Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Patty Reeh, Regional Director
Barry Kalda, Waste/Air Section Manager
TCEQ Region 11 - Austin

Date: December 20, 2005

From: Shannon Ethridge, M.S.
Toxicology Section, Chief Engineer's Office

Subject: Health Effects Review of 2004 Ambient Air Network Monitoring Data in Region 11, Austin

Conclusion

- Annual average concentrations of all reported VOCs were below their long-term ESLs and are not a health concern.

Background

This memorandum conveys the Toxicology Section's evaluation of ambient air sampling conducted at one monitoring network site in Region 11–Austin during 2004. Summary results were evaluated for Volatile Organic Compounds (VOCs) collected every sixth day from a site located at 2600 B Webberville Road in Austin, Texas. Information about the monitoring site, the only location in TCEQ Region 11 with a monitor, is presented in Table 1. The specific chemicals evaluated are listed in Table 2 and the location of the site is shown in Figure 1. This memorandum evaluates air monitoring data on a chemical-by-chemical basis.

Table 1. Monitoring Site Location in TCEQ Region 11

City and Site Location	County	Monitor ID	Monitored Compounds	Begin Date
Austin, Webberville Road	Travis	48-453-0021	VOCs	October 29, 1999

Table 2. Monitored Chemicals

CATMN VOCs		
1,1,1-Trichloroethane	Bromomethane	m-Diethylbenzene
1,1,2,2-tetrachloroethane	Butyl Acetate	m-Ethyltoluene
1,1,2-Trichloroethane	Butyraldehyde	methyl chloride

Table 2. Monitored Chemicals		
1,1-Dichloroethane	CIS 1,3-dichloropropylene	n-Butane
1,1-Dichloroethylene	Carbon Tetrachloride	n-Decane
1,2,3-Trimethylbenzene	Chlorobenzene	n-Heptane
1,2,4-Trimethylbenzene	Chloroform	n-Hexane
1,2-Dibromoethane	Chloroprene	n-Nonane
1,2-Dichloroethane	Cyclohexane	n-Octane
1,2-Dichloropropane	Cyclopentane	n-Pentane
1,3,5-Trimethylbenzene	Cyclopentene	n-Propyl Acetate
1,3-Butadiene	Ethane	n-Propylbenzene
1-Butene	Ethyl Acetate	n-Undecane
1-Hexene+2-methyl-1-pentene	Ethyl Benzene	o-Ethyltoluene
1-Pentene	Ethylene	o-Xylene
2,2,4-Trimethylpentane	Isobutane	p-Diethylbenzene
2,2-Dimethylbutane - Neohexane	Isopentane	p-Ethyltoluene
2,3,4-Trimethylpentane	Isoprene	p-Xylene + m-Xylene
2,3-Dimethylbutane	Isopropylbenzene	t-2-Butene
2,3-Dimethylpentane	Methyl Butyl Ketone (MBK)	t-2-Hexene
2,4-Dimethylpentane	Methyl t-Butyl ether	t-2-Pentene
2-Butanone	Methylcyclohexane	trans-1-3-dichloropropylene
2-Chloropentane	Methylcyclopentane	
2-Methyl-2-Butene	Methylene Chloride	
2-Methylheptane	Methylisobutylketone	
2-Methylhexane	Propane	
2-Methylpentane - Isohexane	Propylene	
2-methyl-3-hexanone	Styrene	
3-Methyl-1-Butene	Tetrachloroethylene - Perchloroethylene	
3-Methylheptane	Toluene	
3-Methylhexane	Trichloroethylene	
3-Methylpentane	Trichlorofluoromethane	
3-heptanone	Vinyl Chloride	
3-hexanone	c-2-Butene	
3-pentanone	c-2-Hexene	
4-Methyl-1-Pentene	c-2-Pentene	
Acetylene	dichlorodifluoromethane	
Benzene	isobutyraldehyde	

The TCEQ Monitoring Operations Division reported data for all chemicals evaluated in this memorandum. The data return for the Webberville Road monitor met completeness requirements for estimating annual average concentrations for 96 of 98 VOCs. For all VOCs that met completeness requirements, annual average concentrations were compared to their

respective long-term TCEQ health-based Effects Screening Levels (ESLs). Because 24-hour air samples are designed to provide representative long-term average concentrations, annual averages from 24-hour samples were evaluated for potential chronic health concerns. Short-term or peak concentrations are not captured by 24-hour samples, and therefore, daily maximum concentrations have limited use in evaluating the potential for acute health effects.

