of its intent to request exclusion of data as due to an exceptional event by creating an initial event description and flagging the associated data in the EPA's AQS database, and engaging in the Initial Notification of Potential Exceptional Event Process. 40 CFR 50.14(c)(2)(i).	Ecology flagged and described the August 14, 2015, 24-hour PM_{10} value as due to a high wind dust exceptional event in the EPA's AQS database in June 2016. Ecology has also participated in the EPA, R10 Annual Exceptional Events teleconference on March 10, 2016 and April 6, 2017, and subsequent meetings to discuss data potentially influenced by an exceptional event, to determine if the identified data may affect a regulatory determination, and to discuss development of an exceptional event demonstration. Ecology has met the Initial Notification and Flagging requirements for this demonstration.
• The public had an opportunity to review and comment on the demonstration justifying data exclusion; any public comments received by Ecology were included in the demonstration; and the demonstration addresses those comments disputing or contradicting factual evidence provided in the demonstration. 40 CFR 50.14(c)(3)(v).	Ecology provided a 30-day public comment period on the documentation for the claimed exceptional event. The public comment period ran from September 25, 2017 to October 25, 2017. No comments were received. Ecology has met the public comment requirements for this demonstration.

Technical Criteria:	
• The demonstration includes a narrative conceptual model that describes the event as provided in 40 CFR 50.14(c)(3)(iv)(A).	*Conceptual Model* Ecology describes key elements of a conceptual model throughout the demonstration, predominantly in Sections 1 through Section 3. The conceptual model describes a high wind event that was generated southwest of the KENMETA monitor on August 14, 2015, traveled northeast, and then entrained and transported the dust to the monitor, which recorded the elevated values for that area in the afternoon. In Section 3.2.1, Ecology explains that the area where the high winds entrained dust had been experiencing drought conditions since 2013 based on the USDA Drought Monitor. Figure 16 shows that, on August 11, 2015, days before the event, all of Washington was experiencing severe/extreme drought conditions. Figures 5 provides imagery of the dust plume travelling on the day of the recorded exceedance. Conditions were conducive to erosion and entrainment. The entrained dust primarily came from agricultural lands in the Horse Heaven Hills agricultural area located in Benton and Klickitat Counties in Washington as shown in Figures 1, 2, 3, and 4. Sections 3.1 and 3.2 explain that the wind event was generated to the southwest of the KENMETA monitor. Figure 10 depicts the temporal progression of the wind storm and PM_{10} values at KENMETA. Wind speeds on August 14, 2015 increased through the early morning and peaked above 25mph between noon and 4:00 p.m. with the speeds subsiding after 4:00 p.m. The recorded PM_{10} concentrations followed this same progression, with concentrations rising at 10:00 a.m., peaking between 1:00 -2:00 p.m., and quickly decreasing in the afternoon. Section 3.1 provides multiple wind and pollution roses in Figures 11, 12, and 14 that demonstrate that the winds and pollution were coming from the southwest. Table 2 and Figures 10 and 13 demonstrate that during the high wind event, 1-hour average wind speeds ranged from 28.6 mph to 54 mph at or upwind of the KENMETA monitor and that wind speed exceeded 25 mph from noon to 4:00 p.m. at the KENMETA site. The BPKEN monitor station ~10 miles to the southeast recorded higher winds speeds for longer durations. The information in Ecology's submission provides a detailed description of the event, including the entrainment and transport of the dust, which satisfies the conceptual model criteria.

• The event meets the definition of a "high wind dust event" in 40 CFR 50.1(p).	*High Wind Dust Event* A "high wind dust event" is defined as an event that includes high-speed wind and the dust that the wind entrains and transports to a monitoring site. As described in Ecology's conceptual model, the event included high wind speeds that entrained dust and transported the dust to the KENMETA monitor during a period where drought conditions made the soil more susceptible to entrainment. The EER contains a presumptive 25 mph (1-hour average wind speed) high wind threshold for identified Western states. 40 CFR 51.14(b)(5)(iii). As described in the Washington Natural Events Action Plan, Columbia Plateau in eastern Washington has a state established, area-specific high wind threshold of 18 mph for two or more hours, as discussed in Section 3.1. In Table 2 and Figures 10, 13, and 15, Ecology shows that both the presumptive high wind threshold in the EER for Western states and the Washington area-specific thresholds were met as all three monitors in the area experienced 1 hour sustained winds over 25 mph, and multi-hour sustained winds over 18 mph. The weight of evidence supports the conclusion that the event meets the definition of a high wind dust event under the Exceptional Events Rule.
• The event satisfies the "clear causal relationship" criteria in 40 CFR 50.1(j); 40 CFR 50.14(c)(3)(iv)(B).	*Clear Causal Relationship* As evidence that the event affected air quality, the Executive Summary and Section 1 show that the August 14, 2015 589 $\mu g/m^3$ recorded concentration exceeded the 150 $\mu g/m^3$ PM_{10} 24-hour standard. To demonstrate a clear causal relationship between the high wind dust event and the elevated PM concentrations at the KENMETA monitor, Ecology examined a number of factors including satellite imagery, wind and pollution roses, wind speed and direction, and HYSPLIT back trajectories. Most of these analyses have already been discussed in the Conceptual Model and Natural Event/High Wind Dust Event sections above, except for the back trajectories. The NOAA HYSPLIT back trajectories have been analyzed at 50m, 100m, and 500m as depicted in Figures 20, 21, 22, and 23. All of these figures clearly show that the winds transporting the dust plume approached from the southwest of the KENMETA monitor. This approach occurred over the Horse Heaven Hills agricultural area where the dust entrainment occurred. Based on the weight of evidence provided, the EPA concludes that there is a clear causal relationship between the elevated PM_{10}

