

TCEQ Interoffice Memorandum

To: Jamie Garza, 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 16, Laredo

Conclusions

- All 24-hour and annual average concentrations of volatile organic compounds (VOCs) from canister samples were below their respective 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.
- Annual average concentrations of all metals measured as total suspended particles (TSP) were less than their respective TCEQ long-term AMCVs and would not be expected to cause chronic adverse health effects.

Background

This memorandum conveys the Toxicology Division's (TD) evaluation of ambient air sampling conducted at two monitoring sites in Region 16-Laredo during 2015. TCEQ Region 16 monitoring site information is presented in Table 1 along with hyperlinks to detailed information regarding the monitoring sites and their maps. Lists 1 and 2, which can be found in Attachment A, display the target analytes for the monitoring sites. The TD reviewed air monitoring summary results from VOC canister samples collected on a 24-hour every sixth-day schedule, and 24-hour metals (TSP) samples.

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. Data discussed in this evaluation include 84 VOCs (from canister samples) for the Laredo Bridge monitoring site, and lead and arsenic (TSP) for the Laredo Vadiurri site; all data met the data completeness objective of 75 percent data return. 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 for 1,3-butadiene, benzene, and ethylene dichloride. Twenty four-hour air samples collected every sixth-day over a year are designed to provide representative long-term average concentrations. 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 annual averages of measured chemical concentrations to long-term AMCVs. Additional information regarding the derivation and application of AMCVs is available on the Toxicology [AMCV](#) webpage.

Except for lead, data for criteria pollutants (i.e., compounds having National Ambient Air

Quality Standards (NAAQS)) were not evaluated for this memorandum. Because lead is a criteria air pollutant, applicable lead TSP levels (i.e., rolling three-month averages) were compared to the appropriate comparison value ($0.15 \mu\text{g}/\text{m}^3$); however, annual average lead TSP concentrations were also evaluated since they are more representative of long-term lead exposure.

Table 1. Monitoring Sites Located in TCEQ Region 16

City and Site Location	County	Monitor ID	Monitored Compounds
Laredo Bridge 700 Zaragosa Street	Webb	48-479-0017	VOCs ^a
Laredo Vidaurri 2020 Vidaurri Avenue	Webb	48-141-0044	TSP (lead and arsenic) ^b

^a every sixth-day 24-hour canister

^b every sixth-day

Evaluation

VOCs

The 2015 annual average concentrations for all 84 VOCs, and the 24-hour concentrations of 1,3-butadiene, benzene, and ethylene dichloride at the Laredo Bridge monitoring site were below their respective long-term and 24-hour AMCVs. Adverse human health or vegetation effects would not be expected to occur as a result of short- or long-term exposure to the reported levels of these chemicals at this monitoring site.

Metals

Concentrations of lead and arsenic (TSP) were below their respective comparison values. Adverse health or vegetative effects would not be expected to occur as a result of long-term exposure to the reported levels of these metals at the Laredo Vidaurri Avenue monitoring site.

If you have any questions or comments regarding this evaluation, please feel free to 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 Metal Analytes

Arsenic (TSP)
 Lead (TSP)