Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Lorinda Gardner, Director, R15
Carlos Rubinstein, Texas Border Area Director

Date: September 27, 2006

From: Valerie E. Meyers, Ph.D.
Toxicology Section, Chief Engineer's Office

Subject: Health Effects Review of 2005 Ambient Air Network Monitoring Sites in Region 15-Harlingen

Conclusions

The annual average concentrations of all 96 volatile organic compounds (VOC), 16 polycyclic aromatic hydrocarbons (PAH), and 2 speciated metals from total suspended particulate matter (TSP) were well below their respective long-term, health-based effects screening levels and would not be expected to cause adverse health effects.

Background

Ambient air sampling conducted at monitoring network sites in Region 15-Harlingen during the year 2005 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 from 24-hour canister samples collected every sixth day 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, 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, PAHs, and TSP metals 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 are designed to provide representative long-term average concentrations. Therefore, the TS evaluated the reported annual average concentrations for each constituent for potential chronic health concerns by comparing measured chemical concentrations to TCEQ long-term, health-based Effects Screening Levels (ESLs). Information on the ESLs can be obtained by contacting the TS (512) 239-1795 or visiting the following website: http://www.tceq.state.tx.us/implementation/tox/esl/ESLMain.html.

Evaluation

VOCs

Of 96 reported VOCs at each of the three monitoring sites in the Region for the year 2005, 71 were not detected. Those that were detected were well below annual (long-term) health-based ESLs, and therefore do not present chronic human health concerns.

PAHs

Of 16 reported PAHs at each of the three monitoring sites in the Region for the year 2005, 5 were not detected. Those that were detected were well below annual (long-term) health-based ESLs, and therefore do not present chronic human health concerns.

TSP Metals

The annual average concentrations for antimony and arsenic reported from the 24-hour TSP metal samples collected at 344 Porter Drive in Brownsville during the year 2005 were less than their respective annual (long-term) health-based ESLs. Therefore no adverse health effects would be expected.

If you have any questions regarding this evaluation, please contact me at 512-239-1336.

Table 2: VOCs, PAHs, and TSP Metals

VOCs

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
Chloroform
Chloroprene
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 - Perchloroethylene
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
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

