

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Randy Ammons, Regional Director,
Air Section Manager
TCEQ Region 2 - Lubbock

Date: December 2, 2005

From: Michael S. Aplin, M.S.
Toxicology Section, Chief Engineer's Office

Subject: Health Effects Review of 2004 Ambient Air Network Monitoring Data in
Region 2, Lubbock

Conclusion

All metals from particulate matter less than or equal to 2.5 microns (PM_{2.5}) were monitored at levels below health-based screening values and would not be expected to cause adverse health effects.

Background

This memorandum conveys the Toxicology Section's evaluation of ambient air sampling conducted at a monitoring network site in Region 2, Lubbock during 2004. Summary results for metals from PM_{2.5} samples collected every sixth day from a site located at 5th Street at Avenue K in Lubbock, Texas were evaluated. Information about the Lubbock monitoring site, the only location in TCEQ Region 2 with a monitor, is presented in Table 1. The specific metals evaluated are listed in Table 2 and the location of the site is shown in Figure 1. This memorandum evaluates air monitoring data on a chemical-by-chemical basis.

Table 1. Monitoring Site Information for TCEQ Region 2

County	City and Site Location	EPA Site ID	Monitored Compounds
Lubbock	Lubbock, 5th Street at Ave. K	48-303-0001	Metals (PM _{2.5})

Table 2. Metals Evaluated in PM_{2.5} Samples

Metals			
Antimony	Cadmium	Lead ^a	Mercury
Arsenic	Chromium	Manganese	Selenium
Aluminum	Cobalt	Molybdenum	Tin
Barium	Copper	Nickel	Zinc

^a Lead is a criteria pollutant with a corresponding National Ambient Air Quality Standard (NAAQS) and was not evaluated in this memorandum

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The data-return for the Lubbock monitor met completeness requirements for estimating annual average concentrations, with fifty six 24-hour samples reported for each metal. For all metals except lead, the 24-hour maximum and annual average concentrations were compared to their respective short-term and long-term TCEQ health-based Effects Screening Levels (ESLs). It should be noted that 24-hour air samples are designed to provide representative long-term average concentrations. Therefore, annual averages from 24-hour samples were evaluated for potential chronic health concerns. Short-term or peak concentrations are not captured by 24-hour samples, and therefore, daily maximum concentrations have limited use in evaluating the potential for acute health effects.

An ESL is a guideline concentration which is protective of the general public including sensitive members of the population, such as the elderly, children, and persons with pre-existing health conditions. Health-based ESLs are guideline comparison levels set well below levels at which adverse health effects have been reported in the scientific literature. If an air concentration of a pollutant is below the health-based ESL, we do not expect adverse health effects to occur. If an air concentration of a pollutant is above the health-based ESL, it is not indicative that adverse effects will necessarily occur, but rather, that further evaluation may be warranted.

Evaluation

All annual average concentrations for the 15 metals were measured well below their long-term ESLs and are not a health concern. In addition, all 24-hour concentrations were below levels that would cause acute health effects. However, the potential for acute health effects could not be fully evaluated because 24-hour composite samples do not provide information about shorter term or peak concentrations. We do not anticipate any health concerns from monitored levels of PM_{2.5} metals in Lubbock.

If you have any questions about this evaluation, please call me at (512) 239-1792 or e-mail me at maplin@tceq.state.tx.us.

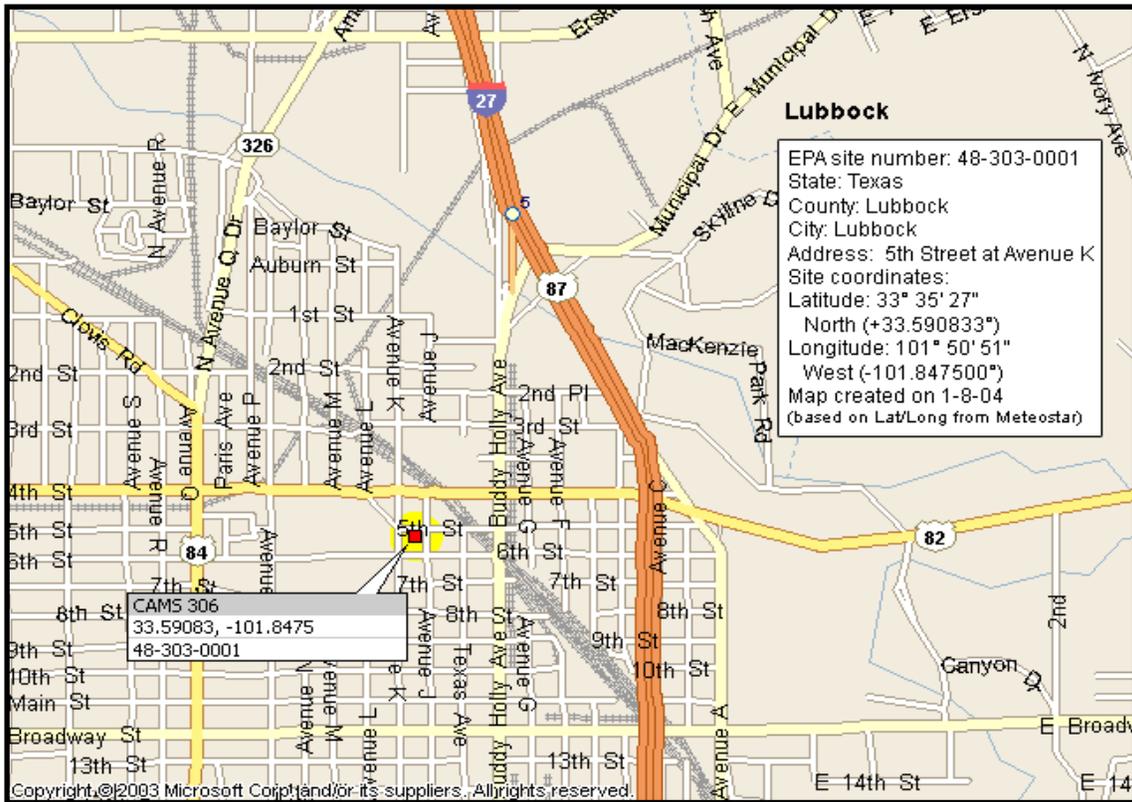


Figure 1. Location of PM_{2.5} Monitor in Lubbock

cc: Casso, Ruben – EPA Region 6, Dallas (via e-mail)