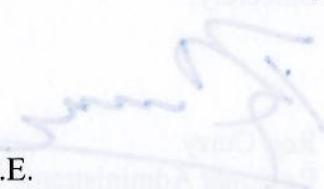




UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202 - 2733

Office of the Regional Administrator

March 27, 2014


Richard A. Hyde, P.E.
Executive Director
Texas Commission on Environmental Quality
Post Office Box 13087
Austin, Texas 78711-3087

Dear Mr. Hyde:

This letter responds to the Texas Commission on Environmental Quality's 2010 Exceptional Events Demonstration regarding exceedances of the PM_{2.5} NAAQS at the Houston Clinton Drive air monitoring site in Harris County. The U.S. Environmental Protection Agency has completed its analysis of this submittal to ensure it meets the requirements governed by 40 CFR §50.14.

We acknowledge your request that the EPA exclude flagged PM_{2.5} data from consideration in determining Harris County's attainment status under the annual PM_{2.5} NAAQS. The submittal meets the schedule and procedural requirements in 40 CFR § 50.14(c) for the proposed exceptional events flags for PM_{2.5} data at the Clinton Drive site on June 9, June 10, and July 13, 2010. After careful consideration, the EPA concurs, based on the weight of the evidence provided, that the TCEQ has successfully made the demonstrations referred to in 40 CFR § 50.14 to the EPA's satisfaction.

The EPA will rely on calculated values that exclude this data in proposed regulatory actions, such as a proposed designation, classification, attainment demonstration, or finding as to whether Harris County has met the annual PM_{2.5} NAAQS. If the EPA pursues one of these actions for the Harris County area, the EPA will open a new comment period during which we may receive comments. If so, we must consider and respond to those comments before taking final regulatory action.

Accordingly, the determinations conveyed in this letter 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 notice and comment rulemaking on those determinations. As an additional clarification, the determinations conveyed in this letter are applicable only to determinations incorporating the submitted data in relation to the annual PM_{2.5} NAAQS.

We appreciate the work and effort of the TCEQ to develop its exceptional events package. Details regarding our review are provided in the enclosure. If you have any questions, please contact me at (214) 665-2100, or your staff may contact Ms. Maria Martinez, Air Quality Analysis Section Chief, at (214) 665-2230.

Sincerely,



Ron Curry
Regional Administrator

cc: Mr. Richard C. Chism
Texas Commission on Environmental Quality

REGION 6 EXECUTIVE SUMMARY

TOPIC: TCEQ 2010 Houston –Clinton Drive PM 2.5 Exceptional Events Demonstration
DATE: March 13, 2014 CONTACT: Ruben Casso (x-6763)
PURPOSE/ACTION NEEDED: RA decision
DEADLINE DATE: June 2014

BACKGROUND:

The EPA adopted a final rule, *Treatment of Data Influenced by Exceptional Events* (EER) to govern the review and handling of certain air quality monitoring data for which the normal planning and regulatory processes are not appropriate. 72 FR 13560 (March 22, 2007). Ambient air data considered to be caused by an exceptional event can be excluded from regulatory determinations related to exceedances or violations of the National Ambient Air Quality Standard (NAAQS) and avoid designating an area as nonattainment, redesignating an area as nonattainment, or reclassifying an existing nonattainment area to a higher classification if a State adequately demonstrates that an exceptional event has caused an exceedance or violation of a NAAQS. If EPA concurs with these data being exceptional events under the EER, the EPA may exclude data from use in determinations of the NAAQS exceedances and violations if a state adequately demonstrates that an “exceptional event” caused the exceedance.

The process for a monitoring agency to designate an exceedance as an exceptional event includes annotating the data as potentially being caused by such an event in EPA’s national air monitoring database, as well as providing an initial description and submitting a demonstration that presents evidence of an exceptional event. We used this information in the evaluation process to assist in our recommendation.

