UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 ELM STREET, SUITE 500
DALLAS, TEXAS 75270

Office of the Regional Administrator

June 30, 2021

Ms. Tonya Baer
Director, Office of Air
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Dear Ms. Baer:

This letter responds to the Texas Commission on Environmental Quality's (TCEQ's) proposed exceptional events flags and demonstration for the daily maximum air quality 8-hour ozone concentration values on August 16, 17, and 21, 2020, at the Dallas-Fort Worth Grapevine monitor (Air Quality System number 48-439-3009). Your demonstration was submitted to us in a letter dated May 28, 2021, after satisfying a 30-day public review requirement. The U.S. Environmental Protection Agency (EPA) has completed its analysis of this submittal in accordance with the requirements of 40 Code of Federal Regulations (CFR) 50.14.

After completing our review of your demonstration, we are unable to concur on the proposed exceptional event flags. We compared the evidence offered in your demonstration against the standard set forth at 40 CFR 50.14(c)(3)(iv) and found several deficiencies. Details of our review are enclosed.

Our findings here do not constitute final EPA action regarding any matter on which the EPA is required to provide an opportunity for public comment. In particular, this applies to determinations regarding the attainment status or classification of the area. Final actions will take place only after the EPA completes rulemaking with public notice and comment on those determinations.

We appreciate the work of the TCEQ to develop this exceptional event package. If you have any questions about our review, please contact me at (214) 665-2100, or have your staff contact Ms. Frances Verhalen of my staff at (214) 665-2172.

Sincerely,

David W. Gray
Acting Regional Administrator

Enclosure

Technical Review of Dallas-Fort Worth Area Exceptional Event Demonstration Package for Ozone on August 16, 17, and 21, 2020 at the Grapevine monitoring site submitted by the Texas Commission on Environmental Quality (TCEQ), dated May 28, 2021

Introduction

The U.S. Environmental Protection Agency (EPA) promulgated a revised Exceptional Events Rule (EER) in 2016 (see 81 FR 68216, October 3, 2016), which superseded the prior rule and is now in effect. This demonstration package was submitted in accordance with the EER as revised in 2016.

The procedural elements of the EER require air agencies to provide EPA with an initial notification of a potential exceptional event which includes flagging the claimed event-influenced data resulting in a monitored exceedance or violation in the EPA's Air Quality System (AQS) database and providing EPA with an initial description of the event. The air agency is also required to complete a public comment process, provide EPA with the public comments received, and address any comments that dispute or contradict factual evidence provided in the demonstration.

Under the EER, the air agency demonstration to justify exclusion of data must provide evidence that demonstrates to the Administrator's satisfaction (See 40 CFR 50.14(a)(1)(ii) and (b)(1)) that such event caused a specific air pollution concentration at a particular air quality monitoring location. Under 40 CFR 50.14(c)(3)(iv), the air agency demonstration package to justify data exclusion must include the following five elements:

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 the requirement at paragraph 50.14(c)(3)(iv)(B). The Administrator shall not require a State to prove a specific percentile point in the distribution of data.
D. A demonstration that the event was both not reasonably controllable and not reasonably preventable.
E. A demonstration that the event was a human activity unlikely to recur at a particular location or was a natural event.

The TCEQ submitted its demonstration package to EPA on May 28, 2021. We address our review of the TCEQ demonstration for the Grapevine ozone monitor 8-hour ozone exceedances on August 16, 17, and 21, 2020, with respect to the criteria above in the remainder of this document.

In order for EPA to concur on an exceptional events demonstration, air agencies must satisfy all of the EER criteria. Air agencies should demonstrate that wildfire emissions were transported to the monitor, that the emissions from the wildfire(s) influenced the monitored concentrations, and provide evidence of the contribution of wildfire emissions to the monitored ozone exceedance or violation. After considering the information and analyses in the demonstration, EPA reviews the demonstration package using a weight-of-evidence approach and decides whether to concur or not to concur with each flag. When using the weight-of-evidence approach, EPA considers all relevant evidence and qualitatively weighs this evidence based on its relevance to the EER criterion being addressed, the degree of

certainty, its persuasiveness, and other considerations appropriate to the individual pollutant and the nature and type of event (See 81 FR 68230 (October 3, 2016)).

Overview of Claimed Exceptional Event

The TCEQ claimed in their exceptional events demonstration that emissions from large wildfires in Colorado and California impacted the Grapevine monitor in Dallas-Fort Worth, causing 8-hour ozone exceedances of 77 parts per billion (ppb) on August 16, 2020, 88 ppb on August 17, 2020, and 77 ppb on August 21, 2020. The Grapevine monitor (AQS ID #48-439-3009) has a current 2018-2020 8-hour ozone design value of 76 ppb.

The EPA has reviewed the extensive information provided by TCEQ and finds that the weight-of-evidence does not allow for concurrence with the flagged data. A summary of the EPA evaluation of the evidence provided in the demonstration in relation to the regulatory criteria follows below.

