

# TCEQ Interoffice Memorandum

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**To:** Winona Henry, Regional Director

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

**Date:** August 4, 2015

**Subject:** Health Effects Review of 2014 Ambient Air Network Monitoring Data in Region 3, Abilene

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## Conclusion

- In Region 3, Abilene in 2014 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 three monitoring network sites in Region 3, Abilene during 2014 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. Twenty-four-hour air samples collected every-sixth day for a year are designed to provide representative long-term average concentrations. In order to be able to evaluate 24-hour monitoring data more fully, TCEQ has developed 24-hour AMCVs for specific chemicals. As such, 24-hour samples were compared to the available TCEQ 24-hour AMCVs for 1,3-butadiene and benzene. However, 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. 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.

More information about AMCVs is available online at:

<http://www.tceq.state.tx.us/implementation/tox/AirToxics.html#amcv>.

**Table 1. Monitoring Sites Located in TCEQ Region 3**

City and Site Location	County	Monitor ID	Monitored Compounds
<a href="#">Abilene</a> North 3 <sup>rd</sup> Street	Taylor	48-441-1509	VOCs <sup>a</sup>
<a href="#">Bowie</a> Patterson Street	Montague	48-337-1507	VOCs <sup>a</sup>
<a href="#">Wichita Falls</a> MWSU	Wichita	48-485-1508	VOCs <sup>a</sup>

<sup>a</sup>24-hour canister

## Evaluation

At the Abilene, Bowie Patterson and the Wichita Falls sites, all annual average concentrations of the monitored 84 VOCs, and the 24-hour concentrations of 1,3-butadiene and benzene, 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](mailto: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		