PAHs

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

TSP Metals

Antimony
Arsenic

Figure 1. Brownsville Monitoring Site, Cameron County

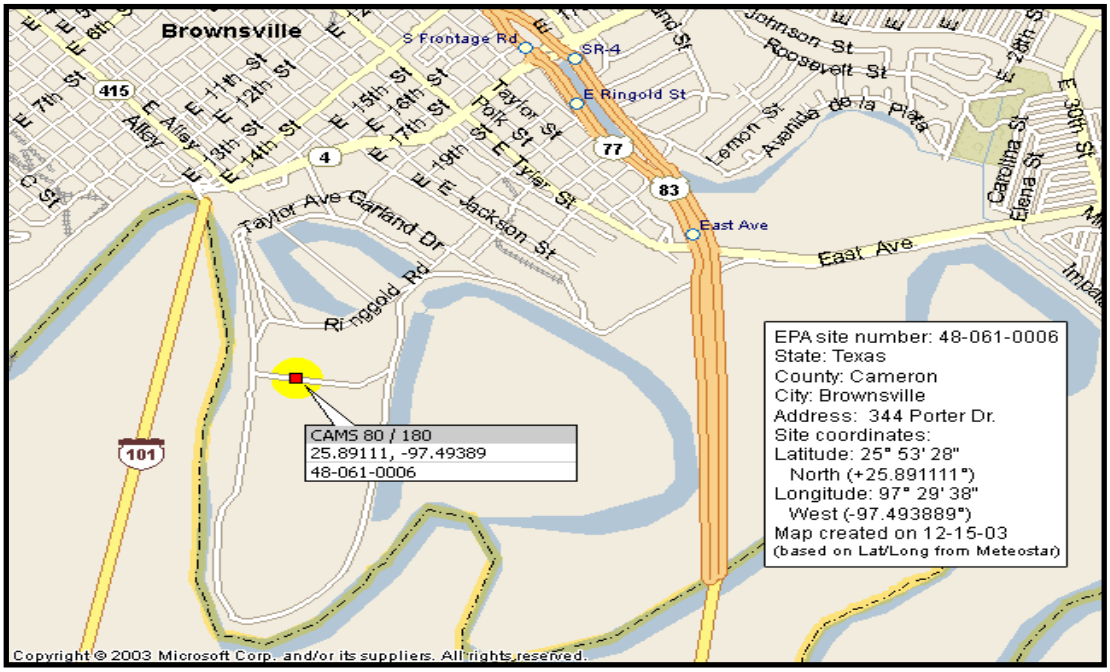


Figure 2. Hidalgo Monitoring Site, Edinburg County

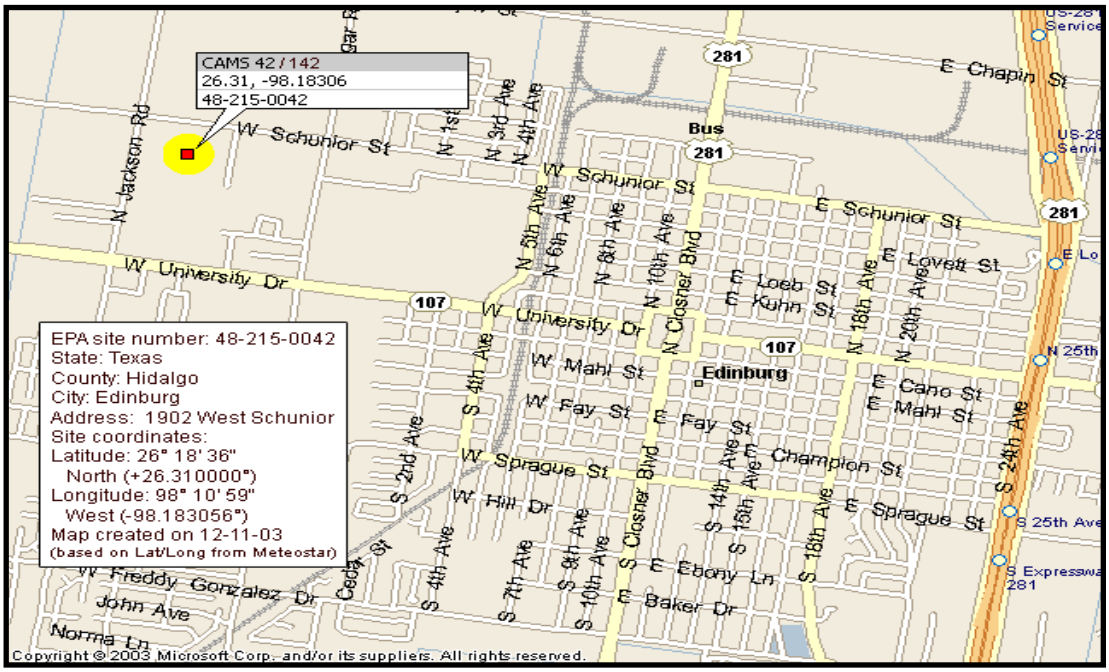
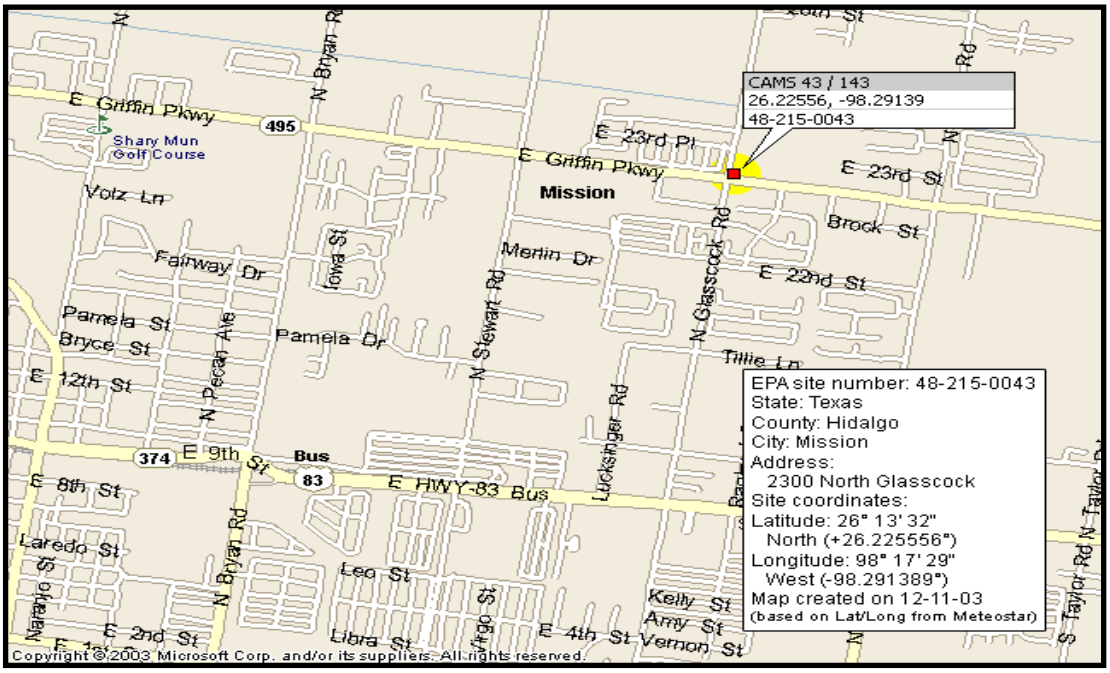


Figure 3. Mission Monitoring Site, Hidalgo County



cc (via email):

Casso, Ruben
Prosperie, Susan