TCEQ Interoffice Memorandum

To: Jaime Garza, Regional Director, R15

From: Nnamdi Nnoli, Ph.D. NN

Toxicology, Risk Assessment, and Research Division,

Office of the Executive Director

Date: June 30, 2023

Subject: Health Effects Review of 2021 Ambient Air Network Monitoring Data in Region 15, Harlingen

Conclusions

- All measured 24-hour and annual average concentrations of the 84 volatile organic compounds (VOCs) monitored were below their respective Texas Commission on Environmental Quality (TCEQ) air monitoring comparison values (AMCVs) in Region 15, Harlingen in 2021 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 in 2021 was evaluated by the Toxicology, Risk Assessment, and Research Division (TD). TCEQ Region 15 monitoring sites information is presented in Table 1, along with a hyperlink to the monitoring sites map and detailed information. The TD reviewed air monitoring summary results for VOCs from 24-hour canister samples collected every sixth-day. For a complete list of all examined chemicals, please see List 1 in Attachment A.

The TCEQ Monitoring Division reported the data for all chemicals evaluated in this memorandum. All data collected from the Brownsville and Mission monitoring sites met the data completeness objective of 75 percent data return. 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. To enable evaluation of 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/amcv/about.

Table 1. Monitoring Sites Located in TCEQ Region 15

Site Name and Location	County	EPA Site ID	Monitored Compounds
Brownsville 344 Porter Drive	Cameron	48-061-0006	VOCs (24-h canister)
Mission 2300 North Glasscock	Hidalgo	48-215-0043	VOCs (24-h canister)

Evaluation

At the Brownsville and Mission sites, all measured 24-hour and annual average concentrations of the monitored 84 VOCs were below their AMCVs and would not be expected to cause adverse chronic 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 or by 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
Isopropyl benzene
Methyl Chloroform
Methylcyclohexane
Methyl cyclopentane
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-Ethyl toluene
m/p Xylene
n-Butane
n-Decane
n-Heptane
n-Hexane
n-Nonane
n-Octane
n-Pentane
n-Propyl benzene
n-Undecane
o-Ethyl toluene
o-Xylene
p-Diethylbenzene
p-Ethyl toluene
trans-1,3-Dichloropropene
trans-2-Butene
trans-2-Hexene
trans-2-Pentene