CURRENT STATUS:

The annual PM_{2.5} NAAQS is an annual mean of 12 µg/m³ averaged over three consecutive years. TCEQ submitted a demonstration package for PM_{2.5} Saharan dust events that reportedly impacted the Houston Clinton Drive air monitoring site June 9, June 10, and July 13, 2010. In addition to following the EER in our review, Region 6 has consulted with OAQPS about this demonstration.

ENVIRONMENTAL/PUBLIC HEALTH CONCERNS:

The current annual PM_{2.5} NAAQS three-year 2010 – 2012 design value at the Houston Clinton Drive site without the exclusion of days claimed for the 2010 data as exceptional events exceeds the annual PM_{2.5} NAAQS. However, the preliminary design value for 2011 - 2013 is below the annual PM_{2.5} NAAQS.

TCEQ has expressed its intent to certify 2013 PM_{2.5} data for the Clinton Drive site in sufficient time for EPA to evaluate the data for conformance with EPA data quality requirements, so 2013 data may be considered before EPA PM_{2.5} designation decisions are made. Since the 2010-2013 preliminary design value is below the annual PM_{2.5} NAAQS, a decision on this exceptional events package is not expected to impact PM_{2.5} NAAQS designations for the area.

RECOMMENDATION:

The 2010 Houston Clinton Drive site annual PM_{2.5} exceptional event demonstration has been reviewed. Based on a weight of evidence in the TCEQ 2010 Houston–Clinton Drive PM_{2.5} Exceptional Events Demonstration dated May 22, 2013 and an addendum dated October 12, 2013, all three of the event days are recommended for Regional Administrator approval.

Texas 2010 Houston-Clinton Drive PM_{2.5} Exceptional Events Demonstration Technical Summary

Introduction

EPA promulgated the Exceptional Events Rule (EER) in 2007, pursuant to the 2005 amendment of the Clean Air Act (CAA) Section 319. The EER added 40 CFR §50.1(j), (k), and (l); §50.14; and §51.930 to the Code of Federal Regulations (CFR). These sections contain definitions, criteria for Environmental Protection Agency (EPA) approval, procedural requirements, and requirements for air agency demonstrations, all of which must be met before EPA can concur under the EER on the exclusion of air quality data from regulatory decisions.

As a requirement under the EER, data claimed to be due to an exceptional event must be flagged in the EPA's Air Quality System (AQS) database and an initial description of the event should be provided to the EPA, as well as, notice and opportunity for public input. Failure to meet the above criteria will result in non-concurrence with the flagging of the measured proposed National Ambient Air Quality Standard (NAAQS) exceedance(s).

After considering the weight of evidence provided in the demonstration, the EPA will decide to concur or not to concur with each flag. Under 40 CFR §50.14(c)(3)(iv), the air agency demonstration to justify exclusion of data must provide evidence that:

- the event was caused by human activity unlikely to reoccur at a particular location or was a natural event, and
- the event was not reasonably controllable or preventable
- the event was in excess of normal historical fluctuations
- the event affects air quality (AAQ),
- there was a clear causal relationship (CCR),
- there would have been no exceedance or violation but for the event (NEBF),

Exceptional Events Demonstration

The Texas Commission on Environmental Quality (TCEQ) submitted the 2010 Houston-Clinton Drive PM_{2.5} Exceptional Events Demonstration dated May 22, 2013 and an addendum dated October 12, 2013 to EPA Region 6. This demonstration claims measured PM_{2.5} exceedances on June 9, June 10, and July 13, 2010 at the Houston Clinton Drive air quality monitoring site were exceptional events caused by African (Saharan) dust transport to the area. The annual PM_{2.5} NAAQS is an annual mean of 12 ug/m₃ averaged over three years.

Table 1: Clinton Drive PM_{2.5} air monitoring readings on proposed exceptional event days

Houston-Clinton Drive site daily	06/09/10	06/10/10	07/13/10
PM2.5 measurements (ug/m ₃)	29.2	25.1	27.2

June 9 & 10, 2010 and July 13, 2010 Event Days

The event was caused by human activity unlikely to reoccur or was a natural event

Transport of dust from Africa to the United States is a natural event. This natural phenomenon was mentioned in the preamble to the EPA Exceptional Events Rule as being eligible for evaluation as a possible exceptional event. [See 72 FR 13560, 13564 (March 22, 2007)].

