

TCEQ Interoffice Memorandum

To: Winona Henry, 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 3, Abilene

Conclusion

- In Region 3, Abilene in 2016 all 24-hour average and annual average concentrations of 83 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 three monitoring network sites in Region 3, Abilene 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 3 monitoring site information is presented in Table 1, along with hyperlinks to detailed information regarding the monitoring sites and their maps. List 1, which can be found in Attachment A, displays the target analytes for the monitoring sites.

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 Sites Located in TCEQ Region 3

City and Site Location	County	Monitor ID	Monitored Compounds
Abilene North 3rd Street	Taylor	48-441-1509	VOCs ^a
Bowie Patterson Street	Montague	48-337-1507	VOCs ^a
Wichita Falls MWSU	Wichita	48-485-1508	VOCs ^a

^a24-hour canister

Evaluation

At the Abilene, Bowie Patterson, and Wichita Falls sites, 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 or comments regarding this evaluation, please feel free to 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	Bromomethane	Methyl Chloroform (1,1,1-Trichloroethane)
1,1,2-Trichloroethane	Carbon Tetrachloride	Methylcyclohexane
1,1-Dichloroethane	Chlorobenzene	Methylcyclopentane
1,1-Dichloroethylene	Chloroform	N-Butane
1,2,3-Trimethylbenzene	Chloromethane (Methyl Chloride)	N-Decane
1,2,4-Trimethylbenzene	Cis 1,3-Dichloropropene	N-Heptane
1,2-Dichloropropane	Cis-2-Butene	N-Hexane
1,3,5-Trimethylbenzene	Cis-2-Hexene	N-Nonane
1,3-Butadiene	Cis-2-Pentene	N-Octane
1-Butene	Cyclohexane	N-Pentane
1-Hexene+2-Methyl-1-Pentene	Cyclopentane	N-Propylbenzene
1-Pentene	Cyclopentene	N-Undecane
2,2,4-Trimethylpentane	Dichlorodifluoromethane	O-Ethyltoluene
2,2-Dimethylbutane (Neohexane)	Dichloromethane (Methylene Chloride)	O-Xylene
2,3,4-Trimethylpentane	Ethane	P-Diethylbenzene
2,3-Dimethylbutane	Ethylbenzene	P-Ethyltoluene
2,3-Dimethylpentane	Ethylene	Propane
2,4-Dimethylpentane	Ethylene Dibromide (1,2-Dibromoethane)	Propylene
2-Chloropentane	Ethylene Dichloride (1,2-Dichloroethane)	Styrene
2-Methyl-2-Butene	Isobutane	Tetrachloroethylene
2-Methylheptane	Isopentane (2-Methylbutane)	Toluene
2-Methylhexane	Isoprene	Trans-1-3-Dichloropropylene
2-Methylpentane (Isohexane)	Isopropylbenzene (Cumene)	Trans-2-Butene
3-Methyl-1-Butene	M-Diethylbenzene	Trans-2-Hexene
3-Methylheptane	M-Ethyltoluene	Trans-2-Pentene
3-Methylhexane	M/P Xylene	Trichloroethylene
3-Methylpentane		Trichlorofluoromethane
4-Methyl-1-Pentene		Vinyl Chloride
Acetylene		
Benzene		