# TCEQ Interoffice Memorandum

**To:** Cameron Lopez, Interim Regional Director, R13

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

**Date:** March 4, 2022

**Subject:** Toxicological Evaluation of 2020 Ambient Air Network Monitoring Data in Region 13, San Antonio

## Conclusion

- All reported 24-hour and annual average concentrations of volatile organic compounds (VOCs) from canister samples 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 reported hourly average and annual average concentrations of VOCs 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.
- Reported concentrations of hydrogen sulfide ($H_2S$) were below the value of the 30-minute state standard for residential areas.

## Background

The Toxicology, Risk Assessment, and Research Division (TD) reviewed ambient air sampling data collected in 2020 at three autoGC sites located at Floresville Hospital Boulevard, Camp Bullis, and Karnes County, 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; 2,2-dimethylbutane; 2,3-dimethylbutane; 2-methylpentane; 3-methylpentane; benzene; ethylene

dibromide; ethylene dichloride; and n-hexane). 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 (https://www.tceq.texas.gov/toxicology/amcv/about).

**Table 1. Monitors Located in TCEQ Region 13**

| City and Site Location | County | EPA Site ID | Monitored Compounds |
|---|---|---|---|
| Camp Bullis<br>F Range (1000Yd marker off Wilderness Trail) near Wilderness Rd | Bexar | 48-029-0052 | VOCs[b] |
| Old Highway 90<br>911 Old Hwy 90 West | Bexar | 48-029-0677 | VOCs[a] |
| Karnes County<br>1100B East Main Avenue | Karnes | 48-255-1070 | VOCs[b], $H_2S$ |
| Floresville Hospital Boulevard<br>1404 Hospital Blvd | Wilson | 48-493-1038 | VOCs[b] |

[a]every sixth-day 24-hour canister
[b]1-hour autoGC

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 – acetylene.
- Karnes County Courthouse autoGC – acetylene.

## Evaluation

### VOCs

#### *Short-Term Data*

All reported hourly and 24-hour concentrations of VOCs 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 2020 annual average concentrations of VOCs 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.

**$H_2S$**

All reported $H_2S$ concentrations measured at the Karnes County Courthouse monitoring site were below the value of the 30-minute $H_2S$ state residential standard of 80 ppb.

If you have any questions about this evaluation, please contact me at angela.curry@tceq.texas.gov.

## Attachment A

**List 1. Target VOC Analytes in Canister Samples**

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

**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 | | |