The event was not reasonably controllable or preventable.

Ambient air impacts of dust transported from the African (Saharan) desert on June 9, 2010, June 10, 2010 and July 12, 2010 were not controllable or preventable. Satellite imagery and back trajectories in the document show the international transport of large amounts of uncontrollable particulates, including particulates less than 2.5 microns in size, originating in Africa. The demonstration provides evidence that the event itself was not controllable.

EPA also searched the TCEQ Air Emission Event Database for reported emission events in Harris County from June 1, 2010 to July 30, 2010. Only one event was reported on only one of the proposed exceptional event days. A leak on a gasket of a vinyl acetate tank at a facility in La Porte, TX was reported to have occurred from approximately 4:00 a.m. to 5:00 a.m. on July 13, 2010. A one-hour leak on a tank gasket of this liquid chemical in La Porte would not have impacted PM_{2.5} levels at the Clinton monitor in Houston. No other emission events were reported on claimed PM_{2.5} exceptional event days

In addition, the following is a summary of some of the actions and controls taken from 2006 to the present around the Clinton Drive monitor area to further reduce PM at the site:

City of Houston

- Installed and maintains barriers to keep trucks from driving onto the unpaved shoulders of Clinton Drive
- Installed a traffic light at Clinton Drive and Industrial Park East gate to control traffic at the intersection
- Installed a landscaping project along Clinton Drive
- Repaved Clinton Drive from two-lane street with shoulders to a four-lane street

Port of Houston Authority

- Reduced port related diesel emissions using funding received through an EPA National Clean Diesel Campaign (along with eight other industries in the Houston Ship Channel)
- Enhanced dust suppression requirements for all its tenants including the use of emulsified asphalt on unpaved work areas
- Eliminated soils that contain gypsum (CaSO₄) from the Port's work yards

Port Transit Rail Authority

- Stopped steel loading on dirt areas near the Clinton Drive monitor
- Operating newly refurbished switcher engines

Other industries

Implemented dust control best management practices at bulk materials unloading and storage facilities

TCEQ

- Implemented a supplemental environmental project to pave the parking lot directly adjacent to the Clinton Drive monitor
- Replacing older diesel engines with newer ones that have lower PM_{2.5} emissions through the Texas Emissions Reduction Plan Program

