TCEQ Interoffice Memorandum

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Susan Jablonski, Central Texas Area Director
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From: Tracie Phillips, Ph.D.
Toxicology Division, Office of the Executive Director

Date: July 11, 2013

Subject: Health Effects Review of 2012 Ambient Air Network Monitoring Data in Region 11, Austin

Conclusions

- Exposure to the annual average of the 84 reported volatile organic compounds (VOCs) and 15 metals reported as particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) for Region 11 – Austin would not be expected to cause chronic adverse health or vegetation effects.

Background

This memorandum conveys the Toxicology Division's (TD's) evaluation of ambient air sampling conducted at two monitoring sites in Region 11 – Austin during 2012. The TD evaluated summary results for VOCs collected at the Austin Webberville Road site, which is a 24-hour every sixth-day Community Air Toxics Monitoring Network (CATMN) site. Summary results for metals ($PM_{2.5}$) were evaluated from the Austin Audubon Society site. TCEQ Region 11 monitoring site information is presented in Table 1 along with hyperlinks to the monitoring site maps and detailed information. Lists 1 and 2, in Attachment A, give the target analytes for both monitoring sites.

Table 1. Monitoring Sites Located in TCEQ Region 11

City and Site Location	County	Monitor ID	Monitored Compounds
Austin, Webberville Road, 2600 B Webberville Rd	Travis	48-453-0021	VOCs
Austin, Audubon Society, 12200 Lime Creek Rd	Travis	48-453-0020	$PM_{2.5}$ Metals

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. The data collected, 84 VOCs and 15 metals, for both monitoring sites met the data completeness objective of 75 percent data return, or at least 45 valid samples per year. Because

24-hour air samples that are collected every six days are designed to provide representative long-term average concentrations, annual averages from 24-hour samples were evaluated for potential chronic health and vegetation concerns. Annual average concentrations of the reported VOCs and metals ($PM_{2.5}$) were compared to their respective long-term Air Monitoring Comparison Values (AMCVs). More information about AMCVs is available online at: http://www.tceq.state.tx.us/implementation/tox/AirToxics.html#amcv.

Evaluation

VOCs

Of the 84 reported VOCs, 32 VOCs were detected above the method detection limit (MDL), which is the sample concentration that can be detected above zero and with a 99% confidence. The 2012 annual average concentrations for all VOCs were well below their respective long-term AMCVs. Therefore, adverse health effects would not be expected to occur as a result of long-term exposure to the reported levels of these chemicals at the Austin Webberville Road monitoring site.

Metals

Of the 15 reported $PM_{2.5}$ metals, eight metals ($PM_{2.5}$) were detected above the MDL. The 2012 annual average concentrations for all metals ($PM_{2.5}$) were well below their respective AMCVs. Therefore, adverse health effects would not be expected to occur as a result of long-term exposure to the reported levels of these chemicals at the Austin Audubon Society monitoring site.

If you have any questions about this evaluation, please contact me at (512) 239-2269 or tracie.phillips@tceq.texas.gov.

Attachment A

List 1. Target VOC Analytes in Canister Samples

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

List 2. Target Metal ($PM_{2.5}$) Analytes

Aluminum ($PM_{2.5}$)
Antimony ($PM_{2.5}$)
Arsenic ($PM_{2.5}$)
Barium ($PM_{2.5}$)
Cadmium ($PM_{2.5}$)
Chromium ($PM_{2.5}$)
Cobalt ($PM_{2.5}$)
Copper ($PM_{2.5}$)
Lead ($PM_{2.5}$)
Manganese($PM_{2.5}$)
Molybdenum ($PM_{2.5}$)
Nickel ($PM_{2.5}$)
Selenium ($PM_{2.5}$)
Tin ($PM_{2.5}$)
Zinc ($PM_{2.5}$)