

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Carlos Rubinstein, Director
Rose Luna-Pirtle, Air Manager
TCEQ Region 16–Laredo

Date: October 8, 2004

From: Nathan Pechacek, M.S.
Toxicology Section, Chief Engineer’s Office

Subject: Health Effects Review of 2003 Data Collected from Ambient Air Network Monitoring Sites in Region 16, Laredo

Conclusions

- All annual average concentrations for reported VOCs, PAHs, and metals, except benzene at the Laredo Bridge site, are below their long-term ESLs and are not a health concern.
- The annual average benzene concentration at the Laredo Bridge site, which exceeded the long-term ESL, is within the acceptable risk range as defined by the U.S. Environmental Protection Agency.

Background

This memorandum conveys the Toxicology Section’s evaluation of ambient air sampling conducted at monitoring network sites in Region 16–Laredo during 2003. We reviewed annual summary results for 24-hour Volatile Organic Compounds (VOCs) and Polycyclic Aromatic Hydrocarbons (PAHs). In addition, we reviewed summary results for metals from 24-hour Total Suspended Particulate (TSP) filter samples. All VOCs, PAHs, and TSP samples were collected every sixth day. This memorandum evaluates air monitoring data on a chemical-by-chemical basis. Evaluation of the potential for cumulative effects will be presented in a later report.

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. Twenty-four-hour samples do not show short-term or peak concentrations, and therefore, have limited use in evaluating the potential for acute health effects or odors.

The measured chemical concentrations were compared to TCEQ health-based Effects Screening Levels (ESLs). 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 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.

Lead was monitored but not evaluated in this memorandum since it is a criteria pollutant with a corresponding National Ambient Air Quality Standard (NAAQS).

Evaluation

Except for benzene at the Laredo Bridge site, all annual average concentrations reported for VOCs, PAHs,

Carlos Rubinstein, Director
Rose Luna-Pirtle, Air Manager
Page 2
October 8, 2004

and metals were below their long-term ESLs. In addition, all 24-hour concentrations for reported VOCs, PAHs, and metals were below levels that would cause acute health effects or odors. However, because 24-hour composite samples do not provide information about shorter-term and peak concentrations, potential for acute health effects and odors could not be fully evaluated. It should also be noted that select VOCs at particular monitoring sites did not meet the TCEQ's goal for data completeness of 75% data return. Benzene at the Laredo Bridge site is discussed further below.

Benzene

Laredo Bridge

The annual average benzene concentration (1.3 parts per billion by volume (ppbv)) exceeded the long-term ESL of 1.0 ppbv. Although this annual average exceeded the long-term ESL, it is within the acceptable risk range as defined by the U.S. Environmental Protection Agency. However, because benzene is a human carcinogen, the TCEQ is continuing its efforts to characterize ambient air quality and reduce potential public exposures.

If you have any questions about this evaluation, please call me at (512) 239-1336 or email me at npechace@tceq.state.tx.us.

cc: (via email) Brymer, David
Eden, Dan
Henneke, Jody
McGinley, Ann
Porter, Tom
Leidig, Mark
Rodriguez, Anna Maria
Ruggeri, Dom
Sidnell, Jennifer
Seal, Derek
Spaw, Steve
Sullivan, Dave
Toxicology Section
Wadick, Ashley K.
Wade, Brent