Demonstration Evaluation According to EER

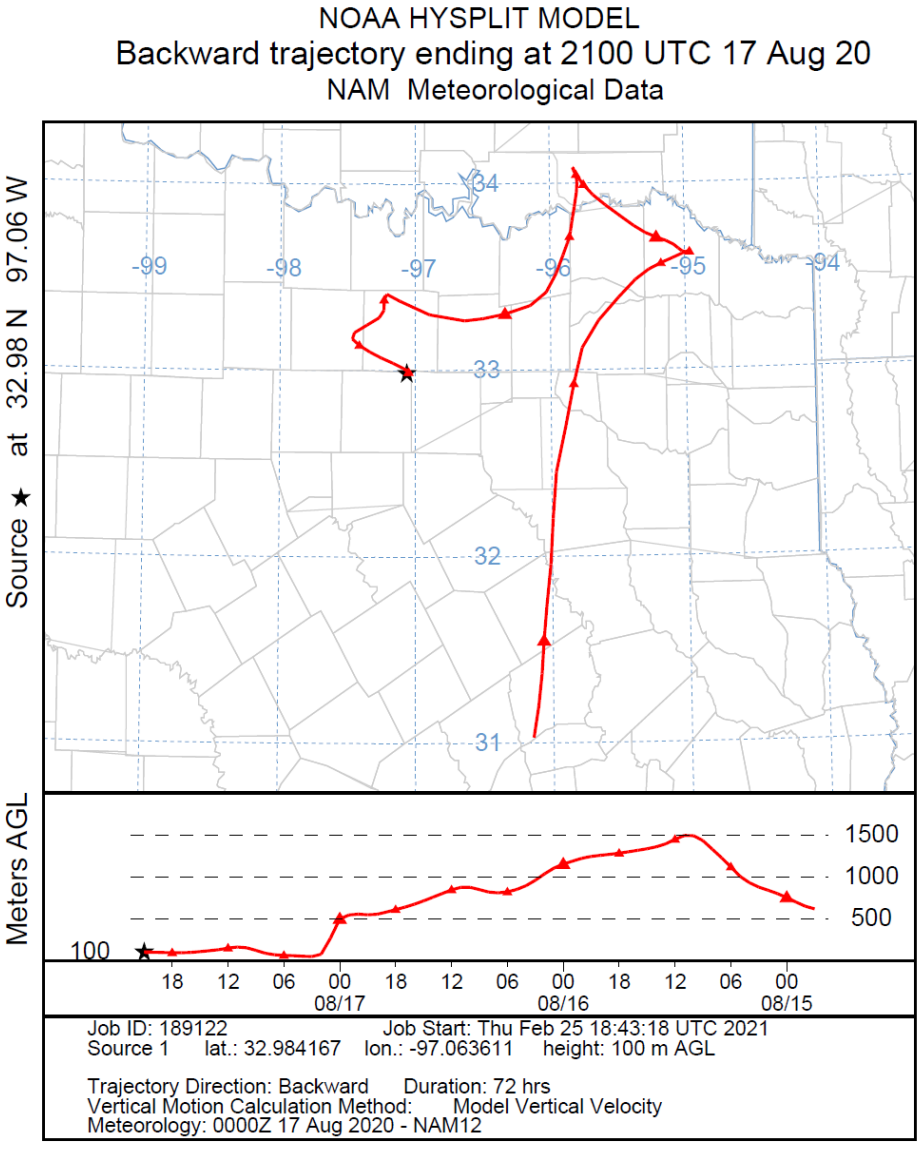
The specific requirements of the EER and EPA's review under these provisions in this section of the technical review document are discussed below. EPA provided a summary table showing how the TCEQ package met or did not meet the criteria of the EER. The air agency must demonstrate all of the following to the Administrator's satisfaction under the EER for EPA concurrence:

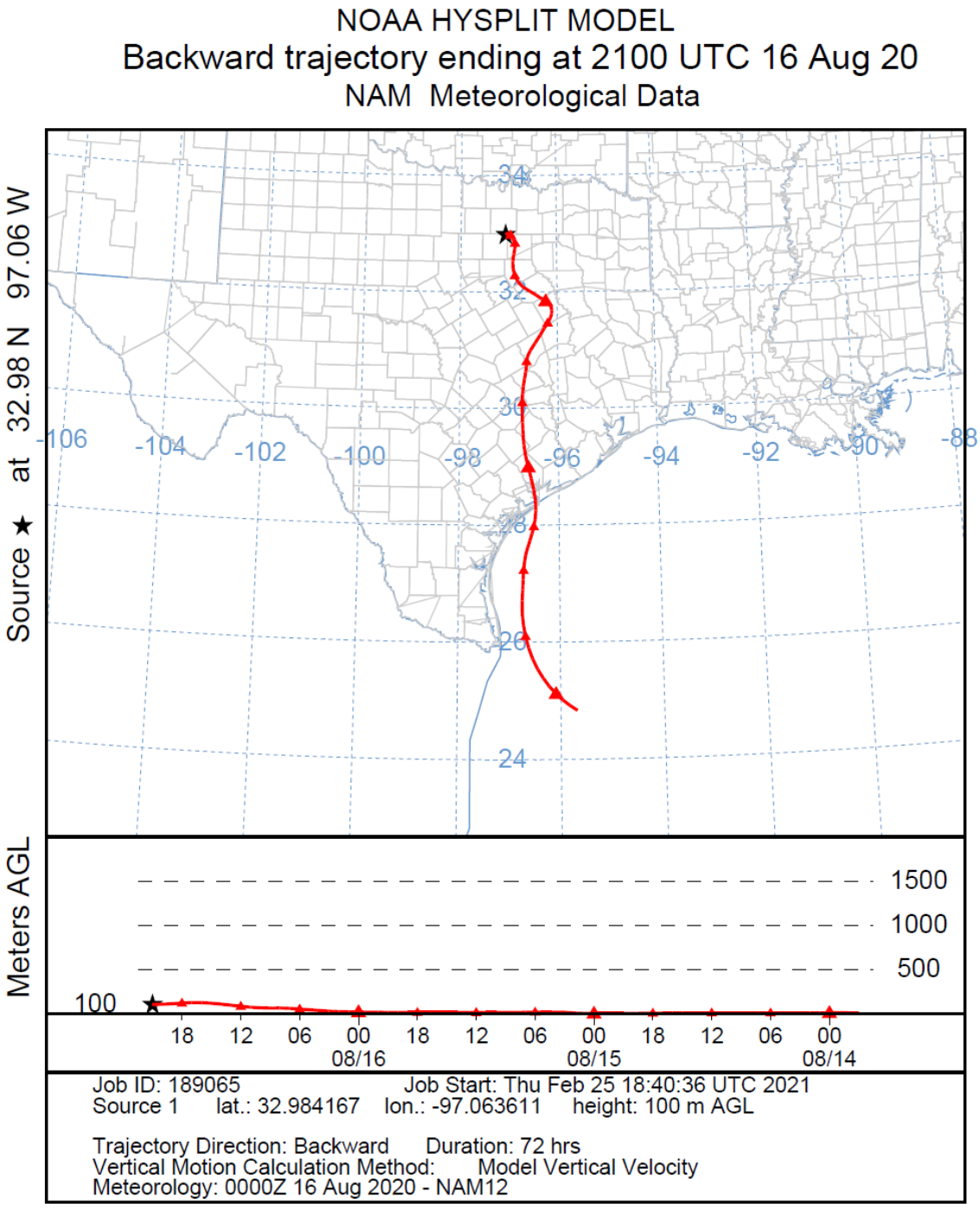
(A) Include a narrative conceptual model that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s).