	concentration recorded at the KENMETA monitor on August 14, 2015, and the high wind dust event.
• The demonstration includes an analysis comparing the claimed event-influenced concentrations to concentrations at the same monitoring site at other times to support the "clear causal connection" requirement. 40 CFR 50.14(c)(3)(iv)(C).	*Event-Related Concentrations Compared to Historical Concentrations* Section 3.4 of the demonstration compares the event influenced concentrations to concentrations from the same monitoring site over the course of multiple years and seasons to support that the event affected air quality and that there was a clear causal relationship between the event and the monitored exceedance. In Figures 24 and 30, Ecology plotted all PM_{10} concentrations at the KENMETA monitor from 2012-2016. Both plots showed that all values, except for seven, were below the 150 $\mu g/m^3$ standard. Table 6 showed that three of the dates with recorded concentrations above the 150 $\mu g/m^3$ standard were claimed by Ecology as due to high wind exceptional events, with which the EPA concurred, and the remaining four were suspected of being due to high wind exceptional events. Figure 25 and Table 6 showed that these exceedances all occurred when wind speeds were above 20 mph. Figure 29 and Table 7 both show that these high values occur infrequently and that the value recorded on August 14, 2015 was over the 99.9% percentile ranking. Ecology's submittal demonstrates that the PM_{10} concentration in Kennewick on the event day was in excess of normal historical fluctuations, including background, and supports the conclusion that there is a clear causal connection between the high winds entraining dust on August 14, 2015 and the elevated PM_{10} concentration at the KENMETA monitor that day.
• The event satisfies the "not reasonably controllable and not reasonably preventable" criteria in 40 CFR 50.1(j); 40 CFR 50.14(b)(5)(iv), (b)(5)(v), (b)(8), and (c)(3)(iv)(D).	*Not Reasonably Controllable/Not Reasonably Preventable* High wind events under the 2016 exceptional event rule are not required to address the not reasonably preventable prong. 50.14(b)(5)(iv). To meet the not reasonably controllable prong of the requirement, in Section 3.5, Ecology explained that the primary sources of emissions in the area that affected the monitor were from agricultural activities along the wind path on the day of the exceedance. Ecology investigated other potential sources of emissions and found that there were no emissions from industrial sources or wildfires that may have contributed to the exceedance. Ecology discusses in Section 3.5.2 the controls in place and in Section 3.5.3 assesses the implementation of these controls. *Controls in Place in Washington*

	Ecology's submittal describes agricultural controls in place that are designed to reduce wind erosion and fugitive dust, to support its conclusion that appropriate controls were in place at the time of the high wind event. Ecology identified controls housed and implemented in the following agencies/programs: USDA-NRCS Conservation Measures for Agriculture including three Conservation Title Programs designed to reduce erosion through conservation; Washington's NEAP, which documents and establishes conservation practices; Washington's and Benton County's rules to address fugitive dust/emissions; and federal legislation that also supports conservation efforts. These plans and strategies include a variety of controls including but not limited to: removing land from crop production, planting cover crops, keeping crop residues on surface to prevent erosion, minimizing surface tillage, reducing unsheltered distance along the wind erosion direction, producing and maintaining stable clods or aggregates on the land surface, development of plans to prevent fugitive dust emissions, and roughening the land to reduce erosion. To show that these practices were in place and being implemented on August 14, 2014, Ecology identified in Figure 32 the number of acres participating in conservation programs, along with additional narrative information on participation in the individual conservation programs. Figures 33 and 34 show pictures of efforts within the two counties to utilize innovative technologies and measures (stripper header and deep furrow seeding) to reduce tillage and minimize fugitive dust. Table 9 identifies how these conservation practices are estimated to reduce erosion by 25 percent of cropped acres and 100 percent for acres utilizing cover. The narrative also explains that these conservation programs ensure that participants are complying with the programs through a variety of means including requiring certification that they are in compliance with an NRCS approved conservation plan, performing random compliance audits annually for those participating in the NRCS and FSA programs, and performing spot checks annually on approximately 5 percent of participants in the EQUIP, CSP, and CRP programs. Failure to comply can result in loss of funding, and, in some cases, refunding funding with interest. Both Benton County and Washington State have staff resources in place to enforce their rules. Ecology's submittal does not contain a showing that the controls in place on affected agricultural areas render the agricultural lands as resistant to high winds as natural undisturbed lands in the area. See 40 CFR 50.14(b)(5)(v). It does show, however, that there were multiple controls in place on the affected agricultural areas at the time of the high wind event to prevent and control emissions from

