Technical Support Document for EPA Concurrence on O_3 Exceedances Measured at Four Pennsylvania Monitors on May 25 and May 26, 2016 as Exceptional Events

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Enclosure: Technical Support Document for EPA Concurrence on O_3 Exceedances Measured at Four Pennsylvania Monitors on May 25 and May 26, 2016 as Exceptional Events

In spring of 2016, the Pennsylvania Department of Environmental Protection (PADEP) identified that wildfires near Fort McMurray, Alberta, Canada may have caused ozone (O_3) exceedances at several O_3 monitoring sites operated by PADEP on May 25 and 26, 2016. The Fort McMurray wildfire began on May 1st, 2016 and quickly expanded out of control. During a period of intense fire growth, a concentrated smoke plume was lofted and transported to the central United States. The smoke contained volatile organic compounds and nitrogen oxide emissions that underwent photochemical reactions, forming O_3 that was subsequently transported to the northeastern United States.

Under the Exceptional Events Rule, air agencies can request the exclusion of event-influenced data, and EPA can agree to exclude these data, from the data set used for certain regulatory decisions. The remainder of this document summarizes the Exceptional Events Rule requirements, the event and EPA's review process.

Exceptional Events Rule Requirements

EPA promulgated the Exceptional Events Rule in 2007, pursuant to the 2005 amendment of Clean Air Act (CAA) section 319. In 2016, EPA finalized revisions to the Exceptional Events Rule. The 2007 Exceptional Events Rule and 2016 Exceptional Events Rule revisions added sections 40 CFR §50.1 (j)-(r), 50.14, and 51.930 to title 40 of the Code of Federal regulations (CFR). These sections contain definitions, criteria for EPA approval, procedural requirements, and requirements for air agency demonstrations. EPA reviews the information and analyses in the air agency's demonstration package using a weight of evidence approach and decides to concur or not concur. The demonstration must satisfy all of the Exceptional Events Rule criteria for EPA to concur with excluding the air quality data from regulatory decisions.

Under 40 CFR §50.14 (c) (3) (iv), the air agency demonstration to justify data exclusion must include:

A. "A narrative conceptual model that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s);"

B. "A demonstration that the event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation;"

C. "Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times" to support (B) above;

D. "A demonstration that the event was both not reasonably controllable and not reasonably preventable;" and

E. "A demonstration that the event was a human activity that is unlikely to recur at a particular location or was a natural event."[1]

In addition, the air agency must meet several procedural requirements, including:

1. Submission of an Initial Notification of Potential Exceptional Event and flagging of the affected data in EPA's Air Quality System (AQS) as described in 40 CFR §50.14(c)(2)(i),

2. Completion and documentation of the public comment process described in 40 CFR §50.14(c)(3)(v), and

3. Implementation of any applicable mitigation requirements as described in 40 CFR §51.930.

For data influenced by exceptional events to be used in initial area designations, air agencies must also meet the initial notification and demonstration submission deadlines specified in Table 2 to 40 CFR §50.14. We include below a summary of the Exceptional Events Rule criteria, including those identified in 40 CFR §50.14(c)(3)(iv).

Regulatory Significance

The 2016 Exceptional Events Rule includes regulatory language that applies the provisions of CAA section 319 to a specific set of regulatory actions. As identified in 40 CFR §50.14 (a)(1)(i), these regulatory actions include initial area designations and redesignations; area classifications; attainment determinations (including clean data determinations); attainment date extensions; findings of State Implementation Plan (SIP) inadequacy leading to a SIP call; and other actions on a case-by-case basis as determined by the Administrator. Air agencies and EPA should discuss the regulatory significance of an exceptional events demonstration during the Initial Notification of Potential Exceptional Event prior to the air agency submitting a demonstration for EPA's review.

[1] A natural event is further described in 40 CFR §50.1 (k) as "an event and its resulting emissions, which may recur at the same location, in which human activity plays little or no direct causal role. For purposes of the definition of a natural event, anthropogenic sources that are reasonably controlled shall be considered to not play a direct role in causing emissions."

