



**OFFICE OF THE GOVERNOR**

RICK PERRY  
GOVERNOR

November 26, 2013

Mr. Ron Curry  
Regional Administrator  
U.S. Environmental Protection Agency, Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Dear Administrator Curry:

Pursuant to the requirements in Section 107(d) of the Federal Clean Air Act, enclosed is the recommendation for designation of areas in Texas with regard to the 2012 primary annual fine particulate matter (PM<sub>2.5</sub>) National Ambient Air Quality Standard (NAAQS) of 12.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

The Texas Commission on Environmental Quality (TCEQ) recommends that all counties in Texas with applicable PM<sub>2.5</sub> monitoring data be designated as attainment and all other counties be designated as unclassifiable/attainment. This recommendation is based on the three most recent years of quality-assured air data from the current federal reference monitoring network for the years 2010 through 2012, the demonstration of exceptional event days for exclusion and historical PM<sub>2.5</sub> monitoring trends (see enclosures A, B and C).

Enclosed is a resolution with supporting data containing the 2012 primary annual PM<sub>2.5</sub> NAAQS designation recommendation for the State of Texas.

If you have any questions or need additional information, please feel free to contact TCEQ Chairman Dr. Bryan Shaw at (512) 239-5510.

Sincerely,

A handwritten signature in black ink that reads "Rick Perry". The signature is written in a cursive, slightly slanted style.

Rick Perry  
Governor

RP:nhp

Enclosures

cc: Bryan Shaw, Ph.D., Chairman, TCEQ

## ATTACHMENT A

### 2010 THROUGH 2012 PRIMARY ANNUAL PM<sub>2.5</sub> DESIGN VALUES FOR THE STATE OF TEXAS

The Texas Commission on Environmental Quality (TCEQ) has calculated the primary annual fine particulate matter (PM<sub>2.5</sub>) design values for Texas counties, as presented in the table below, in support of the State's designation recommendation for the 2012 primary annual PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS). The design values were calculated with certified 2010 through 2012 data, excluding data from the Clinton Drive monitor in Harris County that were influenced by exceptional events. The TCEQ has submitted exceptional events demonstrations to the United States Environmental Protection Agency (EPA) for 2010, 2011, and 2012 for the Houston Clinton Drive monitor in accordance with the deadlines established in the 2012 PM<sub>2.5</sub> NAAQS final rule. See *Attachment B: Exceptional Event Demonstrations for the Houston Clinton Drive Monitoring Site* for further information regarding the TCEQ's exceptional event demonstration submittals.

#### Design Values by County for Primary Annual PM<sub>2.5</sub>

| County   | 2010-2012<br>Design Value<br>( $\mu\text{g}/\text{m}^3$ ) |
|----------|---|
| Travis   | 10.2  |
| Nueces   | 10.4  |
| Dallas   | 10.8  |
| Ellis    | 10.0  |
| Tarrant  | 10.7  |
| El Paso  | 10.8  |
| Harris   | 12.0  |
| Hidalgo  | 10.3  |
| Bexar    | 9.0   |
| Bowie    | 11.1  |
| Harrison | 10.9  |

Source: The EPA Air Quality System database (<http://www.epa.gov/ttn/airs/airsaqs>)

## **ATTACHMENT B**

### **EXCEPTIONAL EVENT DEMONSTRATIONS FOR THE HOUSTON CLINTON DRIVE MONITORING SITE**

#### **INTRODUCTION**

Exceptional events are unusual or naturally occurring events that affect air quality and are not reasonably controllable or preventable. An event may also be caused by human activity that is unlikely to recur at a particular location. Under Federal Clean Air Act (FCAA), §319, states are responsible for both identifying air quality monitoring data affected by an exceptional event and requesting that the United States Environmental Protection Agency (EPA) exclude the data from consideration when determining whether an area is in attainment or nonattainment of a National Ambient Air Quality Standard (NAAQS). The EPA has promulgated an exceptional events rule, 40 Code of Federal Regulations (CFR) §50.14, and guidance to implement the requirements of the FCAA regarding exceptional events. States are required to identify air quality monitoring data potentially affected by exceptional events by “flagging” the air quality monitoring data submitted into the EPA air quality system (AQS) database. A state that flagged data as being caused by an exceptional event, and also requests exclusion of the affected data, must submit a demonstration to the EPA to justify exclusion of the requested data. If the EPA concurs with the submitted demonstration, the flagged data will not be eligible for consideration when making attainment or nonattainment determinations.