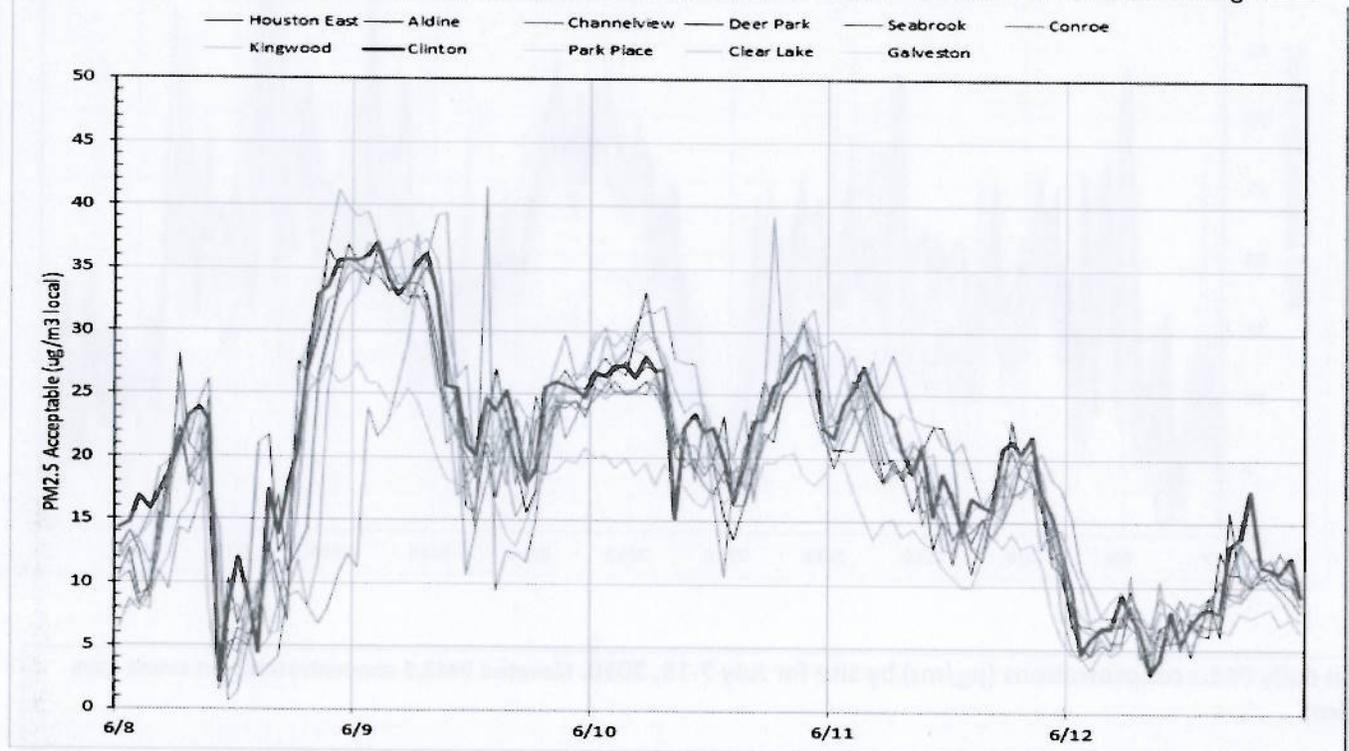
Other Measures to Reduce PM

- Federal Motor Vehicle Control Program (FMVCP)
- Implementation of refinery consent decrees continuing to reduce sulfur dioxide (SO₂) emissions from refineries and sulfuric acid plant
- Federal and international actions leading to reductions in marine vessel emissions of SO₂ and PM_{2.5}

The event affects air quality.

All of the proposed exceptional event days for 2010 had measured concentrations over 25 µg/m³, well above the annual PM_{2.5} standard of 12.0 µg/m³. These days were also above the 95th percentile of all FRM PM_{2.5} measurements (22.5 µg/m³) at the Houston Clinton site during the period from 2008 through 2010. Thus, these measurements were among the highest five percent of measurements over the three-year period ending with 2010 at the Houston Clinton FRM PM_{2.5} monitor.