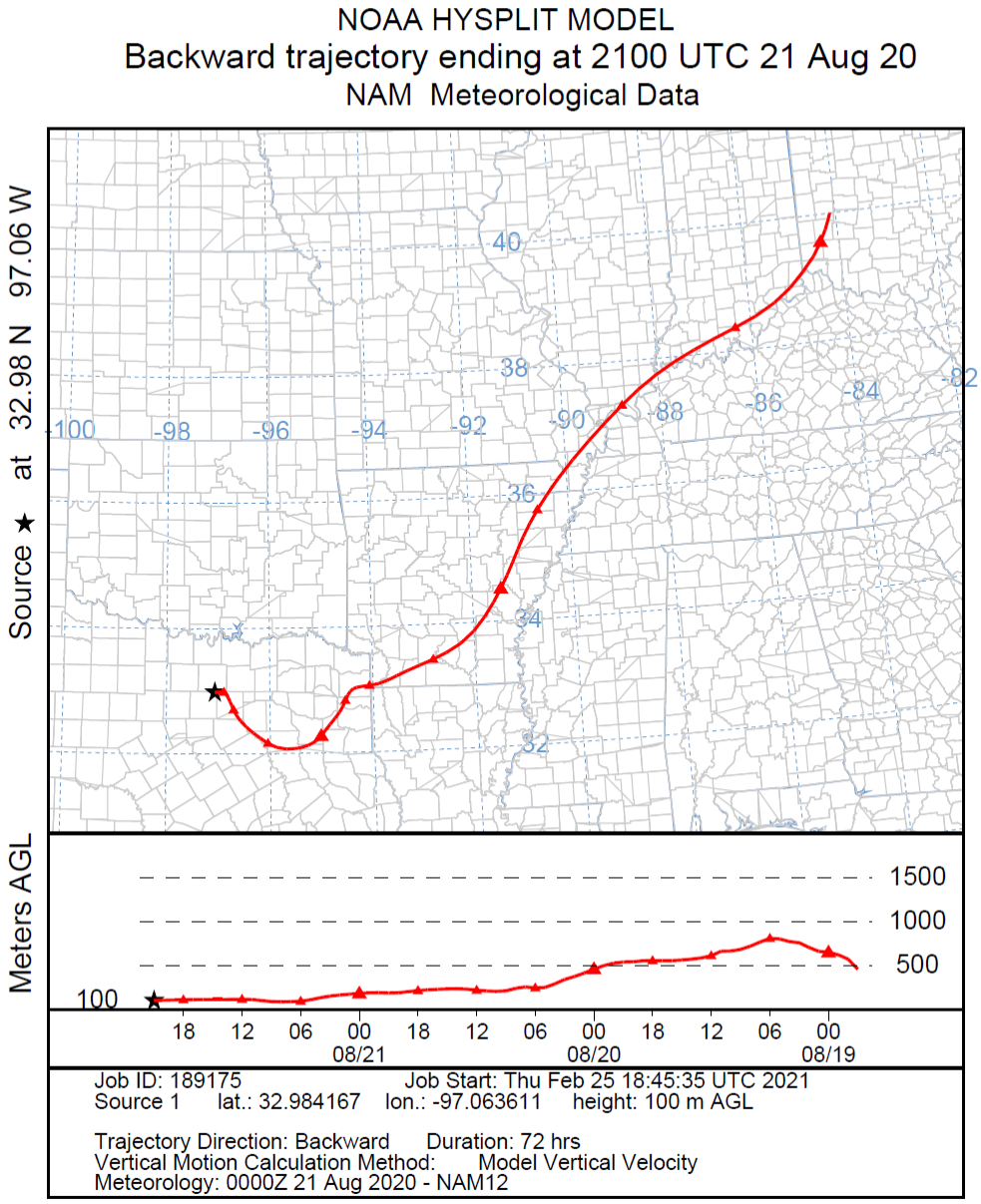
Chapter 1.3 of the TCEQ demonstration document contains a narrative conceptual model which covers both typical high ozone events in DFW and the mid-August 2020 high ozone days. It is important to note that the downdrafts on the evening of August 16, 2020 resulted in low ozone and low ozone precursor concentrations at the ground level monitors corresponding with high wind gusts and accompanying precipitation, and evidence that the ground monitoring data did not show any enhanced ozone or enhanced ozone precursor concentrations from any potentially transported aloft wildfire smoke. Further, there was a near surface level (100 meters agl) wind flow reversal from August 16, 2020 to August 17, 2020 from the south to the north with very light surface wind speeds which contributed to the 88 ppb daily maximum 8-hour ozone concentration measured at the Grapevine site on August 17, 2020 (see graphic below). The surface meteorological data analyses in Chapter 1.3 show hot, dry conditions with light winds in Texas, which support routine local ozone production.

The August 2020 8-hour ozone exceedance days at the Grapevine monitor in DFW were not exceptional events based on a review of the ground level monitoring data and HYSPLIT wind back trajectories computed close to ground level and the air monitors (i.e., at 100 m agl). All three August 2020 8-hour ozone exceedance days for the Grapevine monitor (August 16, 17, and 21, 2020) were typical local emissions-dominated 8-hour ozone exceedance days in the normal summer ozone season in DFW and not exceptional events. All three exceedance days were hot and very stagnant, with many hourly resultant surface wind speeds at or below 4 miles per hour (mph), and hourly resultant wind directions out of the SE, ENE and SSW on August 16, 17, and 21, 2020. Such stagnation commonly results in 8-hour ozone concentrations being primarily influenced by local ozone precursor emissions (volatile organic compounds (VOC) and nitrogen oxides (NOx)) from the immediate DFW area. Three-day (72-hour) National Oceanic and Atmospheric Administration (NOAA) HYSPLIT back trajectories run close to ground

level (i.e., at 100 m agl) from the Grapevine site show general SE, S, E, and NE wind directions on the three August 2020 exceedance days and 72 hours prior to the exceedance days, and not from the directions of Colorado and California (see graphics below which show the back trajectories for August 17, August 16, and August 21, respectively). In addition, regional ozone concentrations between Colorado and DFW (i.e., in Kansas, Oklahoma, and the Texas Panhandle) as depicted on EPA's AirNow website (www.airnow.gov) were low to moderate both before and during the DFW 8-hour ozone exceedance days.




NOAA HYSPLIT MODEL
Backward trajectory ending at 2100 UTC 16 Aug 20
NAM Meteorological Data
Source ★ at 32.98 N 97.06 W
Meters AGL
1500
1000
500
100
18 12 06 00 18 12 06 00 18 12 06 00
08/16 08/15 08/14
Job ID: 189065 Job Start: Thu Feb 25 18:40:36 UTC 2021
Source 1 lat.: 32.984167 lon.: -97.063611 height: 100 m AGL
Trajectory Direction: Backward Duration: 72 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 16 Aug 2020 - NAM12



(B) Include 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.