Narrative Conceptual Model

The 2016 Exceptional Events Rule directs air agencies to submit, as part of the demonstration, a narrative conceptual model of the event that describes and summarizes the event in question and provides context for analyzing the required statutory and regulatory technical criteria. Air agencies may support the narrative conceptual model with summary tables or maps. For wildfire O_3 events, EPA recommends that the narrative conceptual model also discuss the interaction of emissions, meteorology, and chemistry of event and non-event O_3 formation in the area, and, under 40 CFR §50.14 (a)(1)(i), must describe the regulatory significance of the proposed data exclusion.

Clear Causal Relationship and Supporting Analyses

EPA considers a variety of evidence when evaluating whether there is a clear causal relationship between a specific event and the monitored exceedance or violation. For wildfire O_3 events, air agencies should compare the O_3 data requested for exclusion with seasonal and annual historical concentrations at the air quality monitor to establish a clear causal relationship between the event and monitored data. In addition to providing this information on the historical context for the event-influenced data, air agencies should further support the clear causal relationship criterion by demonstrating that the wildfire's emissions were transported to the monitor, that the emissions from the wildfire influenced the monitored concentrations, and, in some cases, air agencies may need to provide evidence of the contribution of the wildfire's emissions to the monitored O_3 exceedance or violation.

For wildfire O_3 events, EPA has published a guidance document that provides three different tiers of analyses that apply to the "clear causal relationship" criterion within an air agency's exceptional events demonstration. If a wildfire/O_3 event satisfies the key factors for either Tier 1 or Tier 2 clear causal analyses, then those analyses are the only analyses required to support the clear causal relationship criterion within an air agency's demonstration for that particular event. Other wildfire/O_3 events will be considered based on Tier 3 analyses.

- Tier 1: Wildfires that clearly influence monitored O_3 exceedances or violations when they occur in an area that typically experiences lower O_3 concentrations.
    - *Key Factor:* seasonality and/or distinctive level of the monitored O_3 concentration. The event-related exceedance occurs during a time of year that typically has no exceedances, or is clearly distinguishable (*e.g.,* 5-10 ppb higher) from non-event exceedances.
    - In these situations, O_3 impacts should be accompanied by clear evidence that the wildfire's emissions were transported to the location of the monitor.

- Tier 2: The wildfire event's O_3 influences are higher than non-event related concentrations, and fire emissions compared to the fire's distance from the affected monitor indicate a clear causal relationship.

- *Key Factor 1:* fire emissions and distance of fire(s) to affected monitoring site location(s). Calculated fire emissions of NO_x and reactive-VOC in tons per day (Q) divided by the distance from the fire to the monitoring site (D) should be equal to or greater than 100 tons per day/kilometers ($Q/D \geq 100$ tpd/km). The guidance document provides additional information on the calculation of Q/D.
- *Key Factor 2:* comparison of the event-related O_3 concentration with non-event related high O_3 concentrations. The exceedance due to the exceptional event:
  - Is in the 99th or higher percentile of the 5-year distribution of O_3 monitoring data, OR
  - Is one of the four highest O_3 concentrations within 1 year (among those concentrations that have not already been excluded under the Exceptional Events Rule, if any).
- In addition to the analysis required for Tier 1, the air agency should supply additional information to support the weight of evidence that emissions from the wildfire affected the monitored O_3 concentration.

- Tier 3: The wildfire does not fall into the specific scenarios (*i.e.,* does not meet the key factors) that qualify for Tier 1 or Tier 2, but the clear causal relationship criterion can still be satisfied by a weight of evidence showing.
  - In addition to the analyses required for Tier 1 and Tier 2, an air agency may further support the clear causal relationship with additional evidence that the fire emissions caused the O_3 exceedance.

