

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Georgie Volz, Director
Stuart Mueller, Air Section Manager
TCEQ Region 10–Beaumont

Date: September 24, 2004

From: Darrell D. McCant, Toxicology Section, Chief Engineer Office

Subject: Health Effects Review of 2003 Data Collected from Ambient Air Network Monitoring Sites in Region 10, Beaumont

Conclusions

- Annual average concentrations for all reported VOCs and metals, except for benzene, did not exceed their long-term ESLs and were not a health concern.
- Benzene annual average concentrations that exceeded the long-term ESL were not a health concern.

Background Information

This memorandum conveys the Toxicology Section's evaluation of ambient air sampling conducted at monitoring network sites in Region 10–Beaumont during 2003. We reviewed annual summary results for 24-hour canister Volatile Organic Compounds (VOCs) collected generally every sixth day at:

- Grant and Grove Streets, AIRS No. 482450020 (Carroll Street Park)
- 201 H. O. Mills Road, AIRS No. 482450019 (City Service Center)
- Georgia and Cunningham, AIRS No. 482450009 (Lamar University)
- 800 El Vista Road, AIRS No. 482450011 & Collocated AIRS No. 482459011 (Wheatley Elementary)
- 3355 Grandview Ave & 32nd Street, AIRS No. 482450014 (Fairlea)
- 1225 Merriman Street, AIRS No. 482450017 (Port Neches)
- 2700 Austin Avenue, AIRS No. 482451001 (Police Station)

In addition, we reviewed summary results for speciated metals from 24-hour PM_{2.5} filter samples collected generally every third day at:

- 12552 Second Street, AIRS No. 482450022
- Intersection Of TX Hwy. 62 and 12, AIRS No. 483611100

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 concern. 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.

All measured VOCs and speciated metals, except for lead, 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

Georgie Volz, Director
Stuart Mueller, Air Section Manager
Page 2
September 24, 2004

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 at two sites in Region 10–Beaumont. It was not evaluated in this memorandum since it is a criteria pollutant with a corresponding National Ambient Air Quality Standard (NAAQS). 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.

Evaluation

Except benzene at Carroll Street Park and the City Service Center, all reported VOC and metals annual average concentrations were below their long-term ESLs and are not a health concern. 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. Benzene concentrations are discussed further below.

Benzene

Carroll Street Park and City Service Center

The annual average benzene concentrations at Carroll Street Park and City Service Center were 1.4 and 1.3 ppbv, respectively. Although these annual averages exceed the long-term ESL for benzene (1 ppbv), they are within the acceptable risk range as defined by the U.S. Environmental Protection Agency and are generally typical of urban areas across the United States. However, because benzene is a human carcinogen, the TCEQ is continuing its efforts to characterize ambient air quality and reduce potential public exposures.

Please contact me at 512-239-4477 or dmccant@tceq.state.tx.us if you have any questions regarding this evaluation.

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