

# TCEQ Interoffice Memorandum

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**To:** Jaime A. Garza, Regional Director  
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**From:** Shannon Ethridge, M.S., D.A.B.T. *SE*  
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**Date:** October 12, 2012

**Subject:** Health Effects Review of 2011 Ambient Air Network Monitoring Data in Region 15, Harlingen

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## 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<sub>2.5</sub>) 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 2011 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<sub>2.5</sub> 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 arsenic and lead (TSP) collected at the Isla Blanca Park monitoring site, all data collected (84 VOCs, 16 PAHs, and 15 metals (PM<sub>2.5</sub>)) for the Brownsville, Mercedes, and Mission monitoring sites met the data completeness objective of 75 percent data return. 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 National Ambient Air Quality Standard.

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
<a href="#">Brownsville</a> , 344 Porter Drive	Cameron	48-061-0006	VOCs, PAHs, and Metals (TSP)
<a href="#">Isla Blanca Park</a> , Lot B 69 1/2	Cameron	48-061-2004	Metals (PM <sub>2.5</sub> )
<a href="#">Mercedes</a> , 325 Golf Course Road	Hidalgo	48-215-1048	VOCs and PAHs
<a href="#">Mission</a> , 2300 North Glasscock	Hidalgo	48-215-0043	VOCs and PAHs

## Evaluation

### VOCs

Of the 84 target VOCs, 23 were detected at the Brownsville site, 8 were detected at the Mercedes site, and 17 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 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 2011. Lead was only detected in two out of 51, 24-hour TSP metals samples and detected levels were below levels of health concern.

### Metals (PM<sub>2.5</sub>)

The 15 PM<sub>2.5</sub> 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 2011, 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](mailto: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 <sub>2.5</sub> )	Chromium (PM <sub>2.5</sub> )	Molybdenum (PM <sub>2.5</sub> )
Antimony (PM <sub>2.5</sub> )	Cobalt (PM <sub>2.5</sub> )	Nickel (PM <sub>2.5</sub> )
Arsenic (PM <sub>2.5</sub> , TSP)	Copper (PM <sub>2.5</sub> )	Selenium (PM <sub>2.5</sub> )
Barium (PM <sub>2.5</sub> )	Lead (PM <sub>2.5</sub> , TSP)	Tin (PM <sub>2.5</sub> )
Cadmium (PM <sub>2.5</sub> )	Manganese (PM <sub>2.5</sub> )	Zinc (PM <sub>2.5</sub> )

**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	