The TCEQ attempted in Chapter 3 to demonstrate that the Colorado and California wildfires clearly caused the 8-hour ozone exceedances at the Grapevine monitor on August 16, 17, and 21, 2020. The EPA does not agree that the Colorado and California wildfires clearly caused the 8-hour ozone

exceedances at the Grapevine monitor on August 16, 17, and 21, 2020. Following are specific EPA technical comments on Chapter 3:

Chapter 3.3 titled "Hazard Mapping System Plumes"
This section shows the existence of smoke plumes aloft measured by the Hazard Management Systems (HMS) satellite data. The HMS graphics do not distinguish between specific wildfire smoke and smoke from other fires and sources and they only provide information about possible smoke somewhere in the atmosphere and do not show whether smoke is aloft or at ground level. Typically, as smoke transports further from the fire, the smoke in the atmosphere tends to be lofted higher into the troposphere. In the DFW area on August 16, 17, and 21, 2020, the HMS graphics only showed light smoke aloft. And this smoke was not evident on the ground in DFW on August 16, 17, and 21, 2020. Clear skies were evident at ground level without evidence of smoke as hourly visibility data (measured in miles) recorded at the Dallas Hinton site for all three days were well above 10 miles. The Dallas Hinton site, about 20 miles southeast of the Grapevine site, is the DFW area monitor operated by TCEQ that provides hourly visibility data.

Chapter 3.4 titled "True Color Satellite Imagery Shows Transport to Grapevine Fairway"
This section shows light smoke aloft over DFW on August 16, 17, and 21, 2020, but as discussed above, there is no evidence that this smoke mixed down to ground level. Further, the visible images of smoke do not provide a clear link to fires originating in California or Colorado.

Chapter 3.5 titled "Aerosol Optical Depth Measurements over the Dallas-Fort Worth Area"
This section shows aerosol optical depth (AOD) measurements in the DFW area for August 16, 17, and 21, 2020. Clear skies are evident over the Grapevine monitor on August 17 and August 21, and only medium AOD is evident over the Grapevine monitor on August 16. Available ground level monitoring data does not suggest that upper atmospheric aerosols from any potential wildfire smoke mixed down to ground level. In addition, AOD by itself does not provide proof of a wildfire signature since the measurements may include non-wildfire dust and fine salt small particles or other chemicals and compounds. Similar to the visible images, satellite AOD products do not provide information about the origin of the aerosol.

Chapter 3.6 titled "Wildfire Emissions Transported to Grapevine Fairway"
This section discusses both backward and forward wind trajectories calculated by the NOAA HYSPLIT model.

- Concerning the back trajectories for August 16, 2020 (Figure 3-18), the trajectories modeled closest to the ground level at 1205 m agl went back to the south, not from Colorado. In addition, all of the other back trajectories only tracked high aloft air above the mixing layer height at well over 3000-4000 m agl.
- Concerning the back trajectories for August 17, 2020 (Figure 3-19), again the trajectories modeled closest to the ground level at 1017 m agl went back to the south, not from Colorado. The back trajectory at 0.9 mixing layer start height did go back to Colorado but it was far above the mixing layer height in Colorado (i.e. between 3000-4000 m agl), plus forward trajectories from each of the four specific Colorado fires modeled from August 14-17 did not clearly intersect the Grapevine monitor, indeed they mapped far away from the Grapevine monitor.
- Concerning the back trajectories for August 21, 2020 (5 day) in Figure 3-20, only one went back to northwestern California and that trajectory was far above the mixing layer at both the Grapevine site and northwest California (i.e. above 3500 m agl).

For the forward trajectories from Colorado and California all trajectories begin aloft at 1000-1500 m agl and then rise to generally 3000-6000 m agl, so no ground level impact is evident at the Grapevine monitor. The forward trajectories for the California fires do not have endpoints anywhere near Texas and the forward trajectories from the Colorado fires have endpoints far above the surface when near or intersecting Texas. For the California forward trajectories depicted in Figure 3-23, most do not reach DFW with only one passing over the DFW area at an elevation well above 8000 m agl on August 20. There is no evidence that the air masses aloft ever mixed down to the air monitors at ground level, and existing ground level monitoring data, including visibility data at the Dallas Hinton site, supports clear skies and no smoke impacts at the DFW air monitors at ground level. In conclusion, no trajectories are seen that originate from the specifically identified Colorado and California wildfires within the mixed layer and then terminate at the Grapevine monitor within the mixed layer.