	anthropogenic sources, primarily agricultural sources. In addition, as part of its efforts to address emissions from lands disturbed by agriculture, Ecology continues to engage with the land management agencies responsible for these lands and supports their efforts. Ecology is also developing a mitigation plan for this area which will also address efforts to continue to control emissions from the agriculturally disturbed lands in the area. The EPA, therefore, concludes on the weight of evidence and the specific facts presented here that Ecology has shown that reasonable measures to control the impact of the event on air quality were applied at the time of the event.
• The event satisfies the "unlikely to recur at a particular location or a natural event" criteria in 40 CFR 50.1(k); 40 CFR 51.14(c)(iv)(E).	*Natural Event* A high wind dust event can be considered a natural event if all anthropogenic sources were reasonably controlled as determined in accordance with 40 CFR 50.14(b)(8). This high wind dust event meets this requirement as described in the *Not Reasonably Controllable or Preventable* section of this analysis above. Additional information to support that this was a natural wind event include the technical information that documented the high wind event including the satellite images, wind speed and direction information, and the outreach materials that included advisories notifications, blog postings, and media advisories that documented the high wind event. The EPA concludes that this high wind event can be considered a natural event.
• The event satisfies the "mitigation" criteria in 40 CFR 51.930 and 40 CFR 51.14(b)(9).	*Mitigation* 40 CFR 51.930 requires that a state requesting to exclude air quality data due to exceptional events must take appropriate and reasonable actions to protect public health from exceedances or violations of the NAAQS. At a minimum, the State must: 1. Provide for prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard; 2. Provide for public education concerning actions that individuals may take to reduce exposures to unhealthy levels of air quality during and following an exceptional event; and 3. Provide for the implementation of appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by exceptional events. To meet the public notification requirements, Ecology identified a variety of pathways. These include the Northwest Weather Service

	advisories which provide media and radio advisories, Ecology air quality notifications which provide notifications via the web and social media, and Benton County efforts to provide notification locally. For the August 14, 2015 high wind event, the submittal (Section 3.7) identified notification through an Ecology tweet notification, multiple NWS advisories released prior to and during the high wind, and media reports related to the high wind event. Additionally, in Appendix D, Ecology showed that it provided information throughout the year to educate the public on dust storms, including information on the Ecology website explaining how individuals can reduce exposures to unhealthy emissions levels, and distribution of a windblown dust informational brochure. The information provided in Ecology's submittal is sufficiently detailed to document that the mitigation requirements of the Exceptional Event Rule have been met. The area has triggered the mitigation plan requirement of 40 CFR 51.930(b), with the mitigation plan being due in Fall 2018. This was detailed in the October 3, 2016 EER at 81 FR 68216; the areas that triggered the mitigation requirement are listed in Table 6, 81 FR 68272. Efforts to meet this requirement have been underway since 2017. The plan is not currently due and does not need to be evaluated for this submittal.

Conclusion

The EPA has determined that the PM_{10} value of 589 $\mu g/m^3$ that occurred on August 14, 2015, was due to a high wind dust exceptional event and has regulatory significance for use in Ecology's Wallula second ten-year PM_{10} maintenance plan. Based on the documentation submitted by Ecology dated November 30, 2017, the EPA concurs on the PM_{10} data value listed in Table 2, which has been flagged by Ecology in AQS as due to a high wind dust exceptional event.

Table 2. 24-hr PM_{10} Value Flagged by Ecology at the KENMETA Monitor and Concurred on by the EPA as Meeting the Exceptional Event Criteria

Date	PM_{10} Concentration ($\mu g/m^3$)
August 14, 2015	589

The information and analyses presented in Ecology's exceptional event demonstration package provided weight of evidence sufficient for the EPA's concurrence on the flagged data from the KENMETA monitor on the date listed above and as described in this document. Accordingly, we are placing a concurrence indicator in the EPA's AQS database for this date at this monitor.