

TCEQ Interoffice Memorandum

To: Leroy Biggers, Regional Director
Michelle Baetz, Air Section Manager
Kelly Keel, Coastal and East Texas Area Director
Tara Capobianco, Air Pollutant Watch List Coordinator

From: Shannon Ethridge, M.S., D.A.B.T. *SE*
Toxicology Division, Office of the Executive Director

Date: June 13, 2013

Subject: Toxicological Review of 2012 Ambient Air Network Monitoring Data in Region 5, Tyler

Conclusions

- Exposure to monitored levels of volatile organic compounds (VOCs) at the Community Air Toxics Monitoring Network (CATMN) site (Longview monitoring location) in Region 5 would not be expected to cause chronic adverse health or vegetation effects.
- Exposure to monitored levels of VOCs, polycyclic aromatic hydrocarbons (PAHs), carbonyls, or speciated metals from particulate matter less than 2.5 and/or 10 microns in diameter (PM_{2.5} & PM₁₀), at the Karnack monitoring location would not be expected to cause chronic adverse health or vegetation effects.

Background

This memorandum conveys the Toxicology Division's evaluation of ambient air sampling conducted at two ambient air network monitoring sites in Region 5–Tyler during 2012. Summary results shown in Table 1, were collected every sixth day from (1) a site located at Gregg County Airport in Longview (24-hour VOC), and from a site located at (2) Highway 143 and Spur 449 in Karnack (24-hour VOC, PAH, carbonyl, and speciated metal (PM_{2.5} & PM₁₀); these results were evaluated on a chemical-by-chemical basis. Information about the Region 5 monitoring sites is presented in Table 1, along with hyperlinks to the monitoring site maps and more detailed information. Complete lists of all chemicals evaluated are provided in Attachment A.

Table 1. Monitoring Sites Located in TCEQ Region 5

City and Site Location	County	Monitor ID	Monitored Compounds
Longview, Gregg County Airport	Gregg	481830001	VOCs
Karnack, Highway 134 and Spur 449	Harrison	482030002	VOCs, PAHs, carbonyls, and metals (PM _{2.5} & PM ₁₀)

The Texas Commission on Environmental Quality (TCEQ) Monitoring Division reported data for all chemicals evaluated in this memorandum. Because every sixth day 24-hour air samples are designed to provide representative long-term average concentrations, annual averages from 24-hour samples were evaluated for potential chronic health concerns. Therefore, the TD evaluated the reported annual average concentrations for each target analyte for potential chronic health and vegetation concerns by comparing the measured chemical concentrations to their respective long-term air monitoring comparison values (AMCVs) or, for lead, the applicable comparison level.

More information about AMCVs is available online at:
<http://www.tceq.state.tx.us/implementation/tox/AirToxics.html#amcv>.

Evaluation

Longview, Gregg County Airport Site

All annual average concentrations of 84 VOCs monitored at the Longview site were below their AMCVs and would not be expected to cause adverse chronic health or vegetation effects.

Karnack, Highway 134 and Spur 449 Site

All reported annual average concentrations of the 84 VOCs, 16 PAHs, 17 carbonyls, and speciated metals monitored at the Karnack site were below their AMCVs and would not be expected to cause adverse chronic health or vegetation effects. Lead was detected in 58 out of 59, 24-hour PM₁₀ metals samples, and in none of the 56 PM_{2.5} samples. All detected levels of lead were below levels of health concern.

Air Pollutant Watch List (APWL) Area

There is one APWL area ([APWL0501](#)) in Region 5 for hydrogen sulfide which covers parts of both Bowie and Cass Counties. This area is discussed in detail in the 2012 [annual APWL](#) report.¹

Hydrogen sulfide has been monitored at levels above the odor threshold and 30-minute state standard since 1989. The most recent sampling at APWL0501 was in 2009, when the TCEQ Small Business and Local Government Assistance staff conducted air sampling using a Jerome analyzer. The purpose of the sampling was not to conduct testing to ensure compliance with the state 30-minute average hydrogen sulfide standard; however, one instantaneous concentration measured with the Jerome analyzer indicated that the concentration may be above the state standard. It is noted that regional staff have not received citizen complaints in the past couple of years, including 2012, and that regional staff are planning to conduct a follow-up sampling event to assess up-to-date hydrogen sulfide levels. Additional data concerning the levels of hydrogen sulfide in APWL0501 would be necessary in order to provide a complete evaluation.