Chapter 3.7.1 titled "The Regional Effect of Wildfire Emissions"

This section shows how many ozone monitors in the DFW area were over their 95th percentile for daily maximum 8-hour ozone concentrations on the three 8-hour ozone exceedance days at Grapevine for August 16, 17, and 21, 2020. This information is not exceptional because all daily maximum 8-hour ozone exceedance data at any ozone monitoring site in the U.S. (i.e., daily 8-hour ozone maxima above 75 ppb when comparing to the 2008 8-hour ozone standard) are usually above the 95th percentile, and usually above the 99th percentile, as seen at the Grapevine site (EPA National Air Quality System (AQS) database). Stagnant winds, hot temperatures, and clear skies across the region provide conditions conducive for ozone formation. Given the large amount of ozone precursor emissions in the DFW area, it is not surprising that many monitors had higher levels of ozone.

Chapter 3.7.2.1 titled "Analysis of Speciated Fine Particulate Matter Data"

This section shows the daily maximum 8-hour ozone concentration at the Grapevine site alongside every three-day 24-hour average Organic Carbon (OC) concentration at the Dallas Hinton site from August 10-25, 2020. There is an overall positive correlation for these parameters over the two week period. It is important to note that the OC concentrations recorded in August 2020 at the Dallas Hinton site (2 ug/m^3 arithmetic mean) are not exceptional and are instead typically normal ambient concentrations seen on both 8-hour ozone exceedance days and non-8-hour ozone exceedance days. Indeed, August OC concentration arithmetic means from 2017-2019 at the Dallas Hinton site were also 2 ug/m^3, the same as the 2020 August OC arithmetic mean concentration of 2 ug/m^3. Further, given the extremely calm winds in the Dallas metropolitan area on these 3 days in August 2020, some buildup of locally emitted and formed $PM_{2.5}$ would not be unusual.

Chapter 3.7.2.2 titled "Fine Particulate Matter and Carbon Monoxide Enhancement Ratios"

The reason why the August 17, 2020 $PM_{2.5}$/CO enhancement ratio is higher than those recorded for August 16 and 21, 2020 is because the Hinton site CO monitoring concentrations remained very low on August 17, 2020 (i.e., only 0.1-0.3 ppm hourly values, 0.2 ppm mean, for the 8-hour period 1000-1800 LST) and not because of potential wildfire emissions. The hourly concentrations are less than 1% of the 1-hour CO NAAQS (35 ppm), and the 8-hour mean is only 2% of the 8-hour CO NAAQS (9 ppm).

Chapter 3.8 titled "Matching Day Analysis"

This section compares meteorologically similar days from other years with August 16, 17, and 21, 2020. For August 16, 2020, the TCEQ compared September 12, 2017. Comparing these two days, the maximum 8-hour ozone concentration on September 12, 2017 (70 ppb) was only 9% lower than the 77 ppb maximum on August 16, 2020, and the maximum temperature for September 12, 2017 (91 deg. F) was 11 degrees lower than the maximum temperature for August 16, 2020 (102 deg. F). Stagnant and

light wind days are some of the conditions that result in ozone concentrations above the NAAQS in DFW and hourly resultant wind speeds were much lower on August 16, 2020 for the hours 0500-1600 LST, compared to hourly resultant winds on September 12, 2017 at the Grapevine monitor. Specifically, at the Grapevine monitor for August 16, 2020 hourly resultant wind speeds from 0500-1600 LST ranged from 0.8 mph to 3.6 mph and the average of hourly resultant wind speeds was 2.7 mph. Conversely, for September 12, 2017, the hourly resultant wind speeds from 0500-1600 LST ranged from 2.6 mph to 7.2 mph and the average of hourly resultant wind speeds was 5.6 mph.

For August 17, 2020, the TCEQ compared August 14, 2019. Comparing these two days, the peak 0500-0800 LST ozone VOC precursor concentrations on August 17, 2020 at the Dallas Hinton site (92 ppbC mean TNMOC) were more than two times greater than the TNMOC concentrations recorded on August 14, 2019 (42 ppbC), contributing to the higher ozone concentrations recorded on August 17, 2020. From TCEQ's Table 3-5, the average morning resultant wind speed for August 14, 2019 (2.3 mph) was 53% higher than the average morning resultant wind speed for August 17, 2020 (1.5 mph).

For August 21, 2020, the TCEQ compared August 15, 2019. Comparing these two days, the maximum 8-hour ozone concentration on August 15, 2019 (71 ppb) was only 8% lower than the 77 ppb maximum on August 21, 2020. From TCEQ's Table 3-6, the average afternoon resultant wind speed for August 15, 2019 (3.1 mph) was 55% higher than the average afternoon resultant wind speed for August 21, 2020 (2 mph).