The EPA indicated its intent to review exceptional events for full consideration in final designations for the 2012 fine particulate matter (PM<sub>2.5</sub>) NAAQS in its guidance memo entitled *Initial Area Designations for the 2012 Revised Primary Annual Fine Particle National Ambient Air Quality Standards* (April 16, 2013).

#### **EXCEPTIONAL EVENTS DEMONSTRATION SUBMITTALS**

The Texas Commission on Environmental Quality (TCEQ) proposed exceptional event flags for PM<sub>2.5</sub> data collected at the Clinton Drive monitor in Harris County (EPA Site Number 482011035) for 2010, 2011 and 2012 for the following dates:

- June 9, June 10, and July 13, 2010 (African Dust Events)
- May 20, 2011 (Mexican/Central American Smoke Event)
- July 2, July 27, and July 28, 2012 (African Dust Events)

The TCEQ submitted exceptional event demonstration packages for 2010, 2011, and 2012 to provide detailed evidence to support concurrence by the EPA for the PM<sub>2.5</sub> exceptional event flags as listed above.

#### **SUMMARY OF APPROACH**

The TCEQ used several methods for developing demonstrations that, giving consideration to all required factors, on balance indicate that the high PM<sub>2.5</sub> measurements in question qualify as exceptional events. The TCEQ identified five different factors that could provide meaningful evidence for evaluation of whether the flagged air monitoring data qualify for exclusion as being influenced by exceptional events. PM<sub>2.5</sub> concentrations from three Houston Federal Reference

Method (FRM) monitors were evaluated for a period of over 10 years to adequately establish historical trends in the data. In addition, the TCEQ evaluated PM<sub>2.5</sub> speciation data from these monitors to identify African dust and Mexican/Central American smoke contributions. Satellite imagery from the National Aeronautic and Space Administration and National Oceanic and Atmospheric Administration was used to track the movement of African dust and Mexican/Central American smoke and corroborated with aerosol modeling. Finally, the TCEQ analyzed Houston area PM<sub>2.5</sub> data to estimate contribution from long-range transport (incoming background levels) and contribution from local sources during the events as well as for the non-event baseline incoming background levels for use in the “but for” analyses. The “but for” analyses are used to demonstrate that there would have been no exceedance or violation of the NAAQS but for the exceptional event.

### **SUMMARY OF FINDINGS**

The information provided in the TCEQ’s exceptional event demonstration packages supports the conclusion that the high PM<sub>2.5</sub> measurements at the Clinton Drive monitor in Houston, on the seven dates flagged during 2010, 2011, and 2012 qualify as exceptional events. The measured PM<sub>2.5</sub> concentrations on the six flagged dates in 2010 and 2012 were not reasonably preventable, were clearly due to African dust events, were in excess of normal historical fluctuations, and would not have occurred but for the African dust events. The measured PM<sub>2.5</sub> concentrations on the flagged date of May 20, 2011 were not reasonably controllable or preventable, were clearly due to a Mexican/Central American smoke event, were in excess of normal historical fluctuations, and would not have occurred but for the smoke event. The TCEQ requests the EPA’s concurrence on these exceptional events and to have these days removed from consideration when making initial designations for the 2012 primary annual PM<sub>2.5</sub> NAAQS.