Not Reasonably Controllable or Preventable

The Exceptional Events Rule requires that air agencies establish that the event be both not reasonably controllable and not reasonably preventable at the time the event occurred. This requirement applies to both natural events and events caused by human activities; however, it is presumed that wildfires on wildland will satisfy both factors of the "not reasonably controllable or preventable" element unless evidence in the record clearly demonstrates otherwise.[2]

[2] A wildfire is defined in 40 CFR §50.1(n) as "any fire started by an unplanned ignition caused by lightning; volcanoes; other acts of nature; unauthorized activity; or accidental, human-caused actions, or a prescribed fire that has developed into a wildfire. A wildfire that predominantly occurs on wildland is a natural event." Wildland is defined in 40 CFR §50.1(o) as "an area in which human activity and development are essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered."

Natural Event or Event Caused by Human Activity that is Unlikely to Recur

According to the CAA and the Exceptional Events Rule, an exceptional event must be "an event caused by human activity that is unlikely to recur at a particular location *or* a natural event" (emphasis added). The 2016 Exceptional Events Rule includes in the definition of wildfire that "[a] wildfire that predominantly occurs on wildland is a natural event." Once an agency provides evidence that a wildfire on wildland occurred and demonstrates that there is a clear causal relationship between the measurement under consideration and the event, EPA expects minimal documentation to satisfy the "human activity that is unlikely to recur at a particular location or a natural event" element. EPA will address wildfires on other lands on a case-by-case basis.

EPA Review of Exceptional Events Demonstration

On January 19, 2017, PADEP submitted an Initial Notification of Potential Exceptional Event for 58 monitors that PADEP believed to have been affected by the Ft. McMurray wildfire on May 25 and 26, 2016. On May 31st, 2017, PADEP submitted a draft of the exceptional events demonstration. On November 17, 2017, PADEP submitted a revised exceptional events demonstration for 24 exceedances of the 2008 8-hour O_3 standard at the following monitors:

- Reading Airport (AQS: 420110011) – May 25 and 26, 2016
- Lebanon (AQS: 420750100) – May 25, 2016
- Norristown (AQS: 420910013) – May 25, 2016
- Arendtsville (AQS: 420010001) – May 25, 2016
- Bristol (AQS: 420170012) – May 25 and 26, 2016
- State College (AQS: 420270100) – May 25, 2016
- New Garden (AQS: 420290100) – May 25, 2016
- Moshannon (AQS: 420334000) – May 25, 2016
- Chester (AQS: 420450002) – May 25, 2016
- Erie (AQS: 420490003) – May 25, 2016
- Peckville (AQS: 420690101) – May 25, 2016
- Lancaster (AQS: 420710007) – May 25 and 26, 2016
- Wilkes Barre (AQS: 420791101) – May 25, 2016
- Farrell (AQS: 420850100) – May 25, 2016
- Swiftwater (AQS: 42089000) – May 25, 2016
- Freemansburg (AQS: 420950025) – May 25, 2016
- Easton (AQS: 420958000) – May 25, 2016
- Northeast Airport (AQS: 421010024) – May 25 and 26, 2016
- Northeast Waste (AQS: 421010048) – May 25, 2016
- York Downwind (AQS: 421330011) – May 26, 2016

and 27 exceedances of the 2015 8-hour O_3 standard that occurred at the following monitors:

- Lebanon (AQS: 420750100) – May 26, 2016
- Norristown (AQS: 420910013) – May 26, 2016
- Kittanning (AQS: 42005001) – May 25, 2016
- Hookstown (AQS: 420070002) – May 25, 2016
- Beaver Falls (AQS: 420070014) – May 25, 2016
- Kutztown (AQS: 420110006) – May 25, 2016
- Altoona (AQS: 420130801) – May 25, 2016
- New Garden (AQS: 420290100) – May 26, 2016
- Hershey (AQS: 420431100) – May 25, 2016
- Chester (AQS: 420450002) – May 26, 2016
- Strongstown (AQS: 420630004) – May 24 and May 25, 2016
- Peckville (AQS: 420690101) – May 26, 2016
- Scranton (AQS: 420692006) – May 25, 2016
- Lancaster Downwind (AQS: 420710012) – May 25, 2016
- Allentown (AQS: 420770004) – May 26, 2016
- Montoursville (AQS: 420810100) – May 25, 2016
- Farrell (AQS: 420850100) – May 24, 2016
- Swiftwater (AQS: 420890002) – May 26, 2016
- Freemansburg (AQS: 420950025) – May 26, 2016
- Easton (AQS: 420958000) – May 26, 2016
- Northeast Waste (AQS: 421010048) – May 26, 2016
- Tioga County (AQS: 421174000) – May 24 and 25, 2016
- Florence (AQS: 421255001) – May 25, 2016
- York (AQS: 421330008) – May 25, 2016
- York Downwind (AQS: 421330011) – May 25, 2016

The same monitored exceedances were included in PADEP's final demonstration dated February 20, 2018.

Regulatory Significance

EPA worked with PADEP to identify the relevant exceedances and monitoring sites affected. Ultimately, monitor days without exceedances, or immediate or possible regulatory significance requested by PADEP were either deferred or non-concurred. Table 1 summarizes the monitor days with exceedances and EPA's decisions.

Table 1. EPA 8-hour O_3 Exceedance Summary

Exceedance Date	Site Name	AQS ID	8-hour Max. (ppb)	EPA Decision
05/24/2016	Kittanning	420050001	73	Defer
05/24/2016	Strongstown	420630004	71	Defer
05/24/2016	Farrell	420850100	74	Defer
05/24/2016	Tioga County	421174000	73	Defer
05/25/2016	Reading Airport	420110011	79	Concur
05/25/2016	Lebanon	420750100	76	Concur
05/25/2016	Norristown	420910013	82	Concur
05/25/2016	Freemansburg	420950025	82	Concur
05/25/2016	Arendtsville	420010001	76	Defer
05/25/2016	Kittanning	420050001	75	Defer
05/25/2016	Hookstown	42007002	71	Defer
05/25/2016	Beaver Falls	420070014	72	Defer
05/25/2016	Kutztown	420110006	73	Defer
05/25/2016	Bristol	420170012	84	Defer
05/25/2016	New Garden	420290100	80	Defer
05/25/2016	Hershey	420431100	75	Defer
05/25/2016	Chester	420450002	80	Defer
05/25/2016	Erie	420490003	79	Defer
05/25/2016	Strongstown	420630004	72	Defer
05/25/2016	Peckville	420690101	79	Defer
05/25/2016	Scranton	420692006	74	Defer
05/25/2016	Lancaster	420710007	81	Defer
05/25/2016	Lancaster Downwind	420710012	73	Defer
05/25/2016	Wilkes Barre	420791101	76	Defer
05/25/2016	Montoursville	420810100	73	Defer
05/25/2016	Farrell	420850100	81	Defer
05/25/2016	Swiftwater	420890002	82	Defer
05/25/2016	Easton	420958000	80	Defer
05/25/2016	Northeast Airport	421010024	84	Defer
05/25/2016	Northeast Waste	421010048	77	Defer
05/25/2016	Tioga County	421174000	74	Defer
05/25/2016	Florence	421255001	72	Defer
05/25/2016	York	421330008	71	Defer
05/25/2016	York Downwind	421330011	75	Defer

05/25/2016	Altoona	420130801	71	Non-concur
05/25/2016	State College	420270100	77	Non-concur
05/25/2016	Moshannon	420334000	76	Non-concur
05/26/2016	Reading Airport	420110011	76	Concur
05/26/2016	Lebanon	420750100	72	Concur
05/26/2016	Norristown	420910013	74	Concur
05/26/2016	Freemansburg	420950025	75	Concur
05/26/2016	Bristol	420170012	81	Defer
05/26/2016	New Garden	420290100	73	Defer
05/26/2016	Chester	420450002	71	Defer
05/26/2016	Peckville	420690101	73	Defer
05/26/2016	Lancaster	420710007	80	Defer
05/26/2016	Allentown	420770004	73	Defer
05/26/2016	Swiftwater	420890002	72	Defer
05/26/2016	Easton	420958000	74	Defer
05/26/2016	Northeast Airport	421010024	79	Defer
05/26/2016	Northeast Waste	421010048	71	Defer
05/26/2016	York Downwind	421330011	80	Defer

