

TCEQ Interoffice Memorandum

To: Joel Anderson, Regional Director

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

Date: November 10, 2017

Subject: Toxicological Evaluation of 2016 Ambient Air Network Monitoring Data in Region 13, San Antonio

Conclusion

- All 24-hour and annual average concentrations of volatile organic compounds (VOCs) from canister samples reported at the Old Highway 90 monitoring site 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 adverse health effects, vegetation effects, or odor concerns.
- 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 and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- All hourly average and annual average concentrations of VOCs reported at the Karnes County Courthouse autoGC monitoring site were below their respective short-term and long-term AMCVs and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- All hourly average concentrations of VOCs reported at the Camp Bullis autoGC monitoring site were below their respective short-term AMCVs and would not be expected to cause acute adverse health effects, vegetation effects, or odor concerns. This site was activated on June 1, 2016; therefore, the 2016 annual average concentrations for this site are incomplete. A long-term health effects evaluation could not be performed at this time due to the incomplete dataset.
- 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 2016 at three autoGC sites located at Floresville Hospital Boulevard, Camp Bullis, and Karnes County Courthouse, as well as 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. The list of 46 autoGC and 84 VOC target 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.

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

City and Site Location	County	EPA Site ID	Monitored Compounds
Camp Bullis^c F Range (1000Yd marker off Wilderness Trail) near Wilderness Rd	Bexar	48-029-0052	VOCs ^b
Old Highway 90 911 Old Hwy 90 West	Bexar	48-029-0677	VOCs ^a
Karnes County Courthouse 210 W. Calvert Avenue	Karnes	48-255-1070	VOCs ^b , H ₂ S
Floresville Hospital Boulevard 1404 Hospital Blvd	Wilson	48-493-1038	VOCs ^b

^aevery sixth-day 24-hour canister

^b1-hour autoGC

^cCamp Bullis autoGC activated June 1, 2016

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. All data evaluated from the autoGC (46 VOCs) and canister (84 VOCs) highlighted in this evaluation met TCEQ's data completeness objective of 75 percent data return (75% data completeness), except for the following:

- Floresville Hospital Boulevard autoGC – 1,2,3-trimethylbenzene and n-hexane.
- Karnes County Courthouse autoGC – 2,3-dimethylpentane; 2,4-dimethylpentane; 2-methylhexane, acetylene, isopentane, and isoprene.
- Camp Bullis autoGC – This monitor was activated June 1, 2016; therefore, there are not enough data to calculate an annual average.

Evaluation

VOCs

Short-Term Data

All hourly average and 24-hour concentrations of VOCs reported at the Floresville Hospital Boulevard and Old Highway 90 monitoring sites 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.

All available hourly average concentrations of VOCs reported at the Karnes County Courthouse monitoring site and the Camp Bullis monitoring site (since it became active on June 1, 2016) 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 reported 2016 annual average concentrations of VOCs evaluated at the Floresville Hospital Boulevard, Karnes County Courthouse, and Old Highway 90 monitoring sites 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.

Since the Camp Bullis monitoring site was activated June 1, 2016, there were not enough data to calculate an annual average concentration. Therefore, a long-term health effects evaluation could not be performed at this time.

H₂S

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

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

Attachment A

List 1. Target VOC Analytes in Canister Samples

1,1,2,2-Tetrachloroethane	Bromomethane	cis-1,3-Dichloropropene
1,1,2-Trichloroethane	Carbon Tetrachloride	cis-2-Butene
1,1-Dichloroethane	Chlorobenzene	cis-2-Hexene
1,1-Dichloroethylene	Chloroform	cis-2-Pentene
1,2,3-Trimethylbenzene	Chloromethane	m-Diethylbenzene
1,2,4-Trimethylbenzene	Cyclohexane	m-Ethyltoluene
1,2-Dichloropropane	Cyclopentane	m/p Xylene
1,3,5-Trimethylbenzene	Cyclopentene	n-Butane
1,3-Butadiene	Dichlorodifluoromethane	n-Decane
1-Butene	Dichloromethane	n-Heptane
1-Hexene & 2-Methyl-1-Pentene	Ethane	n-Hexane
1-Pentene	Ethylbenzene	n-Nonane
2,2,4-Trimethylpentane	Ethylene	n-Octane
2,2-Dimethylbutane	Ethylene Dibromide	n-Pentane
2,3,4-Trimethylpentane	Ethylene Dichloride	n-Propylbenzene
2,3-Dimethylbutane	Isobutane	n-Undecane
2,3-Dimethylpentane	Isopentane	o-Ethyltoluene
2,4-Dimethylpentane	Isoprene	o-Xylene
2-Chloropentane	Isopropylbenzene	p-Diethylbenzene
2-Methyl-2-Butene	Methyl Chloroform	p-Ethyltoluene
2-Methylheptane	Methylcyclohexane	trans-1,3-Dichloropropene
2-Methylhexane	Methylcyclopentane	trans-2-Butene
2-Methylpentane	Propane	trans-2-Hexene
3-Methyl-1-Butene	Propylene	trans-2-Pentene
3-Methylheptane	Styrene	
3-Methylhexane	Tetrachloroethylene	
3-Methylpentane	Toluene	
4-Methyl-1-Pentene	Trichloroethylene	
Acetylene	Trichlorofluoromethane	
Benzene	Vinyl Chloride	

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		