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Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 22, 2015

Mr. Ron Curry
Regional Administrator
United States Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Administrator Curry:

Thank you for your response to the Texas Commission on Environmental Quality's (TCEQ) proposed exceptional events flag and demonstration for the air quality concentration raw ozone data value of 128 parts per million during hour 1300 local standard time on August 26, 2011, at the Houston East Monitor. We appreciate Region 6 staff's meeting with us over the past two years to discuss the submission but disagree with your non-concurrence.

While the current Exceptional Events Rule provides the definitions, criteria for approval, and procedural requirements, there has been a lack of specific guidance for these types of demonstration. The United States Environmental Protection Agency (EPA) states on its Web page that it "*recognizes the need for separate guidance to address the preparation of demonstrations to support data exclusion requests for wildfire-related events that may have affected ozone concentrations.*" During our two-year process of developing a technical document, it was very challenging to get a sense of what minimum level of detail was needed for a successful demonstration dependent on a weight of evidence showing. The EPA Web page listing the Exceptional Events Submission Table provides information for only three ozone events. We do not know how many exceptional events have been submitted and either withdrawn due to the EPA feedback or received non-compliance because this information is not readily available. We look forward to the draft guidance and working with the EPA staff on finalizing a guidance that is reasonable. With the new lower ozone standard, exceptional event demonstrations will be an important part of an effective strategy to address transport and background. We believe that long distance transport of ozone precursors, including wildfires, affect our ability to meet and maintain the standard as demonstrated in the submitted packages.

While we appreciate the acknowledgement that the TCEQ met the Schedule and Procedural Requirements, we would like to provide general comments about concerns raised in your September 18, 2015 response. The attached table summarizes our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "David Brymer".

David Brymer, Director
Air Quality Division

Attachment

cc: Mr. Richard A. Hyde, P.E., Executive Director

bc: Mr. Steve Hagle, P.E., Deputy Director
Ms. Joyce Nelson, Special Assistant
Mr. Stephen Davis, Manager
Mr. Erik Gribbin, Technical Specialist
Mr. Richard Chism, Director
Ms. Terry Salem, Attorney

Summary of EPA Issues Raised in the 09/18/15 Non-Concurrence Letter & TCEQ's General Response

| EPA | TCEQ Response |
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| <p>1. Providing evidence that the event was associated with a measured concentration in excess of normal historical fluctuation, including background.</p> <ul style="list-style-type: none"> • A 128 ppb Ozone MDA was not unusual at Houston East (one other exceedance just three days later and other exceedances going back ten years generate an average of two 1-hour exceedances per year). • Peak NO_x concentrations above 124 ppb are not uncommon in August and September going back to 2001. • Fresh NO emissions peaked at 72% of NO_x indicating that NO emissions from local sources were significantly influencing ozone formation (not transported NO_x from fires). • The ozone plume that caused Houston East to exceed was narrow and only caused exceedances at three monitors. • Only three sites in Houston had 1-hour exceedances and values in the Beaumont/Port Arthur and Lake Charles areas were lower. | <p>The TCEQ provided statistical analyses consistent with those suggested in the EPA's guidance for the Exceptional Events Rule from May 2013. The TCEQ is not aware of any other state with a successful ozone exceptional events demonstration that was required by the EPA to include ten years of data to demonstrate that the event day was outside of the monitor's normal historical fluctuation. The TCEQ chose not to use years prior to 2008 because important rules regarding HRVOCs had become fully effective. Additional HGB control strategies implemented include the NO_x Mass Emission Cap and Trade (MECT) program and the continuation of the Texas Emission Reduction Plan. These rules significantly impacted the emissions sources in the HGB area and highlighting one-hour exceedances prior to 2008 is very subjective.</p> <p>Although only three monitoring sites had 1-hour exceedances, the TCEQ showed in Section 3.6 that 18 of 19 regulatory ozone monitors with valid monitoring data for August 26, in the Houston area reported maximum daily averages greater than each monitor's respective 95th percentile – regardless of location. This outcome happens less than one percent of the time.</p> <p>The EPA states in guidance memo of May 10, 2013 (p. 2): “The interim guidance materials are based on the following principles:</p> <ol style="list-style-type: none"> 1. <i>Air agencies should not be held accountable for exceedances due to exceptional events beyond their control at the time of the event.</i> 2. It is desirable to implement reasonable controls to protect public health. 3. Clear expectations will enable the EPA and other air |