If you have any questions about this evaluation, please call me at (512) 239-1822 or e-mail me at shannon.ethridge@tceq.texas.gov.

cc (via email):

¹ Report on the Air Pollutant Watch List Areas in Texas; Prepared by the Texas Commission on Environmental Quality, February 2012

Casso, Ruben- EPA Region 6, Dallas

Beauchamp, Richard- Department of State Health Services

Bradford, Carrie -Department of State Health Services

Attachment A

List 1. Target VOC Analytes in Canister Samples

1,1,1-Trichloroethane	3-Methylhexane	Methylene Chloride
1,1,2,2-tetrachloroethane	3-Methylpentane	m-Ethyltoluene
1,1,2-Trichloroethane	4-Methyl-1-Pentene	n-Butane
1,1-Dichloroethane	Acetylene	n-Decane
1,1-Dichloroethylene	Benzene	n-Heptane
1,2,3-Trimethylbenzene	Bromomethane	n-Hexane
1,2,4-Trimethylbenzene	c-2-Butene	n-Nonane
1,2-Dibromoethane	c-2-Hexene	n-Octane
1,2-Dichloroethane	c-2-Pentene	n-Pentane
1,2-Dichloropropane	Carbon Tetrachloride	n-Propylbenzene
1,3,5-Trimethylbenzene	Chlorobenzene	n-Undecane
1,3-Butadiene	Chloroform	o-Ethyltoluene
1-Butene	Cis 1,3-dichloropropylene	o-Xylene
1-Hexene & 2-Methyl-1-Pentene	Cyclohexane	p-Diethylbenzene
1-Pentene	Cyclopentane	p-Ethyltoluene
2,2,4-Trimethylpentane	Cyclopentene	Propane
2,2-Dimethylbutane - Neohexane	Dichlorodifluoromethane	Propylene
2,3,4-Trimethylpentane	Ethane	p-Xylene + m-Xylene
2,3-Dimethylbutane	Ethylbenzene	Styrene
2,3-Dimethylpentane	Ethylene	t-2-Butene
2,4-Dimethylpentane	Isobutane	t-2-Hexene
2-Chloropentane	Isopentane	t-2-Pentene
2-Methyl-2-Butene	Isoprene	Tetrachloroethylene
2-Methylheptane	Isopropylbenzene	Toluene
2-Methylhexane	m-Diethylbenzene	trans-1-3-dichloropropylene
2-Methylpentane - Isohexane	Methyl chloride	Trichloroethylene
3-Methyl-1-Butene	Methylcyclohexane	Trichlorofluoromethane
3-Methylheptane	Methylcyclopentane	Vinyl Chloride

List 2. Target Metal Analytes

Aluminum (PM _{2.5})	Chromium (PM _{2.5})	-Nickel (PM _{2.5} , PM ₁₀)
Antimony (PM _{2.5})	Cobalt (PM _{2.5})	Selenium (PM _{2.5})
Arsenic (PM _{2.5} , PM ₁₀)	Copper (PM _{2.5})	Tin (PM _{2.5})
Barium (PM _{2.5})	Lead (PM _{2.5} , PM ₁₀)	Zinc (PM _{2.5})
Cadmium (PM _{2.5} , PM ₁₀)	Manganese (PM _{2.5} , PM ₁₀)	

List 3. Target PAH Analytes

Acenaphthene	Benzo (ghi) perylene	Indeno (1,2,3-cd) pyrene
Acenaphthylene	Benzo (k) fluoranthene	Naphthalene
Anthracene	Chrysene	Phenanthrene
Benzo (a) anthracene	Dibenzo (a,h) anthracene	Pyrene
Benzo (a) pyrene	Fluoranthene	
Benzo (b) fluoranthene	Fluorene	

List 4. Target Carbonyl Analytes

2,5-Dimethylbenzaldehyde	Crotonaldehyde	Methyl Ethyl Keton/ (MEK)/methacrolein
Acetaldehyde	Formaldehyde	m- and p-Tolualdehyde
Acetone	Heptanal	o-Tolualdehyde
Acrolein - Unverified	Hexanaldehyde	Propanal-Propionaldehyde
Benzaldehyde	Isovaleraldehyde	Valeraldehyde
Butyraldehyde		