Chapter 3.9 titled "Generalized Additive Model Analysis"

This section discusses statistical regression modeling results, using a Generalized Additive Model (GAM), in an attempt to support TCEQ's presumption of a clear causal relationship between the wildfires and the 8-hour ozone exceedances. The GAM used for this situation was not reasonable because the modeling demonstrations had many uncertainties and the regression model could not predict any observed monitored 8-hour ambient ozone concentrations above 75 ppb, which were the monitored 8-hour ozone concentrations of concern. This is especially concerning considering that Figure 3-43 has many monitored values above 87 ppb up to high-90s ppb, yet the training data regression model is underestimating at least 5-10 ppb for these highest ozone days and the linear regression fit equation is underpredicting even more for these days. The September 16, 2016, EPA memorandum titled "Guidance on the Preparation of Exceptional Events Demonstrations for Wildfire Events that May Influence Ozone Concentrations" on page 28 states that "Users of regression models should consider the uncertainties in the model's prediction abilities, specifically at high concentrations, before making conclusions based on the modeled results. A key question when considering model uncertainty is whether the model predicts O_3 both higher and lower than monitored values at high concentrations (above 65 or 70 ppb) or whether the model displays systematic bias on these high monitored days." Since forward trajectories from California and Colorado did not reach the surface in the DFW area and since back trajectories starting in the surface boundary layer in the DFW area indicate local contribution from Texas, it would not be reasonable to interpret the residual predicted by the GAM to be related to specific fires from California or Colorado. TCEQ indicates that the GAM estimates a 16 ppb contribution from wildfire on 8/17 with the residual 95th percentile added which would be a very large contribution that is not reflected in the other data including the surface data and visibility data. We note that the GAM prediction without the 95th percentile adjustment was 58 ppb compared to the observed 88 ppb, a 30 ppb difference. It is more likely that the residual predicted by the GAM is related to inadequate representation of regional stagnation events in Texas, such as the near surface level (100 m agl) wind flow reversal from August 16, 2020 to August 17, 2020 from the south to the north with very light surface wind speeds which contributed to the 88 ppb daily maximum 8-hour ozone concentration measured at the Grapevine site.

The GAM underpredicts observed ozone concentrations above 75 ppb which suggests this type of modeling approach is unreliable for making quantitative estimates related to specific sources of ozone such as wildfire. In summary, as the GAM model results in this situation are biased low at observed 8-hour ozone concentrations above 75 ppb in both the training dataset and the validation data, the difference between regression modeled and observed ozone concentrations cannot clearly and reasonably be attributed to wildfire influence.

(C) Include analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times to support the requirement at paragraph (c)(3)(iv)(B) of Section 50.14.

The TCEQ in Chapter 1.2 titled "Historical Comparison of Ozone Data" outlined for the past five years (2016-2020) the distribution of all daily maximum 8-hour ozone concentrations at the Grapevine site and showed that all of the daily maximum 8-hour ozone concentrations above 75 ppb at the Grapevine site are above the 99th percentile. This information is not exceptional because it is common for a majority of daily maximum 8-hour ozone exceedance day data above 75 ppb at any ozone monitoring site across the U.S., not just at the Grapevine site, to be above the 99th percentile (EPA National AQS database). The timing of the exceedances (August) falls into the normal ozone season for DFW and is not unusual.

(D) Include a demonstration that the event was both not reasonably controllable and not reasonably preventable.

The EPA 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 that are unlikely to recur at a particular location. 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. The TCEQ demonstration discusses large wildfires burning in Colorado and California in August, 2020. These large wildfires occurred predominantly on wildland. The EPA agrees that the Colorado and California wildfires burning in August 2020 were natural events that, by their nature, are not reasonably controllable or preventable.

(E) Include a demonstration that the event was a human activity that is unlikely to recur at a particular location or was a natural event.

According to the Clean Air Act and the EER, an exceptional event must be "an event caused by human activity that is unlikely to recur at a particular location or a natural event". The EER includes in the definition of wildfire that "[a] wildfire that predominantly occurs on wildland is a natural event" (40 CFR 50.1(n)). The Colorado and California wildfires in August 2020 were wildfires that predominantly occurred on wildland and thus the EPA agrees that they are considered a natural event. The next page has a summary table showing how the TCEQ package either met or did not meet the criteria of the EER.

