TCEQ Interoffice Memorandum

To: Lorinda Gardner, Regional Director

From: Sabine Lange, Ph.D., DABT SL
Toxicology Division, Office of the Executive Director

Date: October 20, 2017

Subject: Health Effects Review of 2016 Ambient Air Network Monitoring Data in Region 7, Midland

Conclusions

- In Region 7, Midland in 2016 all 24-hour average and annual average concentrations of 84 volatile organic compounds (VOCs) were below their respective Texas Commission on Environmental Quality (TCEQ) air monitoring comparison values (AMCVs) and would not be expected to cause adverse health effects or vegetation effects.

Background

Ambient air sampling conducted at one monitoring network site in Region 7, Midland during 2016 was evaluated by the Toxicology Division (TD). The TD reviewed air monitoring summary results from VOC canister samples collected on a 24-hour every sixth-day schedule. TCEQ Region 7 monitoring site information is presented in Table 1, along with hyperlinks to detailed information regarding the monitoring site and its maps. List 1, which can be found in Attachment A, displays the target analytes for the monitoring site.

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. All data collected met the data completeness objective of 75 percent data return, or at least 45 valid samples per year. Because short-term or peak concentrations are not necessarily captured by 24-hour samples, daily concentrations have limited use in evaluating the potential for acute health effects. Rather, 24-hour air samples collected every-sixth day for a year are intended to provide representative long-term average concentrations. Therefore, the TD evaluated the reported annual average concentrations from 24-hour samples for each target analyte for potential chronic health and vegetation concerns by comparing measured chemical concentrations to long-term AMCVs. In order to be able to evaluate 24-hour monitoring data more fully, TCEQ has also developed 24-hour acute AMCVs for specific chemicals. As such, 24-hour samples were compared to the available TCEQ 24-hour AMCVs for 1,3-butadiene, 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, benzene, ethylene dichloride, and n-hexane. More information about AMCVs is available online at: https://www.tceq.texas.gov/toxicology/AirToxics.html.

Table 1. Monitoring Site Located in TCEQ Region 7

City and Site Location	County	Monitor ID	Monitored Compounds
Odessa-Hays Elementary School, Barrett and Monahans Streets	Ector	48-135-0003	VOCs[a]

[a]24-hour canister

Evaluation

At the Odessa-Hays Elementary School site in Midland, all annual average concentrations of the monitored 84 VOCs, and the 24-hour concentrations of 1,3-butadiene, 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, benzene, ethylene dichloride, and n-hexane were below their AMCVs and would not be expected to cause adverse chronic health or vegetation effects.

If you have any questions about this evaluation, please contact Sabine Lange at sabine.lange@tceq.texas.gov or (512) 239-3108.

Attachment A

List 1. Target VOC Analytes in Canister Samples

1,1,2,2-Tetrachloroethane	Acetylene	Toluene
1,1,2-Trichloroethane	Benzene	Trichloroethylene
1,1-Dichloroethane	Bromomethane	Trichlorofluoromethane
1,1-Dichloroethylene	Carbon Tetrachloride	Vinyl Chloride
1,2,3-Trimethylbenzene	Chlorobenzene	cis-1,3-Dichloropropene
1,2,4-Trimethylbenzene	Chloroform	cis-2-Butene
1,2-Dichloropropane	Chloromethane	cis-2-Hexene
1,3,5-Trimethylbenzene	Cyclohexane	cis-2-Pentene
1,3-Butadiene	Cyclopentane	m-Diethylbenzene
1-Butene	Cyclopentene	m-Ethyltoluene
1-Hexene & 2-Methyl-1-Pentene	Dichlorodifluoromethane	m/p Xylene
1-Pentene	Dichloromethane	n-Butane
2,2,4-Trimethylpentane	Ethane	n-Decane
2,2-Dimethylbutane	Ethylbenzene	n-Heptane
2,3,4-Trimethylpentane	Ethylene	n-Hexane
2,3-Dimethylbutane	Ethylene Dibromide	n-Nonane
2,3-Dimethylpentane	Ethylene Dichloride	n-Octane
2,4-Dimethylpentane	Isobutane	n-Pentane
2-Chloropentane	Isopentane	n-Propylbenzene
2-Methyl-2-Butene	Isoprene	n-Undecane
2-Methylheptane	Isopropylbenzene	o-Ethyltoluene
2-Methylhexane	Methyl Chloroform	o-Xylene
2-Methylpentane	Methylcyclohexane	p-Diethylbenzene
3-Methyl-1-Butene	Methylcyclopentane	p-Ethyltoluene
3-Methylheptane	Propane	trans-1,3-Dichloropropene
3-Methylhexane	Propylene	trans-2-Butene
3-Methylpentane	Styrene	trans-2-Hexene
4-Methyl-1-Pentene	Tetrachloroethylene	trans-2-Pentene