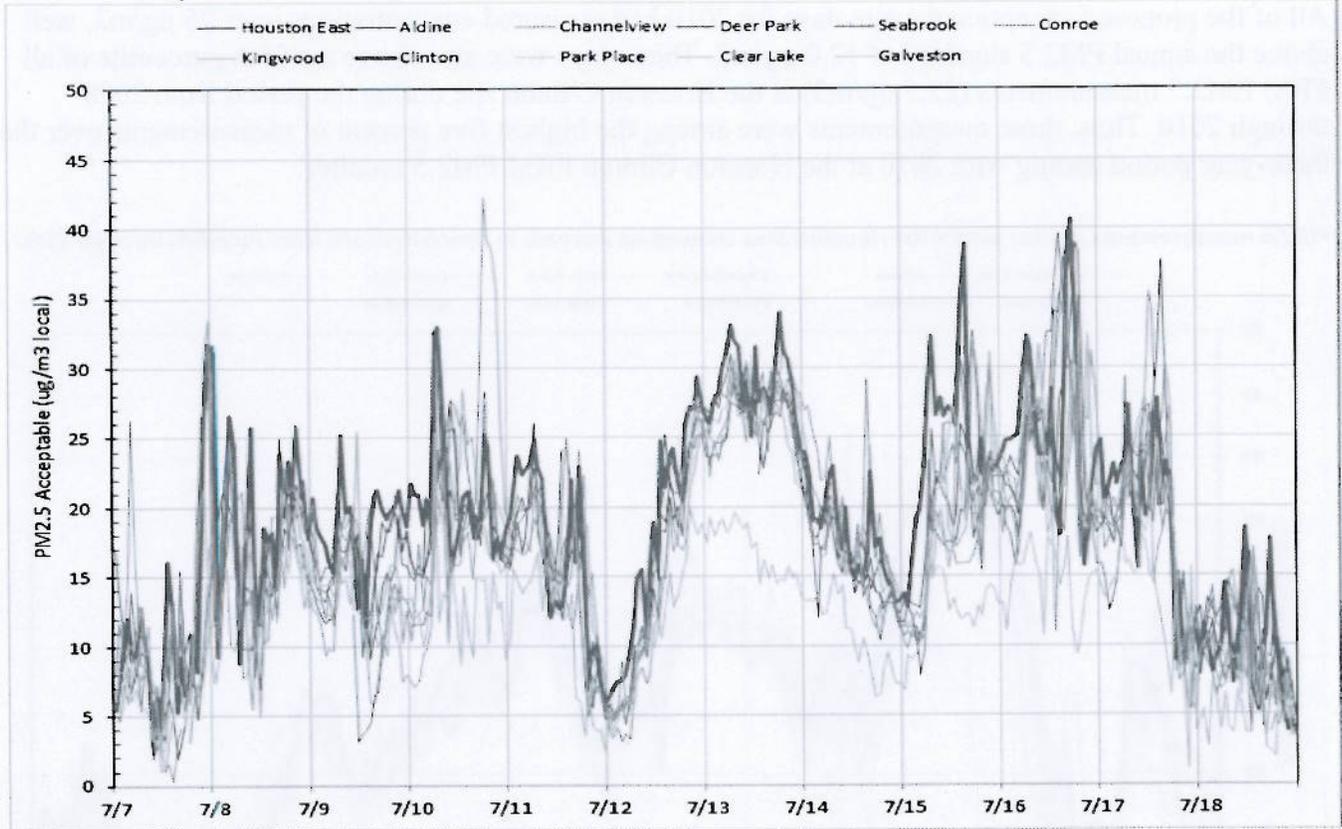
PM_{2.5} measurements at sites across the Houston area showed an increase in concentrations from June 8th through 11th.



Houston daily average PM_{2.5} (µg/m³) by site June 3-12, 2010. Elevated PM_{2.5} concentrations on event days are evident.

Site Name	Type	6/3/10	6/4/10	6/5/10	6/6/10	6/7/10	6/8/10	6/9/10	6/10/10	6/11/10	6/12/10
Galveston	AC	3.7	8.1	11.3	14.1	6.8	15.1	20.2	18.6	13.3	6.2
Seabrook	AC	5.1	11.9	15.5	19.5	11.7			23.4	17.3	8.5
Clear Lake	AC	4.5	10.0	13.7	18.0	11.4	17.8	27.1	24.7	17.8	7.7
Deer Park	AS		9.8			11.6			22.7		
Deer Park	AC	5.3	11.1	14.4	22.1	12.5	16.8	26.5	24.6	18.0	7.6
Baytown	FRM					10.8					
Channelview	AC	5.4	9.1	14.5	22.3	10.6	16.7	25.5			
Houston East	AC	5.7	11.0	14.4	22.1	12.6	18.3	25.8	22.4	17.6	7.8
Clinton	FRM	6.9	10.2	15.4	22.9	13.4	18.7	29.2	25.1	19.9	9.0
Clinton	AC	7.6	11.8	16.2	21.1	14.1	19.1	27.8	24.2	19.8	8.7
Park Place	AC	4.8	10.1						25.2	19.0	8.3
Aldine	FRM					14.9					
Aldine	AC	6.1	10.2	14.1	25.5	13.7	15.9	26.6	23.5	18.6	8.3
Kingwood	AC	5.2	8.3	15.1	25.8	12.4	12.5	28.6	26.2	19.5	9.3
Conroe	AC	2.8	7.9	14.3	31.3	17.3	8.7	23.0	26.4	21.9	9.4

Houston Hourly PM_{2.5} concentrations by site for July 12-14, 2010.