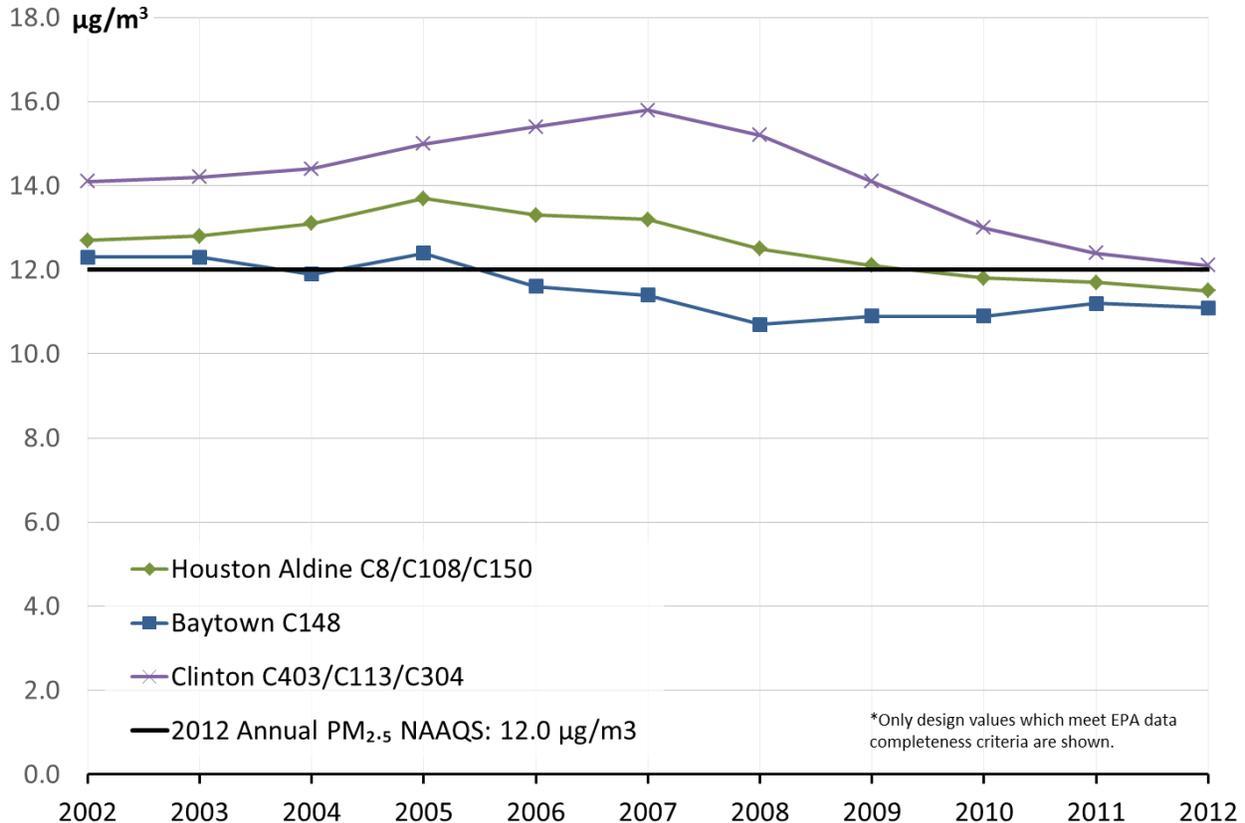
## ATTACHMENT C

### HOUSTON PM<sub>2.5</sub> TRENDS AND SOURCES

#### PM<sub>2.5</sub> AIR QUALITY TRENDS

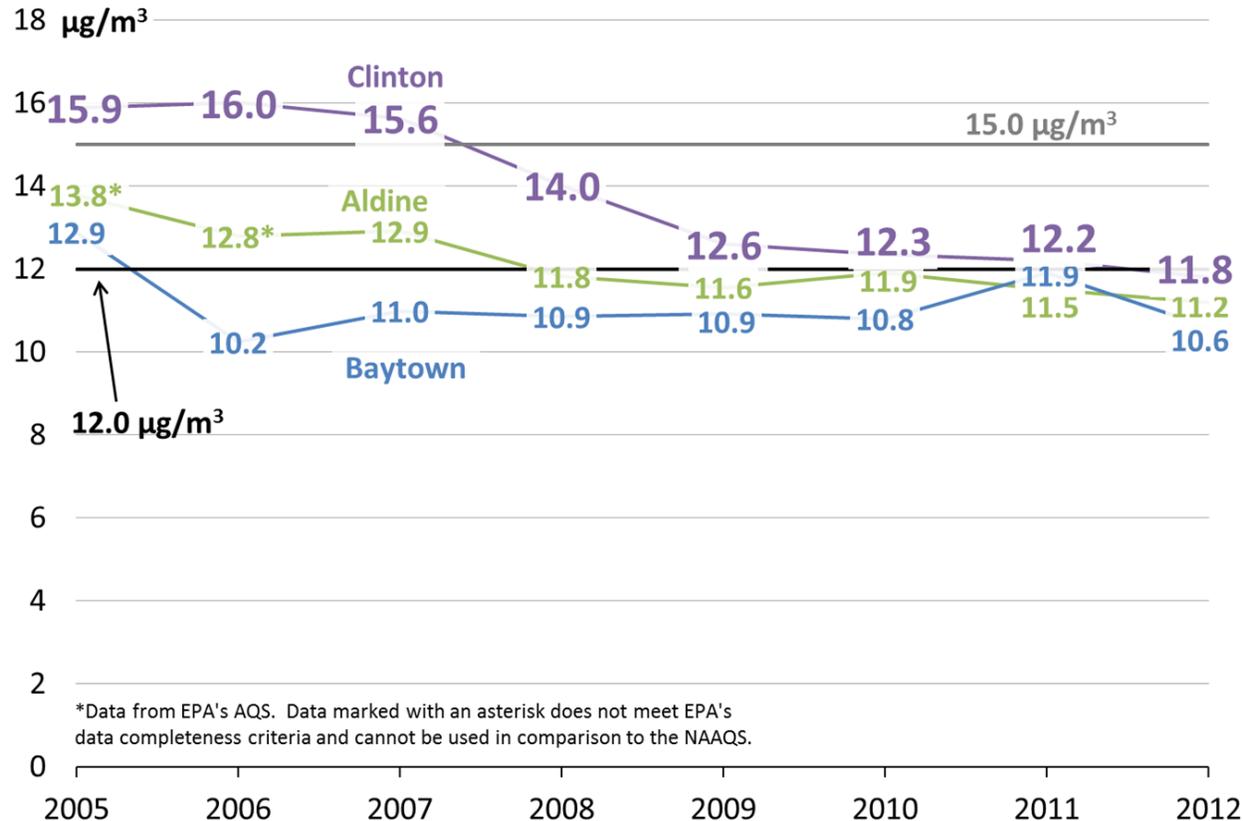
Fine particulate matter (PM<sub>2.5</sub>) levels in the Houston area have shown a gradual overall decline since monitoring began in 1999. The Houston Clinton Drive monitor (EPA Site Number 482011035) measured a pronounced increase in PM<sub>2.5</sub> concentrations from 2002 through 2007, as shown in Figure C-1: *Annual PM<sub>2.5</sub> Design Values in Harris County Including Exceptional Event Days*, caused by localized sources in the immediate vicinity of the site. This increase has since been followed by a sharp decline resulting from extensive voluntary source reduction efforts (Sullivan et al., 2013).

**Figure C-1: Annual PM<sub>2.5</sub> Design Values in Harris County Including Exceptional Events Days**



Further, the trends in the annual PM<sub>2.5</sub> average, shown in Figure C-2: *Annual Average PM<sub>2.5</sub> in Harris County Including Exceptional Event Days*, are all below the 2012 annual primary PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS) of 12.0 micrograms per cubic meter (µg/m³) in 2012. The Clinton site would meet the NAAQS in 2013 with an annual PM<sub>2.5</sub> average of 12.1 µg/m³ or less. The 2012 annual PM<sub>2.5</sub> average was 11.8 µg/m³ and, based on current trends, the 2013 annual average is not expected to exceed 12.1 µg/m³.