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| | <p>agencies to better manage resources related to the exceptional events process.” [emphasis added]</p> <p>The EPA accepts flags for a number of events that occur with some regularity: fireworks occurring at cultural events, wildfires, dust storms, atmospheric intrusions. The definition of exceptional event does not require that wildfires happen rarely or impact Texas only rarely. The guiding principle is that air agencies should not be held responsible for exceedances due to natural/exceptional events. The EPA provides no evidence why the TCEQ's use of the 95th percentile is inadequate as an indicator of “outside of normal historical fluctuations.”</p> |
| <p>2. Providing a clear causal relationship between the measurement under consideration and the event claimed to have affected the air quality in the area.</p> <ul style="list-style-type: none"> • The TCEQ failed to identify a specific event (or set of events) that caused the exceedance on August 26, 2011. • The TCEQ failed to provide sufficiently detailed information on fires such as burned acreage, and distance between the fires and the monitor. • The TCEQ shows hourly PM_{2.5} and ozone measurements at Houston East but does not contrast this with a day that is not believed to have been impacted by fires. Coincident timing of PM_{2.5} and ozone is not unusual given the meteorological conditions. • Morning ozone concentrations were near zero indicating scavenging by NO from fresh emissions from local sources. The EPA's Figure 3 compares August 26 diurnal profile of NO to mean diurnal profile from 25 non-event days in August 2011 and a diurnal profile from June 3, 2015. • The EPA observed that back trajectories ended at Houston East at 11:00 AM instead of 1:00 PM (LST). During the last | <p>The EPA's current guidance does not provide requirements relating to the level of specificity desirable for wild fires. If the EPA wishes, the TCEQ can provide a list of fires occurring on federal land during the latter half of August 2011 with names, locations, acreages. The TCEQ can provide a list of locations fires were detected off federal land via satellite imagery, however further documentation is not possible because fire detections were too numerous and records were not kept of actual fires.</p> <p>The TCEQ did go to great lengths to show a causal relationship between the fires and the ozone exceedance at Houston East on August 26. We provided an extensive review of technical literature, analysis of trajectories from the geographic areas with active fires, an analysis of surrogate days, and analysis of background ozone on August 26 compared to other days.</p> <p>The TCEQ provided clear satellite evidence (Section 4.7) that smoke was present in the Houston area and that it had, in fact, mixed down to ground level.</p> |

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| <p>two hours before the exceedance, the air mass slowly passed over stationary NO_x and VOC sources in the ship channel area before reaching the Houston East monitor. Back trajectories submitted by the TCEQ are 7-day trajectories that could have substantial uncertainties. Distance of transport limits the weight this evidence plays in establishing a causal relationship.</p> <ul style="list-style-type: none"> • If fire emissions from several fires several days prior would have reached the monitor, it is likely that the fire emissions would be broadly distributed and not localized over a few monitors. • In addition, there is no guarantee that fire emissions transported over a long distance would mix all the way down to the ground level. • Satellite imagery shows only patchy and light remnants of smoke or clear skies over the Houston area on August 26, 2011. MODIS Aqua satellite images for August 26 shows a clear to thin aerosol optical depth reading for the Houston area in Figure 4-27. This is confirmed in figures 4-31, 4-35, and 4-36. The figures show Houston East in clear marine air and that aerosols north of Houston East are at 2-4 km in altitude. Section 5.3 of the demonstration states that skies over SE Texas on August 26, 2011, were clear. | |
| <p>3. Providing evidence that there would have been no exceedance or violation but for the event.</p> <ul style="list-style-type: none"> • There were no 1-hour exceedances in the region (i.e. hourly ozone values above 124) along the pathway of the incoming air masses closer to the discussed fires. The only 1-hour ozone exceedances were recorded in Houston along a narrow plume pathway at three Houston sites. This indicates that local emissions and not fire emissions from far away caused the 1-hour exceedance at Houston East. | <p>The Exceptional Events Rule does not require that an exceptional event be the only, or even primary, source of ozone on an exceptional event day. It merely requires that the exceedance(s) be caused by the exceptional event. Thus the requirement to provide evidence that there would have no exceedance or violation but for the event. EPA's own analysis of regional background ozone on August 26 notes "the Alabama-Coushatta ozone diurnal profile on August 26, 2011 increases uniformly about 20 ppb above an average non-event day from the first 25-days in August 2011." <i>Clearly, had regional background ozone not been increased by 20 ppb, there would have been no exceedance at Houston East or</i></p> |

