TCEQ Interoffice Memorandum

To: Jaime Garza, Regional Director, R16

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

Date: May 24, 2021

Subject: Toxicological Evaluation of 2017-2019 Ambient Air Network Monitoring Data in Region 16, Laredo

Conclusions

- All 24-hour, annual and three-year 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.

- The 2017 24-hour and annual average concentrations of all metals measured as total suspended particles (TSP) were less than their respective comparison values and would not be expected to cause chronic adverse health effects. This monitor was deactivated on 12/31/2017.

Background

This memorandum conveys the Toxicology, Risk Assessment, and Research Division's (TD) evaluation of ambient air sampling conducted at two monitoring sites in Region 16-Laredo during 2017, 2018, and 2019. 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; the 2018 and 2019 average data met the data completeness objective of 75 percent data return; however, the 2017 average did not meet the 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 (1,3-butadiene, 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, benzene, ethylene dibromide, ethylene dichloride, and n-hexane). 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 µg/m3); 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 (24-h canister)
Laredo Vidaurri 2020 Vidaurri Avenue	Webb	48-141-0044	TSP (lead and arsenic)[1]

Evaluation

VOCs

The 24-hour, annual and three-year average concentrations for all 84 VOCs at the Laredo Bridge monitoring site from 2017-2019 were below their respective short- and long- term 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

The 24-hour and annual average 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. This monitor was deactivated on December 31, 2017.

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.

[1] The Laredo Vidaurri monitor was deactivated on December 31, 2017.

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 (Neohexane)
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 (Isohexane)
3-Methyl-1-Butene
3-Methylheptane
3-Methylhexane
3-Methylpentane
4-Methyl-1-Pentene
Acetylene
Benzene
Bromomethane
Carbon Tetrachloride
Chlorobenzene
Chloroform
Chloromethane (Methyl Chloride)
cis-1,3-Dichloropropene
cis-2-Butene
cis-2-Hexene
cis-2-Pentene
Cyclohexane
Cyclopentane
Cyclopentene
Dichlorodifluoromethane
Dichloromethane (Methylene Chloride)
Ethane
Ethylbenzene
Ethylene
Ethylene Dibromide (1,2-Dibromoethane)
Ethylene Dichloride (1,2-Dichloroethane)
Isobutane
Isopentane (2-Methylbutane)
Isoprene
Isopropylbenzene (Cumene)
m-Diethylbenzene
m-Ethyltoluene
m/p Xylene
Methyl Chloroform (1,1,1-Trichloroethane)
Methylcyclohexane
Methylcyclopentane
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
Propane
Propylene
Styrene
Tetrachloroethylene
Toluene
trans-1-3-Dichloropropylene
trans-2-Butene
trans-2-Hexene
trans-2-Pentene
Trichloroethylene
Trichlorofluoromethane
Vinyl Chloride

List 2. Target Metal Analytes
Arsenic (TSP)
Lead TSP)