**Figure C-2: Annual Average PM<sub>2.5</sub> in Harris County Including Exceptional Event Days**



**PM<sub>2.5</sub> TRANSPORT**

Historically, PM<sub>2.5</sub> in the Houston area is greatly impacted by long-range transport from natural events outside of the area including wildfires; African dust; dust from large, intense regional dust storms in the West Texas-New Mexico-Northern Mexico area; and smoke from agricultural burning in Mexico and Central America. Long-range transport from other types of events also impact the Houston area, including smoke from controlled burns and haze and smoke accumulated from man-made emissions in the United States and Canada (also known as continental haze).

African dust impacts the Houston area every year, mainly in the summer, with typically three to six intense episodes that are characterized by high incoming background levels and lasting one to three days or more. Smoke from agricultural burning in Mexico affects the Houston area mainly from April to early June annually when the winds bring in air from eastern Mexico and Central America. Continental haze events are most common from May through October and often include high ozone background levels as well. These external sources of PM<sub>2.5</sub> air pollution cannot be controlled locally and prior work indicates that these sources, along with the global background, account for at least about 75 to 90% of the annual PM<sub>2.5</sub> average at sites in the Houston area (Lambeth, 2010) as shown in Figure C-3: *Texas 2008 Annual Average PM<sub>2.5</sub> Concentrations*. A variety of urban and industrial local sources of PM<sub>2.5</sub> also contribute the remaining 10 to 25% of the annual means for 2010 through 2012.

**Figure C-3: Texas 2008 Annual Average PM<sub>2.5</sub> Concentrations**

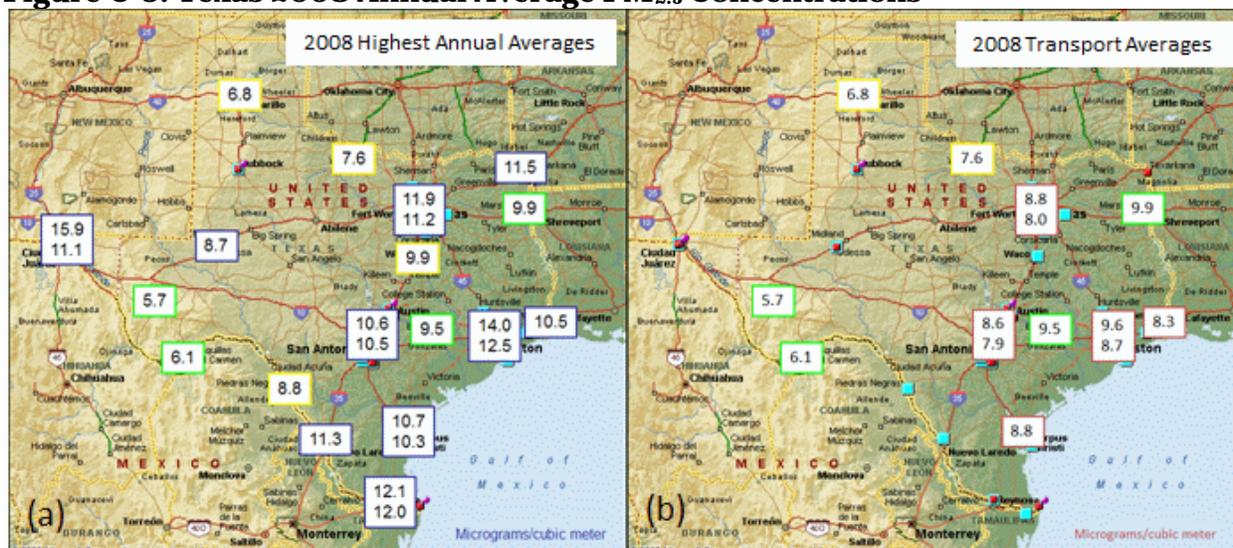


Figure C-3. Texas 2008 annual average PM<sub>2.5</sub> concentrations. (a) Map showing the highest site annual averages by area, with the second highest shown in areas with more than one site. (b) Map showing the estimated annual average contribution from transport by area with the top average based on the second lowest area daily measurements for areas with more than one site (Lambeth, 2010).