Narrative Conceptual Model

PADEP's demonstration provided a narrative conceptual model to describe how emissions from Fort McMurray, Alberta, Canada contributed to O_3 exceedances at the Reading Airport, Lebanon, Norristown, and Freemansburg monitoring stations. The conceptual model included a general overview of the emissions and meteorology typically conducive to O_3 formation in Pennsylvania, a literature review of studies that examine the role of wildfires on downwind O_3, and a discussion of the meteorology, wildfire smoke, and regional, ground-level O_3 on the days leading up to, and during, the exceptional event.

In the demonstration, PADEP explains that, "Pennsylvania is a part of the Ozone Transfer Region (OTR)", and that, "Peak ozone concentrations are not only a factor of existing meteorological conditions; peak ozone concentrations are reliant on regional and local emission loading on any given day". Due to nitrogen oxide (NO_x) emissions reduction efforts across the OTR, Pennsylvania has seen significant decreases in the number of days with exceedances of the 2008 and 2015 O_3 NAAQS.

During May and June of 2016, the Fort McMurray wildfire covered over 1,500,000 acres of land. In the days leading up to the exceptional event-associated O_3 NAAQS exceedances in Pennsylvania, "the upper level winds, which steer the weather patterns across the world, were conducive to funneling smoke that was aloft south and east across northcentral US into the

northeastern US from western Canada". A high pressure system that tracked from the Midwestern U.S. to the Atlantic Ocean from May 22 to May 26, 2016, "triggered a vertical sinking air mechanism necessary to transport the smoke from aloft to near the surface". In the demonstration, PADEP pointed out that long-range transport of O_3-enhanced air masses has been documented in other studies: "Most recently, Joel Dreessen of the Maryland Department of the Environment (MDE) wrote an article addressing the impact of forest fires originating in Saskatchewan, Canada in May 2015 on ozone concentration across Maryland".

Table 2. Documentation of Narrative Conceptual Model

Exceedance Date	Demonstration Citation	Quality of Evidence	Criterion Met?
May 24, 2016	Pages 8-25	Sufficient	Yes
May 25, 2016	Pages 8-25	Sufficient	Yes
May 26, 2016	Pages 8-25	Sufficient	Yes

Clear Causal Relationship and Supporting Analyses

PADEP's demonstration included multiple analyses to demonstrate a clear causal relationship between the Fort McMurray fire and the monitored exceedances. A selection of these analyses is listed and further discussed below.

Trajectory Analysis

PADEP included 240-hour backward trajectories using the National Oceanic and Atmospheric Administration's Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model starting on May 24th, 25th and 26th, 2016 at three different heights (100, 500, and 1000 m), and originating in Erie (May 24th), Harrisburg (May 25th), and Philadelphia, Pennsylvania (May 26th). In all three HYSPLIT runs, the output indicated that the air masses present on May 24th, 25th, and 26th, 2016 came from the north, northwest and most recently, from the Great Lakes region. The model output also indicated that the air mass was sinking in the days leading up to the event. These results are consistent with PADEP's conceptual model.

Q/d Analysis

PADEP estimated two Q/d values – one more conservative than the other. The more conservative calculation yielded a Q/d of 4.84 tpd/km. The less conservative calculation returned a Q/d of 29 tpd/km. Because both the Q/d values estimated by PADEP were below EPA's recommended level of 100 tpd/km, PADEP wanted to consider "the basis for the U.S. EPA guidance", and look at the emissions from one of the four fires used to develop the recommendation. PADEP scaled up the emissions of one of the four fires to approximate the size of the Ft. McMurray fire and produced a Q/d estimate of 15 tpd/km. While the results of this analysis did not satisfy the Q/d value recommendation, PADEP's inclusion of additional analyses in this demonstration are adequate in satisfying the requirements.

