

TCEQ Interoffice Memorandum

To: Joel Anderson, Regional Director

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

Date: September 2, 2016

Subject: Toxicological Evaluation of 2015 Ambient Air Network Monitoring Data
in Region 13, San Antonio

Conclusion

- All hourly average and annual average concentrations of 46 volatile organic compounds (VOCs) reported at the Floresville Hospital Boulevard and Karnes County Courthouse 1-hour automated gas chromatograph (autoGC) monitoring sites were below their respective short-term and long-term Texas Commission on Environmental Quality (TCEQ) Air Monitoring Comparison Values (AMCVs) and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- All 24-hour and annual average concentrations of 84 VOCs from canister samples reported at the Old Highway 90 monitoring site were below their respective short-term and long-term AMCVs and would not be expected to cause adverse health effects, vegetation effects, or odor concerns.
- Reported concentrations of hydrogen sulfide (H₂S) were below the 30-minute state standard for residential areas.

Background

The Toxicology Division (TD) reviewed ambient air sampling data collected in 2015 at two autoGC sites located at Floresville Hospital Boulevard and the Karnes County Courthouse, and one canister site located at Old Highway 90 in Region 13, San Antonio. The monitoring summary results are from 1-hour and 24-hour VOC samples collected continuously (autoGC) and every sixth-day (canister), respectively. TCEQ Region 13 monitoring site information is presented in Table 1 along with hyperlinks to detailed information regarding the monitoring sites and their maps. The list of 46 autoGC and 84 target VOC analytes can be found in Attachment A.

One-hour autoGC VOC samples were compared to TCEQ's short-term AMCVs. 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 (1,3-butadiene, benzene, and ethylene dichloride). 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. 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 measured chemical concentrations to their respective long-term AMCVs. More information about AMCVs is available on the Toxicology [AMCV](#) webpage

The TCEQ Monitoring Division reported data for all VOCs evaluated in this memorandum. All data evaluated from the autoGC (46 VOCs) and canister (84 VOCs) monitoring sites met TCEQ's 75 percent annual data completeness objective and were considered in this evaluation.

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

City and Site Location	County	EPA Site ID	Monitored Compounds
Old Highway 90 911 Old Hwy 90 West	Bexar	48-029-0677	VOCs ^a
Floresville Hospital Boulevard 1404 Hospital Blvd	Wilson	48-493-1038	VOCs ^b
Karnes County Courthouse 210 W. Calvert Avenue	Karnes	48-255-1070	VOCs ^b , H ₂ S

^aevery sixth-day 24-hour canister

^b1-hour autoGC

Evaluation

VOCs

Short-Term Data

All hourly average concentrations of 46 VOCs reported at the Floresville Hospital Boulevard and Karnes County Courthouse monitoring sites, and 84 VOCs reported at the Old Highway 90 monitoring site were either not detected or 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 monitoring sites.

Long-Term Data

The 2015 annual average concentrations of 46 VOCs evaluated at the Floresville Hospital Boulevard and Karnes County Courthouse monitoring sites and 84 VOCs reported at the Old Highway 90 monitoring site were below their respective long-term AMCVs. Exposure to the reported annual average concentrations would not be expected to cause chronic adverse health or vegetation effects.

H₂S

All reported H₂S concentrations measured at the Karnes County Courthouse monitoring site were below the 30-minute state residential standard of 80 ppb.

Joel Anderson
September 2, 2016
Page 3 of 5

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		