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| <ul style="list-style-type: none"> • TCEQ did an analysis of regional background ozone in section 5.1 and estimated background at 70 ppb. All 19 sites are located used in the demonstration are located near local sources or are in urban areas affected by local mobile source emissions. This 70 ppb estimate was also measured at the Alabama-Coushatta CASTNET site approximately 75 miles northeast of Houston East in Polk County. The EPA considers the Alabama-Coushatta site to be a good rural regional background site that would have been equally influenced by any distant fire emissions. Because ALC only got 70 ppb then Houston East should have measured much lower. • EPA's figure 4 shows that the 8/26 was about 20 ppb above a nonevent day from the first 25 days of August 2011. Stagnant conditions on 8/26 created the high ozone value on that day. Houston East ozone rises rapidly by 80 ppb from 11 am to 1 PM. The sharp rise in ozone concentration indicates a locally generated reactive plume passing over a monitor. • Sections 5.2 and 5.3 of demonstration compare 8/27/2009 and 8/26/2011. The surrogate day was substantially different because solar radiation on 8/26/2011 was 42% higher than the surrogate day. • Page 5-10 states that skies over southeast Texas were clear with temperatures in the mid 90's with light winds. Clear skies, high solar radiation, high temperatures and light winds would be especially conducive to ozone photochemical formation and thereby result in a 1-hour exceedance. • TCEQ Section 5.4 shows only that two Auto-GC monitors (Clinton and HRM3) had consistent data on the event and surrogate day. An earlier version of the demonstration sent out for public comment looked at the Clinton, HRM3 and | <p><i>any other Houston area monitor.</i> This estimate of the wildfires' impact is remarkably consistent with the difference in maximum daily averages (18 ppb) between August 26, 2011, and August 27, 2009 (the TCEQ's surrogate day).</p> |

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| <p>Deer Park Auto-GCs and showed higher propylene and ethylene concentrations for the at the three sites. TCEQ admits that a plume from the Deer Park direction could have influenced ozone at Houston East.</p> <ul style="list-style-type: none"> EPA argues a comparison with June 3, 2015 when fires were minimal. | |
| <p>4. Meeting the definition of an Exceptional Event</p> <ul style="list-style-type: none"> Because the dominant impact on air quality at Houston East was local anthropogenic emissions and stagnation there was no exceptional event. Because the event was local in origin, there was insufficient evidence that the event was not reasonably controllable or preventable or was an event caused by human activity unlikely to recur any time soon. | <p>By EPA's own admission, wildfires increased regional background ozone by 20 ppb. But for that additional ozone, there would have been no exceedance at Houston East on August 26, 2011. Local sources may or may not have contributed to ozone production, but were insufficient to create an ozone exceedance at Houston East that day.</p> |
| <p>5. Schedule and Procedural Requirements</p> <ul style="list-style-type: none"> The TCEQ met Schedule and procedural requirements. | <p>The TCEQ agrees.</p> |