

TCEQ Interoffice Memorandum

To: Jaime Garza, Regional Director

From: Sabine Lange, Ph.D. *SL*
Toxicology Division, Office of the Executive Director

Date: August 4, 2015

Subject: Toxicological Review of 2014 Ambient Air Network Monitoring Data in Region 15, Harlingen

Conclusions

- All 24-hour average and annual average concentrations of 84 volatile organic compounds (VOCs), 16 polycyclic aromatic hydrocarbons (PAHs), and two metals measured in total suspended particulate matter (TSP) were below their respective Texas Commission on Environmental Quality (TCEQ) air monitoring comparison values (AMCVs) and would not be expected to cause adverse health effects or vegetation effects.

Background

Ambient air sampling conducted at two monitoring network sites in Region 15, Harlingen during 2014 was evaluated by the Toxicology Division (TD). Table 1 indicates the location and monitored compounds at two Community Air Toxics Monitoring Network sites in Region 15. Hyperlinks are provided in Table 1 for more detailed information on each monitoring site. The TD reviewed air monitoring summary results for VOCs, PAHs, and speciated metals data from 24-hour TSP samples collected every sixth-day. For a complete list of all examined chemicals, please see Lists 1, 2, and 3 in Attachment A.

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. All data collected [84 VOCs, 16 PAHs, and 2 metals (TSP)] from the Brownsville and Mission monitoring sites met the data completeness objective of 75 percent data return. Twenty-four-hour air samples collected every sixth-day for a year are designed to provide representative long-term average concentrations. In order to be able to evaluate 24-hour monitoring data more fully, TCEQ has developed 24-hour AMCVs for specific chemicals. As such, 24-hour samples were compared to the available TCEQ 24-hour AMCVs for 1,3-butadiene and benzene. However, because short-term or peak concentrations are not necessarily captured by 24-hour samples, daily concentrations have limited use in evaluating the potential for acute health effects. Therefore, the TD evaluated the reported annual average concentrations from 24-hour samples for each target analyte for potential chronic health and vegetation concerns by comparing measured chemical concentrations to long-term AMCVs or, for lead, to the applicable comparison level. More information about AMCVs is available online at: <http://www.tceq.state.tx.us/implementation/tox/AirToxics.html#amcv>.

Table 1. Monitoring Sites Located in TCEQ Region 15

City and Site Location	County	EPA Site ID	Monitored Compounds
Brownsville , 344 Porter Drive	Cameron	48-061-0006	VOCs, PAHs, and Metals (TSP)
Mission , 2300 North Glasscock	Hidalgo	48-215-0043	VOCs and PAHs

Evaluation

VOCs

Of the 84 target VOCs at the Brownsville and Mission sites, all were either not detected or were below their respective long-term AMCVs; additionally, 1,3-butadiene and benzene were below their 24 hour AMCVs. Therefore, exposure to the measured concentrations would not be expected to cause chronic adverse health or vegetation effects.

Metals (TSP)

Arsenic was not detected in any 24-hour TSP metals samples collected at the Brownsville monitor during 2014. Lead was only detected once out of 53, 24-hour TSP metals samples and detected levels were below levels of health concern.

PAHs

Of the 16 reported PAHs at the Brownsville and Mission monitoring sites in 2014, all were either not detected or were below their respective long-term AMCVs and exposure to the measured concentrations would not be expected to cause chronic adverse health effects.

If you have any questions regarding the contents of this review, please do not hesitate to contact Sabine Lange via email at sabine.lange@tceq.texas.gov or by phone at (512) 239-3108.

Attachment A

List 1. Target VOC Analytes in Canister Samples

1,1,2,2-Tetrachloroethane	Acetylene	Trichloroethylene
1,1,2-Trichloroethane	Benzene	Trichlorofluoromethane
1,1-Dichloroethane	Bromomethane	Vinyl Chloride
1,1-Dichloroethylene	Carbon Tetrachloride	cis-1,3-Dichloropropene
1,2,3-Trimethylbenzene	Chlorobenzene	cis-2-Butene
1,2,4-Trimethylbenzene	Chloroform	cis-2-Hexene
1,2-Dichloropropane	Chloromethane	cis-2-Pentene
1,3,5-Trimethylbenzene	Cyclohexane	m-Diethylbenzene
1,3-Butadiene	Cyclopentane	m-Ethyltoluene
1-Butene	Cyclopentene	m/p Xylene
1-Hexene & 2-Methyl-1-Pentene	Dichlorodifluoromethane	n-Butane
1-Pentene	Dichloromethane	n-Decane
2,2,4-Trimethylpentane	Ethane	n-Heptane
2,2-Dimethylbutane	Ethylbenzene	n-Hexane
2,3,4-Trimethylpentane	Ethylene	n-Nonane
2,3-Dimethylbutane	Ethylene Dibromide	n-Octane
2,3-Dimethylpentane	Ethylene Dichloride	n-Pentane
2,4-Dimethylpentane	Isobutane	n-Propylbenzene
2-Chloropentane	Isopentane	n-Undecane
2-Methyl-2-Butene	Isoprene	o-Ethyltoluene
2-Methylheptane	Isopropylbenzene	o-Xylene
2-Methylhexane	Methyl Chloroform	p-Diethylbenzene
2-Methylpentane	Methylcyclohexane	p-Ethyltoluene
3-Methyl-1-Butene	Methylcyclopentane	trans-1,3-Dichloropropene
3-Methylheptane	Propane	trans-2-Butene
3-Methylhexane	Propylene	trans-2-Hexene
3-Methylpentane	Styrene	trans-2-Pentene
4-Methyl-1-Pentene	Tetrachloroethylene	
	Toluene	

List 2. Target Metal Analytes

Arsenic (TSP) | Lead (TSP)

List 3. Target PAH Analytes

Acenaphthene	Benzo (a) anthracene	Benzo (ghi) perylene
Acenaphthylene	Benzo (a) pyrene	Benzo (k) fluoranthene
Anthracene	Benzo (b) fluoranthene	Chrysene

Dibenzo (a,h) anthracene
Fluoranthene
Fluorene

Indeno (1,2,3-cd) pyrene
Naphthalene
Phenanthrene

Pyrene