Comparison of Event O_3 Concentrations with Non-event

Of the 127 monitor days requested for exclusion, all but three (where exceedances of the 2008 or 2015 NAAQS occurred) recorded maximum 8-hour O_3 concentrations that were within the top four highest for 2016 at that monitor. Additionally, the four monitors that were concurred with, had daily maximum 8-hour O_3 concentrations during the event dates that were at, above, or just below the 99th percentile for the years 2012-2016.

Concentrations of Supporting Ground-level Measurements

Ground-level concentrations of $PM_{2.5}$ from several monitors across Pennsylvania increased sharply during the event period. PADEP reports that the Erie monitor, located in northwestern PA, was the first to respond to the event with concentrations rising on May 23. The western and northcentral monitors rose on May 24, and as the air mass continued to track southeast, the southcentral and southeastern monitors responded to the airmass on May 25.

PADEP utilized $PM_{2.5}$ speciation data from Great Lakes and Ohio Valley states on May 24 to investigate the presence and change in concentrations of wildfire tracers (organic carbon and potassium ion). Both organic carbon and potassium ion concentrations peaked on May 24. PADEP writes, "For many of the sites, the organic carbon concentrations measured on May 24 was the highest for the entire month of May 2016". Presence of these wildfire tracers indicate that the airmass has likely been influenced by wildfire and provides evidence for connecting the elevated $PM_{2.5}$ concentrations discussed above with the Ft. McMurray wildfire.

Similar Day Analysis

PADEP identified two days (May 26, 2014 and May 4, 2015) between 2012 and 2016 with similar meteorology to the event dates (temperatures around 80°F, winds from the northwest, and high pressure near the Mid-Atlantic). Overall, lower O_3 concentrations were recorded on the similar days. PADEP states that on the similar days, "there was not one monitor in Pennsylvania which exceeded the 2015 ozone NAAQS".

Photochemical Model

The Community Multi-Scale Air Quality (CMAQ) O_3 model can predict quantitatively and spatially O_3 concentrations. In 2016 when MDE ran CMAQ in support of their 2016 Ft. McMurray wildfire exceptional event demonstration, the model did not include 2016 wildfire emissions in the O_3 chemical creation mechanism. Therefore, the model results could be compared with observed O_3 concentrations. If CMAQ significantly underpredicts daily maximum 8-hour O_3, it is indicative that there were O_3 sources that were not accounted for.

PADEP incorporated figures from an analysis performed by Joel Dreessen at MDE. These figures show an area of underpredicted maximum daily 8-hour O_3 in the Midwest on May 24, 2016. By May 25, the area of underprediction had spread east and across northern Pennsylvania, and by

May 26, 2016, almost the entire state of Pennsylvania was included in the area of underprediction.

Conclusions

PADEP stated that the evidence presented demonstrates "that the Fort McMurray fires affected air quality across the Commonwealth in such a way that a clear causal relationship between the Fort McMurray fires and ozone monitored exceedances exists on May 24, May 25, and May 26, therefore satisfying the clear causal relationship criterion as it relates to exceptional events".

The analyses included in the demonstration, specifically, the similar day analysis and comparison of modeled (without fire emissions) with observed O_3 concentrations, sufficiently demonstrates a clear causal relationship between the emissions generated by the Fort McMurray wildfire and the exceedances measured at the Reading Airport, Lebanon, Norristown, and Freemansburg monitors.

