

TCEQ Interoffice Memorandum

To: Joel Anderson, Regional Director

From: Angela Curry, M.S. *AC*
Toxicology Division, Office of the Executive Director

Date: August 10, 2015

Subject: Toxicological Evaluation of 2014 Ambient Air Network Monitoring Data
in Region 13, San Antonio

Conclusion

- All 24-hour and annual average concentrations of 84 volatile organic compounds (VOCs) from canister samples monitored in 2014 at the Old Highway 90 site 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.
- All hourly average and annual average concentrations of VOCs reported at the Floresville Hospital Boulevard 1-hour automated gas chromatograph (autoGC) monitoring site were below their respective short-term and long-term AMCVs, respectively, and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- The Karnes City Courthouse monitor was activated in December 2014; there is not enough available monitoring data collected at this monitoring site to conduct an annual evaluation for the year 2014.

Background

This memorandum conveys the Toxicology Division's (TD) evaluation of ambient air sampling data collected in 2014 at two autoGC sites and one Community Air Toxics Monitoring Network (CATMN) site in Region 13-San Antonio. TCEQ Region 13 monitoring site information is presented in Table 1 along with hyperlinks to detailed information regarding the monitoring sites and their maps. Lists 1 and 2, which can be found in Attachment A, display the target analytes for monitoring sites. The monitoring summary results include 1-hour and 24-hour VOC samples collected continuously (autoGC) and every sixth-day (CATMN), respectively.

The TCEQ Monitoring Division reported data for all VOCs evaluated in this memorandum. All data evaluated from the Old Highway 90 monitoring site (84 VOCs) and the Floresville Hospital Boulevard monitoring site (46 VOCs) met TCEQ's 75 percent annual data completeness objective. The Karnes City Courthouse monitor was activated in December 2014; there is not enough available monitoring data collected at this monitoring site to conduct an annual evaluation for 2014, however the available 1-hour samples were evaluated on a short-term basis.

One-hour autoGC VOC samples were compared to TCEQ's short-term AMCVs. Twenty-four-

hour air samples (collected every third- or 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. Short-term or peak concentrations are not necessarily captured by 24-hour samples, and therefore daily concentrations have limited use in evaluating the potential for acute health effects. The TD evaluated the reported annual average concentrations from 1-hour autoGC and 24-hour samples for each target analyte for potential chronic health and vegetation concerns by comparing annual averages of measured chemical concentrations to their respective long-term AMCVs. More information about AMCVs is available online at: <http://www.tceq.state.tx.us/implementation/tox/AirToxics.html#amcv>.

Table 1. CATMN and autoGC Monitors Located in TCEQ Region 13

City and Site Location	County	EPA Site ID	Monitored Compounds
Old Highway 90	Bexar	48-029-0677	VOCs ^a
Karnes County Courthouse	Karnes	48-255-1070	VOCs ^b
Floresville Hospital Boulevard	Wilson	48-493-1038	VOCs ^b

^aEvery sixth-day 24-hour canister
^b1-hour autoGC

Evaluation

VOCs

Short-Term Data

All hourly average concentrations of the 46 VOCs reported at the Karnes County Courthouse and Floresville Hospital Boulevard monitoring sites were either not detected or were below their respective short-term AMCVs. Therefore, acute adverse health effects, odorous conditions, or vegetation effects would not be expected to occur as a result of exposure to the reported levels of VOCs at these 2 autoGC monitoring sites. 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.

Long-Term Data

The 2014 annual average concentrations of the 46 VOCs evaluated at the Floresville Hospital Boulevard site and the 84 VOCs reported at the Old Highway 90 site were below their respective

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long-term AMCVs. Exposure to the reported annual average concentrations would not be expected to cause chronic adverse health or vegetation effects.

If you have any questions about this evaluation, please contact me at (512) 239-1306 or angela.curry@tceq.texas.gov.

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		

List 2. Target VOC Analytes in AutoGC

1-Butene	Benzene	n-Decane
1-Pentene	c-2-Butene	n-Heptane
1,2,3-Trimethylbenzene	c-2-Pentene	n-Hexane
1,2,4-Trimethylbenzene	Cyclohexane	n-Nonane
1,3-Butadiene	Cyclopentane	n-Octane
1,3,5-Trimethylbenzene	Ethane	n-Pentane
2-Methylheptane	Ethyl Benzene	n-Propylbenzene
2-Methylhexane	Ethylene	o-Xylene
2,2-Dimethylbutane	Isobutane	p-Xylene + m-Xylene
2,2,4-Trimethylpentane	Isopentane	Propane
2,3-Dimethylpentane	Isoprene	Propylene
2,3,4-Trimethylpentane	Isopropyl Benzene - Cumene	Styrene
2,4-Dimethylpentane	Methylcyclohexane	t-2-Butene
3-Methylheptane	Methylcyclopentane	t-2-Pentene
3-Methylhexane	n-Butane	Toluene
Acetylene		