

Harris County/Clinton Drive 1997 Annual Fine Particulate Matter (PM_{2.5}) Fact Sheet November 2009

Issue

On October 8, 2009, the Texas Commission on Environmental Quality (TCEQ) was notified that Governor Perry would receive two letters from the United States Environmental Protection Agency (EPA): a letter from EPA Administrator Jackson stating that the EPA is looking at Harris County PM_{2.5} data, and a second from EPA Region 6, Acting Regional Administrator Starfield advising that the TCEQ submit a 1997 annual PM_{2.5} standard designation recommendation for Harris County, using 2006 through 2008 data.

Addressing this letter to the public, the TCEQ will host an informational meeting on Thursday, November 19, 2009, at 1:00 p.m., at the Alvin D. Baggett Community Center, 1302 Keene Street, Galena Park, Texas. Agency staff will present information on PM_{2.5} and provide an opportunity for discussion on the EPA's request for designation recommendation.

Commission action on a staff recommendation is anticipated at the December 4, 2009, Commissioners' Work Session. The TCEQ's recommendation is scheduled to go to the governor on January 5, 2010, and the governor's recommendation to the EPA is due February 5, 2010.

Background

PM_{2.5} describes fine particulate matter that is 1/30th the diameter of a human hair. PM_{2.5} is a mixture of microscopic solids and liquid droplets suspended in air. It is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). Particulate matter can be caused by natural phenomena or come from man-made sources. In high enough concentrations, particulates can aggravate existing respiratory problems or even trigger new ones. The 1997 annual PM_{2.5} National Ambient Air Quality Standard (NAAQS) is 15.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). A violation is a value greater than 15.0 $\mu\text{g}/\text{m}^3$ averaged over a rolling three-year period.

Since 2004, all PM_{2.5} monitors in the Houston area except the Clinton Drive monitor have recorded readings lower than 15.0 $\mu\text{g}/\text{m}^3$. PM_{2.5} data for the Clinton Drive monitor showed a 2005 annual average of 15.9 $\mu\text{g}/\text{m}^3$ and a three-year average of 15.0 $\mu\text{g}/\text{m}^3$. The TCEQ conducted an advanced analysis of the PM_{2.5}, meteorological data, and the chemical speciation data to identify the cause (what portion and component of PM_{2.5}), source types, and source areas contributing to the excessive particulate matter concentrations. Daytime, weekday concentrations are the main cause of high PM_{2.5} levels at the Clinton Drive site. Analysis of chemical speciation data shows the calculated mass of soil at Clinton Drive is approximately 1.5 to 2.0 $\mu\text{g}/\text{m}^3$ higher than at any other speciation monitoring site in the Houston area. The data indicate that the higher elevated PM_{2.5} concentrations at the Clinton Drive monitor represent a limited area, as the Clinton Drive monitor is located directly across from the entrance to the Port of Houston Authority (PHA) and unpaved ship yards along the Houston Ship Channel. The railroad also runs parallel to this section of Clinton Drive.

Concurrently, the TCEQ began working with the PHA, the City of Houston, Harris County, and local industry to address this issue. A list of voluntary actions to date is attached. The combined efforts of the various organizations has improved particulate matter air quality to the point that the 2008 PM_{2.5} annual average at Clinton Drive was 14.0 $\mu\text{g}/\text{m}^3$, even when exceptional event days are included.

Determination of the attainment status for the standard requires comparison of the most recent average of PM_{2.5} data for three complete years, which are currently 2006, 2007, and 2008. The EPA procedures also provide for exclusion of data for exceptional events such as transported Saharan Desert dust and smoke transported from fires in southern Mexico and Central America. The EPA is still reviewing the TCEQ's

flags for exceptional event days for 2006 through 2008. The TCEQ has provided additional supporting documentation in response to EPA requests.

Without removing exceptional event days, the 2006 through 2008 design value for Clinton Drive is $15.2 \mu\text{g}/\text{m}^3$. After removing exceptional event days identified by TCEQ meteorologists, the 2006 through 2008 design value is $14.6 \mu\text{g}/\text{m}^3$. The 2009 monitoring data collected from January through June indicate a preliminary annual average of $12.8 \mu\text{g}/\text{m}^3$. Using the validated January through June 2009 data and a conservative estimate for the rest of 2009 based on historical measurements at this site, the projected 2007 through 2009 design value is $14.4 \mu\text{g}/\text{m}^3$.

Efforts to Improve Air Quality in the Clinton Drive Area

In addition to the individual efforts of the organizations previously identified, in July 2009, the TCEQ hosted a roundtable meeting with EPA Region 6, the Texas Department of Transportation, Harris County, the Cities of Houston and Galena Park, Houston-Galveston Area Council, the PHA, the Port Terminal Rail Association (PTRA), local regulated industries, and environmental groups. See attachment, Efforts to Reduce Local $\text{PM}_{2.5}$ Emissions in the Clinton Drive Area as of December 2009.

Next Steps

Continuous $\text{PM}_{2.5}$ data from 2009 show a downward trend in $\text{PM}_{2.5}$ concentrations at Clinton Drive. The EPA indicated that it could consider 2009 data if it is quality assured and quality controlled by TCEQ staff by the end of this calendar year.

On November 19, 2009, an informational meeting in Houston will include a presentation by TCEQ and allow a question and answer period. Informal comments will be accepted until November 23, 2009.

Efforts to Reduce Local PM_{2.5} Emissions in the Clinton Drive Area as of December 2009

PHA Projects:

- PHA along with eight other Houston Ship Channel industries are the recipients of \$3.47 million in an EPA National Clean Diesel Campaign that provides funding through the Diesel Emission Reduction Act (DERA), as part of the recently enacted nationwide economic stimulus package, the American Recovery and Reinvestment Act. PHA has been awarded \$611,466, while \$2.8 million has been awarded to eight port industrial partners.
- The PHA reports widespread use of emulsified asphalt beginning October 1, 2007.
- PHA is taking bids for new, large yards that will include dust suppression measures.
- Valero Asphalt paved its large leases located across Clinton Drive to the southeast of the monitor.

Road Projects:

- The City of Houston installed barriers to keep trucks from driving off Clinton Drive onto the dirt shoulders of the road.
- The City installed a traffic light at Clinton Drive and the Industrial Park East gate to control traffic at the intersection and completed a landscaping project along Clinton Drive.
- The TCEQ commissioners approved a Supplemental Environmental Project to pave the parking lot directly adjacent to the monitoring station. The paving was completed in the summer of 2009.

Railroad Projects:

- PTRAs and Union Pacific (UP) are operating newly refurbished switcher engines on the Clinton line.
 - UP currently has 52 new gensets in the Houston area.
 - UP has 13 Tier 2 locomotives being funded by Texas Emissions Reduction Plan (TERP).
- 60% of UP switcher engines operating in the area have anti-idling control.
- PTRAs have stopped the steel loading activities on a dirt area to the south of the monitor.

Regulated Industry Projects:

- DuPont, a PHA tenant, has implemented new dust control best management practices at its fluorspar unloading and storage facility.
- Federal consent decrees are anticipated to result in an estimated 33,900 tons per year (tpy) of sulfur dioxide (SO₂) reductions in the upper Texas Gulf Coast.
 - Valero Refining has already implemented control measures to reduce SO₂ emissions by 3,500 tpy.
 - The Rhodia sulfuric acid plant will decrease its SO₂ emissions by 8,984 tpy from 2005 actual emissions by 2012.



Clinton Dr. Area