Table 3. Documentation of Clear Causal Relationship and the Supporting Analyses

Exceedance Date	Demonstration Citation	Quality of Evidence	Criterion Met?
May 24, 2016	Pages 32-57	Sufficient	Yes
May 25, 2016	Pages 32-57	Sufficient	Yes
May 26, 2016	Pages 32-57	Sufficient	Yes

Not Reasonably Controllable or Preventable

The Exceptional Events Rule presumes that wildfire events on wildland are not reasonably controllable or preventable (40 CFR §50.14(b)(4)). PADEP's demonstration provided evidence that the wildfire event met the definition of wildfire. Specifically, PADEP stated that "Since these fires occurred outside of the US, the Department believes these fires could not be reasonably controlled or prevented by the Commonwealth of Pennsylvania. No Policy that Pennsylvania could have enacted would have prevented the fire and its associated plumes of smoke from transporting across the northern US into Pennsylvania. In addition, Pennsylvania is unaware of any evidence which demonstrates that preventing or controlling impacts beyond those that actually occurred would have been reasonable". Therefore, the documentation provided sufficiently demonstrates that the event was not reasonably controllable and not reasonably preventable.

Table 4. Documentation of not Reasonably Controllable or Preventable

Exceedance Date	Demonstration Citation	Quality of Evidence	Criterion Met?
May 24, 2016	Page 58	Sufficient	Yes
May 25, 2016	Page 58	Sufficient	Yes
May 26, 2016	Page 58	Sufficient	Yes

Natural Event or Event Caused by Human Activity that is Unlikely to Recur

The definition of "wildfire" at 40 CFR §50.1(n) states, "A wildfire that predominantly occurs on wildland is a natural event." PADEP's demonstration included documentation that the event met the definition of a wildfire and occurred predominantly on wildland. PADEP has therefore shown that the event was a natural event.

Table 5. Documentation of Natural Event

Exceedance Date	Demonstration Citation	Quality of Evidence	Criterion Met?
May 24, 2016	Page 58	Sufficient	Yes
May 25, 2016	Page 58	Sufficient	Yes
May 26, 2016	Page 58	Sufficient	Yes

Schedule and Procedural Requirements

In addition to technical demonstration requirements, 40 CFR §50.14(c) and 40 CFR §51.930 specify schedule and procedural requirements an air agency must follow to request data exclusion. Table 6 outlines EPA's evaluation of these requirements.

Table 6: Schedules and Procedural Criteria

	Reference	Demonstration Citation	Criterion Met?
Did the agency provide prompt public notification of the event?	40 CFR §50.14 (c)(1)(i)	Page 58	Yes
Did the agency submit an Initial Notification of Potential Exceptional Event and flag the affected data	40 CFR §50.14 (c)(2)(i)	NA	Yes

in EPA's Air Quality System (AQS)			
Did the initial notification and demonstration submittals meet the deadlines for data influenced by exceptional events for use in initial area designations, if applicable? Or the deadlines established by EPA during the Initial Notification of Potential Exceptional Events process, if applicable?	40 CFR §50.14 Table 2 40 CFR §50.14(c)(2)(i)(B)	May 31, 2017	Yes
Was the public comment process followed and documented? • Did the agency document that the comment period was open for a minimum of 30 days? • Did the agency submit to EPA any public comments received? • Did the state address comments disputing or contradicting factual evidence provided in the demonstration?	40 CFR §50.14 (c)(3)(v)	Page 58	Yes

Has the agency met requirements regarding submission of a mitigation plan, if applicable?	40 CFR §50.1930(b)	NA	NA

Conclusion

EPA has reviewed the documentation provided by PADEP to support claims that smoke from wildfires in Fort McMurray, Alberta, Canada contributed to exceedances of the 2008 and/or 2015 8-hour O_3 standards at the Reading Airport, Lebanon, Norristown, and Freemansburg monitoring sites on May 25 and 26, 2016. EPA has determined that the flagged exceedances at these monitoring sites on May 25 and 26 satisfy the exceptional event criteria: the event was a natural event, which affected air quality in such a way that there exists a clear causal relationship between the event and the monitored exceedance, and was not reasonably controllable or preventable. EPA has also determined that PADEP has satisfied the procedural requirements for data exclusion.