

TCEQ Interoffice Memorandum

To: Jaime A. Garza, Regional Director
Francisco J. Chavero, Jr., Air Section Manager
David A. Ramirez, Border and Permian Basin Area Director

From: Shannon Ethridge, M.S., D.A.B.T. *SE*
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Date: June 13, 2013

Subject: Toxicological Review of 2012 Ambient Air Network Monitoring Data in Region 15, Harlingen

Conclusions

- Exposure to the annual average concentrations of 84 volatile organic compounds (VOCs), 16 polycyclic aromatic hydrocarbons (PAHs), 15 metals measured in particulate matter with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}) and two metals measured in total suspended particulate matter (TSP) would not be expected to cause chronic adverse health or vegetation effects.

Background

Ambient air sampling conducted at four monitoring network sites in Region 15-Harlingen during 2012 was evaluated by the Toxicology Division (TD). Table 1 indicates the location and monitored compounds at the four Community Air Toxics Monitoring Network sites in Region 15-Harlingen. 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 and PM_{2.5} 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. With the exception of VOCs collected at the Mercedes monitoring site, all data collected (84 VOCs, 16 PAHs, 15 metals (PM_{2.5}), and 2 metals (TSP)) for the Brownsville, Mercedes, Mission, and Isla Blanca Park monitoring sites met the data completeness objective of 75 percent data return. The Mercedes monitoring site was deactivated on October 10, 2012; therefore, complete data are only available for first, second, and third quarters of 2012. Air samples collected over a 24-hour period every sixth day are designed to provide representative long-term average concentrations. 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 health comparison value.

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)
Isla Blanca Park , Lot B 69 1/2	Cameron	48-061-2004	Metals (PM _{2.5})
Mercedes , 325 Golf Course Road	Hidalgo	48-215-1048	VOCs and PAHs *Deactivated 10/10/2012
Mission , 2300 North Glasscock	Hidalgo	48-215-0043	VOCs and PAHs

Evaluation

VOCs

Of the 84 target VOCs, 32 were detected at the Brownsville site, 8 were detected at the Mercedes site, and 16 were detected at the Mission site. The remaining target analytes were not measured above method detection limits. Concentrations of the compounds that were detected were well below their respective long-term air monitoring comparison values (AMCVs), and therefore would not be expected to cause chronic adverse health or vegetation effects.

Metals (TSP)

Arsenic was not detected in any 24-hour TSP metals sample collected at the Brownsville monitor during 2012. Lead was only detected in three out of 55, 24-hour TSP metals samples and detected levels were below levels of health concern.

Metals (PM_{2.5})

The 15 PM_{2.5} metals at the Isla Blanca Park monitoring site were either not detected or were well below levels of health concern.

PAHs

Of the 16 reported PAHs at the Brownsville, Mission, and Mercedes monitoring sites in 2012, all were either not detected or were below their respective long-term AMCVs and 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 me at 512-239-1822 or via email at Shannon.Ethridge@tceq.texas.gov.

cc (via email):

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Attachment A

List 1. Target VOC Analytes in Canister Samples

1,1,2,2-Tetrachloroethane	Benzene	Methyl Chloroform (1,1,1-Trichloroethane)
1,1,2-Trichloroethane	Bromomethane	Methylcyclohexane
1,1-Dichloroethane	Carbon Tetrachloride	Methylcyclopentane
1,1-Dichloroethylene	Chlorobenzene	N-Butane
1,2,3-Trimethylbenzene	Chloroform	N-Decane
1,2,4-Trimethylbenzene	Chloromethane (Methyl Chloride)	N-Heptane
1,2-Dichloropropane	Cis 1,3-Dichloropropene	N-Hexane
1,3,5-Trimethylbenzene	Cis-2-Butene	N-Nonane
1,3-Butadiene	Cis-2-Hexene	N-Octane
1-Butene	Cis-2-Pentene	N-Pentane
1-Hexene+2-Methyl-1-Pentene	Cyclohexane	N-Propylbenzene
1-Pentene	Cyclopentane	N-Undecane
2,2,4-Trimethylpentane	Cyclopentene	O-Ethyltoluene
2,2-Dimethylbutane (Neohexane)	Dichlorodifluoromethane	O-Xylene
2,3,4-Trimethylpentane	Dichloromethane (Methylene Chloride)	P-Diethylbenzene
2,3-Dimethylbutane	Ethane	P-Ethyltoluene
2,3-Dimethylpentane	Ethylbenzene	Propane
2,4-Dimethylpentane	Ethylene	Propylene
2-Chloropentane	Ethylene Dibromide (1,2-Dibromoethane)	Styrene
2-Methyl-2-Butene	Ethylene Dichloride (1,2-Dichloroethane)	Tetrachloroethylene
2-Methylheptane	Isobutane	Toluene
2-Methylhexane	Isopentane (2-Methylbutane)	Trans-1-3-Dichloropropylene
2-Methylpentane (Isohexane)	Isoprene	Trans-2-Butene
3-Methyl-1-Butene	Isopropylbenzene (Cumene)	Trans-2-Hexene
3-Methylheptane	M-Diethylbenzene	Trans-2-Pentene
3-Methylhexane	M-Ethyltoluene	Trichloroethylene
3-Methylpentane	M/P Xylene	Trichlorofluoromethane
4-Methyl-1-Pentene		Vinyl Chloride
Acetylene		

List 2. Target Metal Analytes

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

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	