Houston daily PM_{2.5} concentrations ($\mu\text{g}/\text{m}^3$) by site for July 7-18, 2010. Elevated PM_{2.5} concentrations on event days are evident.

Site Name	Type	7/7	7/8	7/9	7/10	7/11	7/12	7/13	7/14	7/15	7/16	7/17	7/18
Galveston	AC	8.4	13.6	13.2	13.1	10.8	11.5	16.9	10.7	12.6	14.7	12.9	4.9
Seabrook	AC	11.0	16.6	12.4	19.4	15.3	16.2	27.3	15.8	18.9	25.1	17.0	7.8
Clear Lake	AC	10.6	16.9	15.2	17.0	15.0	14.5	25.6	15.7	18.9	24.8	17.3	8.3
Deer Park	AS	9.4			17.8			24.5			21.3		
Deer Park	AC	10.7	16.9	16.1	20.2	15.7	15.1	26.8	16.2	19.1	24.8	19.0	9.4
Baytown	FRM	9.7						27.6					
Channelview	AC										25.3	19.5	9.9
Houston East	AC	11.6	19.2	16.3	19.5	15.7	14.9	27.0	16.6	21.0	27.0	19.8	10.2
Clinton	FRM	10.1	19.2	17.9	20.7	16.7	15.6	27.2	16.7	22.6	24.2		9.1
Clinton	AC	10.9	19.3	18.6	20.9	16.8	17.6	28.9	18.0	24.3	26.0	19.5	9.6
Park Place	AC										23.5	18.2	8.4
Aldine	FRM	8.5						27.9					
Aldine	AC	7.8	15.6	14.6	19.4	16.4	14.5	26.0	16.5	18.5	24.3	20.1	11.0
Kingwood	AC	8.8	15.3	11.2	18.4	16.7	14.5	28.2	18.1	18.5	22.5	19.1	9.1
Conroe	AC	6.0	15.8	14.6	22.0	15.1	12.4	27.4	18.8	17.1	23.9	19.9	9.8

There would have been no exceedance or violation but for the event

The following tables illustrate that “but for” the event, the PM_{2.5} concentrations at the Houston Clinton Drive site on the event day would have been below the level of the annual PM_{2.5} NAAQS (12 ug/m₃).

Clinton “But For” Calculations	06/09/10	06/10/10	07/13/10	
Clinton FRM PM _{2.5} measurement	29.2	25.1	27.2	
Second Lowest	23.0	22.4	24.5	
Difference between Clinton PM _{2.5} measurement and Houston’s second lowest concentration (DIF2)	6.2	2.7	2.7	
Incoming Background Non-Event (BNE2)	5.7	5.7	7.8	
But for Clinton concentration (BFE2)	11.9	8.4	10.5	Annual PM2.5 NAAQS 12.0

Notes: BNE2 is the average of the second lowest concentration before and after an event.
 DIF2 is the estimate of the local contribution.
 BFE2 is the sum of BNE2 and DIF2

The “but for” calculations done using an alternative method (wind direction) to establish background also illustrate that “but for “ the event, the PM_{2.5} concentrations on the event day would have been below the level of the annual PM_{2.5} NAAQS (12 ug/m₃).

The tables below provide a mathematical comparison of using the wind flow derived versus second lowest measurement approaches. As can be seen in the represented data below, the area second lowest measurement approach provides a more conservative estimate of the “but for” concentration.

