

TCEQ Interoffice Memorandum

To: Mike Taylor, Regional Director, R3

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Toxicology, Risk Assessment, and Research Division
Office of the Executive Director

Date: June 30, 2023

Subject: Health Effects Review of 2021 Ambient Air Network Monitoring Data in Region 3, Abilene

Conclusion

- All measured 24-hour and annual average concentrations of the 84 volatile organic compounds (VOCs) monitored were below their respective Texas Commission on Environmental Quality (TCEQ) air monitoring comparison values (AMCVs) and would not be expected to cause adverse health or welfare effects.

Background

Ambient air sampling conducted at three monitoring network sites in Region 3, Abilene, during 2021 was evaluated by the Toxicology, Risk Assessment, and Research 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 sites 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. To enable evaluation of 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 dibromide; ethylene dichloride; and n-hexane. More information about AMCVs is available online at: <https://www.tceq.texas.gov/toxicology/amcv/about>.

Table 1. Monitoring Sites Located in TCEQ Region 3

Site Name and Location	County	Monitor ID	Monitored Compounds
Abilene Industrial Boulevard 1939 Industrial Blvd	Taylor	48-441-1509	VOCs (24-h canister)
Bowie Patterson Street 1032 Patterson Street	Montague	48-337-1507	VOCs (24-h canister)
Wichita Falls MWSU MWSU grounds	Wichita	48-485-1508	VOCs (24-h canister)

Evaluation

At the Abilene Industrial Boulevard, Bowie Patterson, and Wichita Falls sites, all 24-hour and annual average concentrations of the monitored 84 VOCs were below their respective 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 Nnamdi Nnoli at nnamdi.nnoli@tceq.texas.gov or (512) 239-1785.

Attachment A

List 1. Target VOC Analytes in Canister Samples

1,1,2,2-Tetrachloroethane	Acetylene	Methyl Chloroform
1,1,2-Trichloroethane	Benzene	Methylcyclohexane
1,1-Dichloroethane	Bromomethane	Methyl cyclopentane
1,1-Dichloroethylene	Carbon Tetrachloride	N-Butane
1,2,3-Trimethylbenzene	Chlorobenzene	N-Decane
1,2,4-Trimethylbenzene	Chloroform	N-Heptane
1,2-Dichloropropane	Chloromethane	N-Hexane
1,3,5-Trimethylbenzene	Cis 1,3-Dichloropropene	N-Nonane
1,3-Butadiene	Cis-2-Butene	N-Octane
1-Butene	Cis-2-Hexene	N-Pentane
1-Hexene+2-Methyl-1-Pentene	Cis-2-Pentene	N-Propyl benzene
1-Pentene	Cyclohexane	N-Undecane
2,2,4-Trimethylpentane	Cyclopentane	O-Ethyl toluene
2,2-Dimethylbutane	Cyclopentene	O-Xylene
2,3,4-Trimethylpentane	Dichlorodifluoromethane	P-Diethyl benzene
2,3-Dimethylbutane	Dichloromethane	P-Ethyl toluene
2,3-Dimethylpentane	Ethane	Propane
2,4-Dimethylpentane	Ethylbenzene	Propylene
2-Chloropentane	Ethylene	Styrene
2-Methyl-2-Butene	Ethylene Dibromide	Tetrachloroethylene
2-Methylheptane	Ethylene Dichloride	Toluene
2-Methylhexane	Isobutane	Trans-1-3-Dichloropropylene
2-Methylpentane	Isopentane	Trans-2-Butene
3-Methyl-1-Butene	Isoprene	Trans-2-Hexene
3-Methylheptane	Isopropyl benzene	Trans-2-Pentene
3-Methylhexane	M-Diethyl benzene	Trichloroethylene
3-Methylpentane	M-Ethyl toluene	Trichlorofluoromethane
4-Methyl-1-Pentene	M/P Xylene	Vinyl Chloride