An ESL is a guideline concentration which is protective of the general public including sensitive members of the population, such as the elderly, children, and persons with pre-existing health conditions. Health-based ESLs are guideline comparison levels set well below levels at which adverse health effects have been reported in the scientific literature. If an air concentration of a pollutant is below the ESL, we do not expect adverse health effects to occur. If an air concentration of a pollutant is above the health-based ESL, it does not indicate that adverse effects will necessarily occur; however, further evaluation may be warranted.

Evaluation

All annual average concentrations of VOCs that met data completeness requirements were below their long-term ESLs and would not be expected to cause adverse health effects. Data for 1,1-dichloroethane and 3-heptanone did not meet completeness requirements and could not be evaluated.

Please contact me at 512-239-1822 or sethridg@tceq.state.tx.us if you have any questions regarding this memorandum.

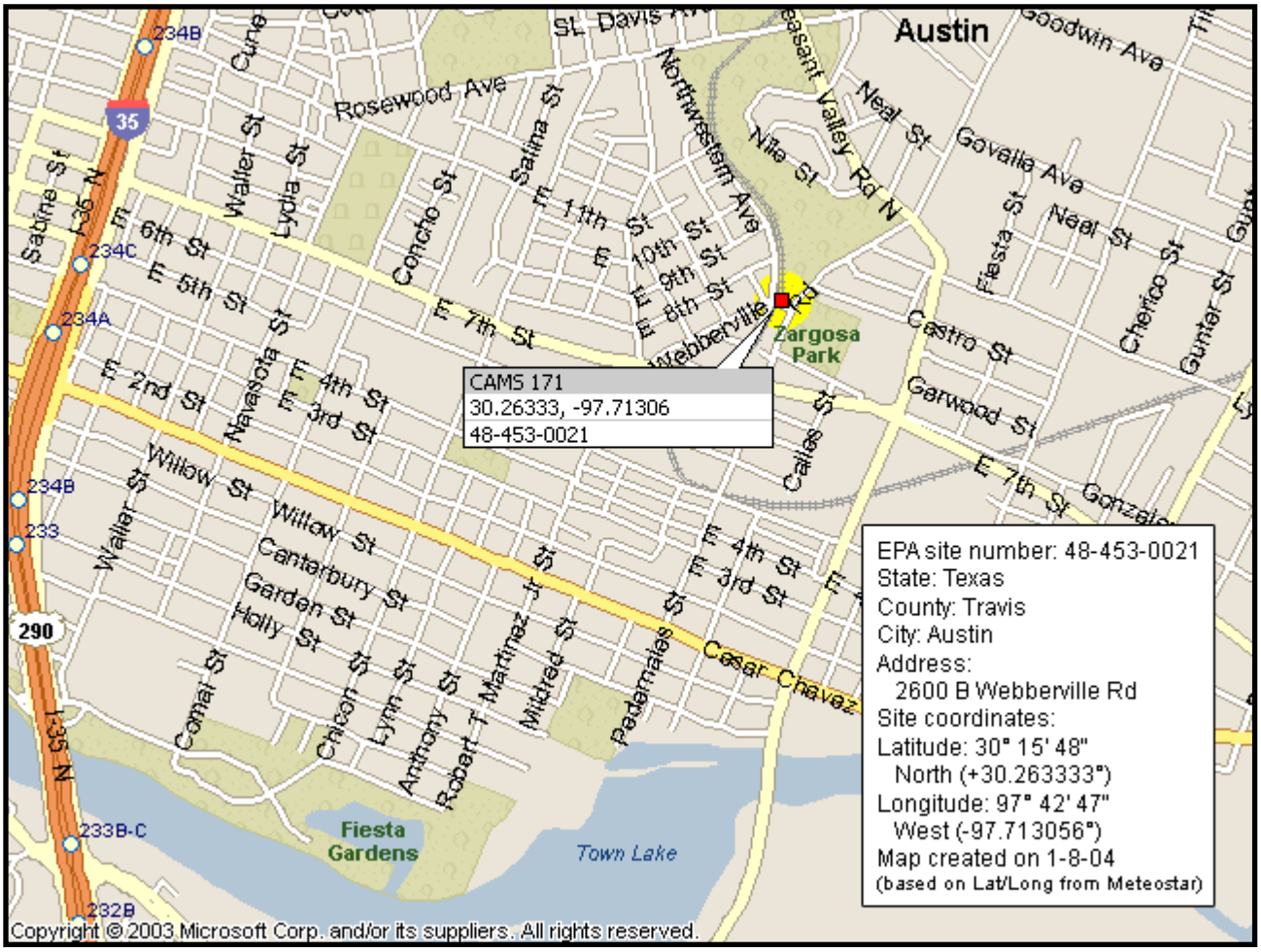

Figure 1. Location of Webberville Road Monitor

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