

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: David Ramirez, Director, Region 15
Ramiro Garcia, Border and South Central Texas
Area Director

Date: September 17, 2008

From: Shannon Ethridge, M.S.
Toxicology Section, Chief Engineer's Office

Subject: Health Effects Review of 2007 Ambient Air Network Monitoring Sites in Region 15-Harlingen

Conclusions

The annual average concentrations of all 95 volatile organic compounds (VOCs), 16 polycyclic aromatic hydrocarbons (PAHs), and two metals measured in total suspended particulate matter (TSP) were well below their applicable comparison values and therefore would not be expected to cause chronic adverse health or vegetative effects.

Background

Ambient air sampling conducted at monitoring network sites in Region 15-Harlingen during 2007 was evaluated by the Toxicology Section (TS). Table 1 indicates the location and monitored compounds at three Community Air Toxics Monitoring Network (CATMN) sites in Region 15-Harlingen. Figures 1-3 are street level maps indicating the specific locations of each of the three monitoring sites. The TS reviewed air monitoring summary results for VOCs and PAHs, and speciated metals data from 24-hour total suspended particulate matter (TSP) samples collected every sixth day. For a complete list of all examined chemicals, please see Table 2.

Table 1: Monitoring Site Information for TCEQ Region 15

County	City and Site Location	EPA Site ID	Monitored Compounds
Cameron	Brownsville, 344 Porter Drive	48-061-0006	VOCs, PAHs, and Metals (TSP)
Hidalgo	Edinburg, 1902 West Schunior	48-215-0042	VOCs and PAHs
	Mission, 2300 North Glasscock	48-215-0043	VOCs and PAHs

The TCEQ Monitoring Operations Division reported the data for all chemicals evaluated. All data collected for VOCs and PAHs in Region 15 met TCEQ's data completeness objective of 75 percent data return, or 45 valid samples per year. Air samples collected over a 24-hour period every sixth day are designed to provide representative long-term average concentrations. Therefore, the TS evaluated the reported annual average concentrations for each target analyte for potential chronic health and vegetative

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concerns by comparing the measured chemical concentrations to applicable comparison values. Information on the screening values can be obtained by contacting the TS at 512-239-1795.

Evaluation

VOCs

Of the 95 target VOCs, 21 were detected at the Brownsville site, 19 were detected at the Hildago site, and 28 were detected at the Mission site. The remaining target analytes were not measured above minimum detection limits. Concentrations of the compounds that were detected were well below applicable comparison values, and therefore would not be expected to cause chronic adverse health or vegetative effects.

PAHs

Of the 16 reported PAHs at each of the three monitoring sites in the region for 2007, benzo(a)pyrene and dibenzo(a,h)anthracene were not detected. In addition, benzo(a)anthracene was not detected at the Brownsville site; benzo(a)anthracene, benzo(k)fluoranthene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were not detected at the Mission site; and benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene were not detected at the Edinburg site. Those target analytes that were detected were well below applicable comparison values and would not be expected to cause chronic adverse health effects.

TSP Metals

The two TSP metals, antimony and arsenic, were not detected in any 24-hour TSP metals sample collected at 344 Porter Drive in Brownsville during the year 2007.

If you have any questions regarding this evaluation, please contact me at 512-239-1822.

cc (via email):

Casso, Ruben- EPA Region 6, Dallas

Prosperie, Susan- Department of State Health Services

Table 2: Target Analyte List

<p>VOCs (CATMN)</p> <p>1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene 1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene 1,2-Dibromoethane 1,2-Dichloroethane 1,2-Dichloropropane 1,3,5-Trimethylbenzene 1,3-Butadiene 1-Butene 1-Hexene+2-methyl-1-pentene 1-Pentene 2,2,4-Trimethylpentane 2,2-Dimethylbutane - Neohexane 2,3,4-Trimethylpentane 2,3-Dimethylbutane 2,3-Dimethylpentane 2,4-Dimethylpentane 2-Butanone 2-Chloropentane 2-Methyl-2-Butene 2-Methylheptane 2-Methylhexane 2-Methylpentane - Isohexane 2-Methyl-3-Hexanone 3-Methyl-1-Butene 3-Methylheptane 3-Methylhexane 3-Methylpentane 3-Hexanone 3-Pentanone 4-Methyl-1-Pentene Acetylene Benzene Bromomethane Butyl Acetate cis 1,3-Dichloropropylene Carbon Tetrachloride Chlorobenzene</p>	<p>Chloroform Cyclohexane Cyclopentane Cyclopentene Ethane Ethyl Acetate Ethyl Benzene Ethylene Isobutane Isopentane Isoprene Isopropylbenzene Methyl Butyl Ketone (MBK) Methyl t-Butyl Ether (MTBE) Methylcyclohexane Methylcyclopentane Methylene Chloride Methylisobutylketone Propane Propylene Styrene Tetrachloroethylene Toluene Trichloroethylene Trichlorofluoromethane Vinyl Chloride c-2-Butene c-2-Hexene c-2-Pentene Dichlorodifluoromethane Isobutyraldehyde m-Diethylbenzene m-Ethyltoluene Methyl Chloride n-Butane n-Decane n-Heptane n-Hexane n-Nonane n-Octane n-Pentane n-Propyl Acetate n-Propylbenzene n-Undecane</p>	<p>o-Ethyltoluene o-Xylene p-Diethylbenzene p-Ethyltoluene p-Xylene + m-Xylene t-2-Butene t-2-Hexene t-2-Pentene trans-1-3-Dichloropropylene</p> <p>PAHs</p> <p>Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoroanthene Benzo (ghi) perylene Benzo (k) fluoranthene Chrysene Dibenzo (a,h) anthracene Fluoranthene Fluorene Indeno (1,2,3-cd) pyrene Naphthalene Phenanthrene Pyrene</p> <p>TSP Metals</p> <p>Antimony Arsenic</p>
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Figure 1. Brownsville Monitoring Site, Cameron County



Figure 2. Hidalgo Monitoring Site, Edinburg County



Figure 3. Mission Monitoring Site, Hidalgo County

