TCEQ Interoffice Memorandum

To: Leroy Biggers, Regional Director, R5

From: Nnamdi Nnoli, Ph.D. NN

Toxicology, Risk Assessment, and Research Division
Office of the Executive Director

Date: February 15, 2022

Subject: Health Effects Review of 2020 Ambient Air Network Monitoring Data in Region 5, Tyler

Conclusions

- All measured 24-hour and annual average measured concentrations of volatile organic compounds (VOCs) monitored were below their respective Texas Commission on Environmental Quality (TCEQ) air monitoring comparison values (AMCVs) and would not be expected to cause adverse health or welfare effects.
- All measured 24-hour and annual average measured concentrations of speciated metals particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) monitored were below their respective TCEQ AMCVs and would not be expected to cause adverse health or welfare effects.

Background

This memorandum conveys the Toxicology, Risk Assessment, and Research Division's (TD's) evaluation of ambient air sampling conducted at two ambient air network monitoring sites in Region 5, Tyler, during 2020. Information about the Region 5 monitoring sites is presented in Table 1, along with hyperlinks to the monitoring site maps and more detailed information. Complete lists of all target analytes are provided in Attachment A.

Table 1. Monitoring Sites Located in TCEQ Region 5

Site Name and Location	County	Monitor ID	Monitored Compounds
Longview Gregg Co Airport near Longview	Gregg	481830001	VOCs (24-h canister)
Karnack Hwy 134 and Spur 449	Harrison	482030002	VOCs (24-h canister) and metals ($PM_{2.5}$)

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. All data collected for the Longview and Karnack monitoring sites met the data completeness objective of 75 percent data. 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 or, for lead, to the applicable comparison level. 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, acrolein, benzene, cadmium, chromium, cobalt, manganese, crotonaldehyde, ethylene dibromide, ethylene dichloride, formaldehyde, and n-hexane. More information about AMCVs is available online at: https://www.tceq.texas.gov/toxicology/amcv/about.

Evaluation

All measured 24-hour and annual average concentrations of the 84 monitored VOCs at the Longview and Karnack sites were below their respective AMCVs and would not be expected to cause adverse chronic health or welfare effects.

Air Pollutant Watch List (APWL) Area

There is one APWL area (APWL0501) in Region 5 for hydrogen sulfide, which covers parts of both Bowie and Cass Counties. Information for this area may be found here: https://www.tceq.texas.gov/toxicology/apwl/apwl.html.

If you have any questions about this evaluation, please contact Nnamdi Nnoli by email at nnamdi.nnoli@tceq.texas.gov or phone at (512) 239-1785.

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 Metal Analytes

Aluminum ($PM_{2.5}$)	Chromium ($PM_{2.5}$)	Nickel ($PM_{2.5}$)
Antimony ($PM_{2.5}$)	Cobalt ($PM_{2.5}$)	Selenium ($PM_{2.5}$)
Arsenic ($PM_{2.5}$)	Copper ($PM_{2.5}$)	Tin ($PM_{2.5}$)
Barium ($PM_{2.5}$)	Lead ($PM_{2.5}$)	Vanadium ($PM_{2.5}$)
Cadmium ($PM_{2.5}$)	Manganese ($PM_{2.5}$)	Zinc ($PM_{2.5}$)