TCEQ Interoffice Memorandum

To: George Ortiz, Regional Director, R13

From: Anthony Tran, M.S.
Toxicology, Risk Assessment, and Research Division, Office of the Executive Director

Date: June 21, 2024

Subject: Health Effects Review of 2022 Ambient Air Network Monitoring Data in Region 13, San Antonio

Conclusions

- All reported 24-hour and calculated 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 or welfare effects.

- All reported hourly and calculated annual average concentrations of VOCs from automated gas chromatograph (autoGC) samples were below their respective short-term and long-term TCEQ 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 toxics sampling data collected in 2022 at four autoGC sites located at Floresville Hospital Boulevard, Karnes County, City of Garden Ridge, and Camp Bullis, as well as at 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. The TCEQ Region 13 monitoring site information are presented in Table 1 along with hyperlinks to detailed information regarding each monitoring sites. The list of 46 autoGC and 84 canister 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 (canister) collected every sixth day for a year, are designed to provide representative long-term average concentrations. To enable evaluation of 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 sample, daily concentrations have limited use in evaluating the potential for more acute health effects. The TD evaluated the reported calculated 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. Monitoring Sites Located in TCEQ Region 13

Site Name and 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]
Camp Bullis F Range (1000Yd marker off Wilderness Trail) Near Wilderness Rd	Bexar	48-029-0052	VOCs [b]
City of Garden Ridge 21340 FM 3009	Comal	48-091-0505	VOCs [b,c]
Karnes County 1100B East Main Avenue	Karnes	48-255-1070	VOCs [b], H_2S

[a] Every sixth-day 24-hour canister
[b] Every day, 1--hour autoGC
[c] AutoGC monitor was activated on 10/08/2022

The TCEQ Monitoring Division reported 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, which were not evaluated:

- Floresville Hospital Boulevard autoGC – acetylene.
- City of Garden Ridge autoGC – all analytes

The City of Garden Ridge auto GC was activated on 10/08/2022. Therefore, none of the analytes at the site met an annual data completeness of 75% and cannot be evaluated from a long-term perspective.

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 short-term exposure to the reported levels of VOCs at these monitoring sites.

Long-Term Data

The reported 2022 calculated 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 30-minute rolling averages of H_2S concentration measured at the Karnes County monitoring site were below the value of the 30-minute H_2S state residential standard (80 ppb).

If you have any questions about this evaluation, please contact me at (512) 239-1790 or anthony.tran@tceq.texas.gov.

Attachment A

List 1. Target VOC Analytes in Canister Samples

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

List 2. Target VOC Analytes in AutoGC Samples

1-Butene	Benzene	n-Decane
1-Pentene	cis-2-Butene	n-Heptane
1,2,3-Trimethylbenzene	cis-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-Propyl Benzene
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	trans-2-Butene
3-Methylheptane	Methylcyclopentane	trans-2-Pentene
3-Methylhexane	n-Butane	Toluene
Acetylene		