**REFERENCES**

Lambeth, B. (2010). Assessing PM<sub>2.5</sub> Background Levels and Local Add-On. 2010 National Air Quality Conferences: Air Quality Forecasting, Mapping, and Monitoring, and Communicating Air Quality. Raleigh, NC: U.S. EPA.

Sullivan, D. W., et al. (2013). Success in Reducing PM<sub>2.5</sub> in the Neighborhood North of the Houston Ship Channel - Voluntary Efforts Based on Field Study Results and Source Attribution. Journal of the Air and Waste Management Association.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



THE STATE OF TEXAS  
COUNTY OF TRAVIS  
QUALITY  
OCT 31 2013

OCT 31 2013

OF THE COMMISSION ON ENVIRONMENTAL QUALITY  
BY: [Signature]  
DATE: [Date]

**Resolution Concerning the 2012 Revised Primary Annual Fine  
Particulate Matter National Ambient Air Quality Standard  
Designations**

**Docket No. 2013-1391-MIS**

WHEREAS, the Texas Commission on Environmental Quality (Commission) met on October 23, 2013 to discuss and consider designation recommendations for the revised primary annual fine particulate matter (PM<sub>2.5</sub>) National Ambient Air Quality Standard (NAAQS) for submittal to the Governor for his consideration and transmittal to the United States Environmental Protection Agency (EPA); and

WHEREAS, the Commission finds that the EPA revised the primary annual standard for PM<sub>2.5</sub> on December 14, 2012, setting the standard at 12.0 micrograms per cubic meter (µg/m<sup>3</sup>); and

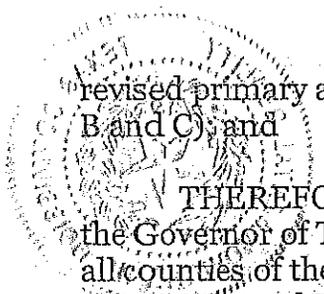
WHEREAS, the Commission acknowledges that the Federal Clean Air Act (FCAA), § 107(d), requires the EPA, after the promulgation of a new or revised NAAQS, to designate areas as attainment, nonattainment, or unclassifiable; and

WHEREAS, the Commission acknowledges that the FCAA, § 107(d), also establishes a process for each Governor to provide recommendations to the EPA regarding appropriate designations for the revised primary annual PM<sub>2.5</sub> NAAQS for their state, including appropriate geographic boundaries; and

WHEREAS, the Commission acknowledges that the EPA has specified a deadline for the submittal of recommended designations for the revised primary annual PM<sub>2.5</sub> NAAQS of December 13, 2013; and

WHEREAS, the Commission acknowledges that the EPA recommends that states identify areas not in compliance with the revised NAAQS using the most recent three years of air quality data, preferably data from calendar years 2010 through 2012, stored in the EPA Air Quality System (AQS) from Federal Reference Method and Federal Equivalent Method monitors that are sited and operated in accordance with 40 Code of Federal Regulations (CFR) Part 58; and

WHEREAS, the Commission finds that based on AQS monitoring data from 2010 through 2012, the demonstration of exceptional event days and historical trends, all monitors in Texas with data eligible for comparison to the



revised primary annual PM<sub>2.5</sub> NAAQS meet the revised standard (Attachments A, B and C), and

THEREFORE, BE IT RESOLVED, that the Commission hereby requests the Governor of Texas to submit a designation recommendation of attainment for all counties of the state with EPA AQ monitors in compliance with the revised primary annual PM<sub>2.5</sub> NAAQS and unclassifiable/attainment for all other counties of the state, to the EPA for consideration, along with data analysis supporting this recommendation, by the EPA's requested deadline of December 13, 2013.

Issued date: OCT 30 2013

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Bryan W. Shaw*  
Bryan W. Shaw, Ph.D., Chairman