Comparison of 6/9/10 “but for” PM_{2.5} values using wind flow vs. area 2nd lowest derived estimates

June 9, 2010 Clinton PM_{2.5} “But For” Estimates	Based on Wind Flow (µg/m₃)	Based on Area Second Lowest (µg/m₃)	
Houston Clinton FRM measurement (µg/m₃)	29.2	29.2	
Event day incoming background*	27.1	23.0	
Local contribution	2.1	6.2	
Pre-event baseline (06/03/10)	3.3	3.7	
Post-event baseline (06/12/10)	6.2	7.6	
Resulting baseline	4.8	5.7	
Resulting 06/09/10 Clinton “but for” (µg/m₃)	6.9	11.9	Annual PM2.5 NAAQS 12.0

Notes: The Clinton “but for” concentration was calculated as the sum of the baseline concentration and the estimated local contribution.

* Event day incoming background is based on the Clear Lake measurement for the wind flow derivation.

Comparison of 6/10/10 "but for" PM2.5 values using wind flow vs. area 2nd lowest derived estimates.

June 10, 2010 Clinton PM2.5 "But For" Estimates	Based on Wind Flow (µg/m³)	Based on Area Second Lowest (µg/m³)	
Houston Clinton FRM measurement (µg/m³)	25.1	25.1	
Event day incoming background*	24.7	22.4	
Local contribution	0.4	2.7	
Pre-event baseline (06/03/10)	3.3	3.7	
Post-event baseline (06/12/10)	6.2	7.6	
Resulting baseline	4.8	5.7	
Resulting 06/10/10 Clinton "But For" (µg/m³)	5.2	8.4	Annual PM2.5 NAAQS 12.0

Notes: The Clinton "but for" concentration was calculated as the sum of the baseline concentration and the estimated local contribution.

* Event day incoming background is based on the Clear Lake measurement for the wind flow derivation

Comparison of 7/13/10 "but for" PM2.5 values using wind flow vs. area 2nd lowest derived estimates.

July 13, 2010 Clinton PM2.5 "But For" Estimates	Based on Wind Flow (µg/m³)	Based on Area Second Lowest (µg/m³)	
Houston Clinton FRM measurement	27.2	27.2	
Event day incoming background*	25.6	24.5	
Local contribution	1.6	2.7	
Pre-Event Baseline (07/07/10)	7.2	7.8	
Post-Event Baseline (07/18/10)	4.9	7.8	
Resulting Baseline	6.1	7.8	
Resulting 07/13/10 Clinton "But For"	7.7	10.5	Annual PM2.5 NAAQS 12.0

Notes: The Clinton "but for" concentration was calculated as the sum of the baseline concentration and the estimated local contribution.

* Event day incoming background is based on the Clear Lake measurement for the wind flow derivation

Schedule and Procedural Requirements

A specific schedule and procedural requirements an air agency must follow to request data exclusion is identified in 40 CFR §50.14(c). Table 4 outlines the EPA's evaluation of these requirements.

Schedules and Procedural Criteria	Reference	Criterion Met?
Did the State provide public notification of the event?	40 CFR §50.14 (c)(1)(i)	Yes
Were flags and initial description placed on the data by July 1, 2013?	40 CFR §50.14 (c)(2)(vi)	Yes
Was the demonstration submitted by December 12, 2013?	40 CFR §50.14 (c)(2)(vi)	Yes
Was the public input process followed and documented?	40 CFR §50.14 (c)(3)(v)	Yes

Conclusion

EPA has reviewed documentation provided by the TCEQ to support claims that dust emissions generated by Saharan dust caused exceedances of the annual PM_{2.5} NAAQS at the Houston Clinton Drive air monitoring site (AQS ID 482011035) on June 9, June 10 and July 13, 2010. EPA has determined that the flagged exceedances at this location and on these days meet the definition of an exceptional event. Furthermore, the EPA finds that the weight of evidence is sufficient for concurrence with the flagged data for this monitor. These concurrences do not constitute final EPA action to exclude these data from consideration for purposes of determining the attainment status of the area. Final actions will come only after EPA completes notice and comment rulemaking on those determinations.

