

# TCEQ Interoffice Memorandum

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**To:** Jaime Garza, Regional Director, R15

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Office of the Executive Director

**Date:** March 17, 2021

**Subject:** Health Effects Review of 2017-2019 Ambient Air Network Monitoring  
Data in Region 15, Harlingen

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## Conclusions

- All 24-hour, annual, and three-year average concentrations of 84 volatile organic compounds (VOCs), 16 polycyclic aromatic hydrocarbons (PAHs), and two metals measured in total suspended particulate matter (TSP) were below their respective Texas Commission on Environmental Quality (TCEQ) air monitoring comparison values (AMCVs) in Region 15, Harlingen from 2017-2019 and would not be expected to cause adverse health or vegetation effects.

## Background

Ambient air sampling conducted at two monitoring network sites in Region 15, Harlingen, during 2017-2019 was evaluated by the Toxicology, Risk Assessment, and Research Division (TD). TCEQ Region 15 monitoring site information is presented in Table 1, along with a hyperlink to the monitoring site map and detailed information. The TD reviewed air monitoring summary results for VOCs, PAHs, and speciated TSP metals data from 24-hour canister samples collected every sixth-day. For a complete list of all examined chemicals, please see Lists 1, 2, and 3 in Attachment A.

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. All data collected [84 VOCs and 16 PAHs] from the Brownsville and Mission monitoring sites, as well as the lead (TSP) collected in 2017 at the Brownsville site, met the data completeness objective of 75 percent data return. However, the arsenic (TSP) 2017 data at Brownsville site and the PAHs data at both sites in 2019 did not meet this objective. Both sites were deactivated for PAHs monitoring on 9/1/2019. Also, the 2 metals (TSP) data were only available for year 2017 as the Brownsville site was deactivated for the TSP monitoring on 12/31/2017. 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. Rather, 24-hour air samples collected every-sixth day for a year are intended to provide representative long-term average concentrations. Therefore, the TD evaluated the reported

annual average concentrations from 24-hour samples for each target analyte for potential chronic health and vegetation concerns by comparing measured chemical concentrations to long-term AMCVs. In order to be able to evaluate 24-hour monitoring data more fully, TCEQ has also developed 24-hour acute AMCVs for specific chemicals. As such, 24-hour samples were compared to the available TCEQ 24-hour AMCVs for 1,3-butadiene, 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, benzene, ethylene dibromide, ethylene dichloride, and n-hexane. More information about AMCVs is available online at: <https://www.tceq.texas.gov/toxicology/AirToxics.html>.

**Table 1. Monitoring Sites Located in TCEQ Region 15**

Site Name and Location	County	EPA Site ID	Monitored Compounds
<a href="#">Brownsville</a> 344 Porter Drive	Cameron	48-061-0006	VOCs (24-h canister), PAHs, and Metals (TSP)
<a href="#">Mission</a> 2300 North Glasscock	Hidalgo	48-215-0043	VOCs (24-h canister) and PAHs

## Evaluation

### VOCs

Of the 84 target VOCs at the Brownsville and Mission sites, all were either not detected or were below their respective short- and long-term AMCVs. Therefore, exposure to the measured concentrations would not be expected to cause chronic adverse health or welfare effects.

### Metals (TSP)

Neither lead nor arsenic were detected in any 24-hour TSP metals sample collected at the Brownsville monitor during 2017. The Brownsville site was deactivated for TSP monitoring on 12/31/2017.

### PAHs

Of the 16 reported PAHs at the Brownsville and Mission monitoring sites from 2017-2019, all were either not detected or were below their respective short- and long-term AMCVs, and exposure to the measured concentrations would not be expected to cause chronic adverse health or welfare effects.

If you have any questions regarding the contents of this review, please do not hesitate to contact Nnamdi Nnoli via email at [nnamdi.nnoli@tceq.texas.gov](mailto:nnamdi.nnoli@tceq.texas.gov) or by phone at (512) 239-1785.

**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-Ethyltoluene
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-Propylbenzene
2-Chloropentane	Isopentane	n-Undecane
2-Methyl-2-Butene	Isoprene	o-Ethyltoluene
2-Methylheptane	Isopropylbenzene	o-Xylene
2-Methylhexane	Methyl Chloroform	p-Diethylbenzene
2-Methylpentane	Methylcyclohexane	p-Ethyltoluene
3-Methyl-1-Butene	Methylcyclopentane	trans-1,3-Dichloropropene
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 Metal Analytes**

Arsenic (TSP)	Lead (TSP)
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**List 3. Target PAH Analytes**

Acenaphthene	Benzo (a) anthracene	Benzo (g,h,i) perylene
Acenaphthylene	Benzo (a) pyrene	Benzo (k) fluoranthene
Anthracene	Benzo (b) fluoranthene	Chrysene
Dibenzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Pyrene
Fluoranthene	Naphthalene	
Fluorene	Phenanthrene	