Technical Criteria Under the EER	Citation in TCEQ Demonstration	Criterion met?
Initial notification of potential exceptional event [40 CFR 50.14(c)(2)]	Executive Summary, Second Paragraph	**Yes** – March 16, 2021 letter from Donna Huff, Deputy Director of the TCEQ Air Quality Division, to Mr. Jeff Robinson, EPA Region 6 Branch Chief of Air Permitting, Monitoring and Grants.
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) [40 CFR 50.14(c)(3)(iv)(A)]	Chapter 1.3	**Yes** – The TCEQ demonstration provides Chapter 1.3 titled "Narrative Conceptual Model." Although the EPA does not agree with TCEQ's stated conclusions, Chapter 1.3 meets the intent of the conceptual model submittal requirement under the EER of 2016.
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 [40 CFR 50.14(c)(3)(iv)(B)]	Chapter 3	**No** – Ground level monitoring data and near-ground level HYSPLIT wind back trajectories support local DFW emissions causing the 8-hour ozone exceedances at the Grapevine site. No trajectories are seen that originate from the specifically identified Colorado and California wildfires within the mixed layer and then terminate at the Grapevine monitor within the mixed layer. Ozone concentrations between DFW and Colorado and California on the 8-hour ozone exceedance days were low to moderate. In the DFW area on August 16, 17, and 21, 2020, satellite data only showed light smoke aloft. And this smoke was not evident on the ground in DFW on August 16, 17, and 21, 2020. Clear skies were evident without evidence of smoke, and hourly visibility data (measured in miles) recorded at the Dallas Hinton site for all three days were well above 10 miles. Further, the satellite images of aloft light smoke do not provide a clear link to fires originating in California or Colorado. The matching day analyses were critically different regarding maximum temperature or wind speed or precursor concentrations. Since the GAM model results were biased low at observed 8-hour ozone concentrations above 75 ppb, the difference between modeled and observed ozone concentrations cannot clearly and reasonably be attributed to wildfire influence.
Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same	Chapter 1.2	**No** – The timing of the exceedances (August) falls into the normal ozone season for DFW and is not unusual. It is also not unusual for any days above 75 ppb to be above the 95th or 99th percentile for

Technical Criteria Under the EER	Citation in TCEQ Demonstration	Criterion met?
monitoring site at other times to support the clear causal relationship requirement [40 CFR 50.14(c)(3)(iv)(C)]		any ozone monitor in DFW or the US. The surface meteorological data analyses showed hot, dry conditions with light winds in Texas, which support routine ozone production and are a common pattern in the summer.
A demonstration that the event was both not reasonably controllable and not reasonably preventable [40 CFR 50.14(c)(3)(iv)(D)]	Chapter 2.3	**Yes** – The claimed event (Colorado and California wildfires) was a complex of wildfires that occurred predominantly on wildland, and thus they are considered not reasonably controllable and not reasonably preventable.
A demonstration that the event was a human activity that is unlikely to recur at a particular location or was a natural event [40 CFR 50.14(c)(3)(iv)(E)]	Chapter 2.4	**Yes** – The Colorado and California wildfires are considered a natural event.
Documentation that the State followed the public comment process and conducted at least a 30-day comment period [40 CFR 50.14(c)(3)(v)(A)]	Chapter 2.5 and Chapter 4	**Yes** – TCEQ conducted a 30-day public comment process from April 14 – May 14, 2021.
Submit the public comments with the demonstration [40 CFR 50.14(c)(3)(v)(B)]	Appendix B	**Yes** – One public comment submitted with demonstration dated May 14, 2021.
Address in the demonstration those comments disputing or contradicting factual evidence provided in the demonstration [40 CFR 50.14(c)(3)(v)(C)]		**Not Applicable** – The one public comment did not dispute or contradict factual evidence provided in the demonstration.

Conclusion

The EPA does not concur with the TCEQ's demonstration package for the August 16, 17, and 21, 2020 8-hour ozone exceedances at the DFW Grapevine monitor. Principally, the demonstration package does not show a "clear causal relationship" existed between the Colorado and California wildfires and elevated ozone levels recorded on August 16, 17, and 21, 2020 at the Grapevine ozone monitor. The August, 2020 8-hour ozone exceedance days at the Grapevine monitor in DFW were not exceptional events based on review of ground level monitoring data and HYSPLIT wind back trajectories computed close to ground level and the air monitors (i.e., at 100 m agl). All three August 2020 8-hour ozone exceedance days for the Grapevine monitor (August 16, 17, and 21, 2020) were typical local emissions-dominated DFW 8-hour ozone exceedance days in the normal summer ozone season in DFW and not exceptional events. All three exceedance days were hot and very stagnant, with many hourly resultant surface wind speeds at or below 4 miles per hour (mph), and hourly resultant wind directions out of the SE, ENE and SSW on August 16, 17, and 21, 2020. Such stagnation commonly results in 8-hour ozone concentrations being primarily influenced by local ozone precursor emissions (VOC and NOx) from the immediate DFW area. Three-day (72-hour) NOAA HYSPLIT back trajectories run close to ground level

(i.e., at 100 m agl) from the Grapevine site show general SE, S, E, and NE wind directions on the three August 2020 exceedance days and 72 hours prior to the exceedance days, not from the directions of Colorado and California. In addition, regional ozone concentrations between Colorado and DFW (i.e., in Kansas, Oklahoma, and the Texas Panhandle) as depicted on EPA's AirNow website (www.airnow.gov) were low to moderate both before and during the DFW 8-hour ozone exceedance days.

This non-concurrence does not constitute final EPA action regarding use of this data. A final action will arise only after the EPA determines the attainment status of the area, or issues another regulatory determination, as identified in 40 CFR 50.14(a)(1)(i).