

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Patty Reeh, Regional Director, R11
Barry Kalda, Regional Air Manager, R11
Frank Espino, North Central Texas Area Director

Date: June 27, 2007

From: Tracie Phillips, Ph.D.
Toxicology Section, Chief Engineer's Office

Subject: Health Effects Review of 2006 Ambient Air Network Monitoring Data in Region 11 – Austin

Conclusions:

- Annual average concentrations of the 95 reported volatile organic compounds (VOCs) and 14 reported particulate matter less than 2.5 microns in diameter (PM_{2.5}) metals were below their long-term Effects Screening Levels (ESLs) and would not be expected to cause adverse health effects.

Background:

This memorandum conveys the Toxicology Section's (TS) evaluation of ambient air sampling conducted at two monitoring sites in Region 11 – Austin during 2006. TS evaluated summary results for 95 VOCs collected at a 24-hour every sixth day Community Air Toxics Monitoring Network (CATMN) site located at 2600 B Webberville Road in Austin, Texas (Figure 1). Summary results for 14 metals (PM_{2.5}) were evaluated from a second monitoring site located at 12200 Lime Creek Road in Austin, Texas (Audubon) (Figure 2). The Audubon monitoring site began collecting speciated 24-hour every sixth day PM_{2.5} metal samples on July 1, 2005. This is the first time the TS has reviewed annual PM_{2.5} metals data from this monitoring site. TCEQ Region 11 monitoring site information is presented in Table 1. Table 2 lists the target analytes for both monitoring sites.

Table 1. Monitoring Site Information

City and Site Location	County	EPA Monitor ID	Monitored Compounds
Austin, Webberville Road	Travis	48-453-0021	VOCs
Austin, Audubon	Travis	48-453-0020	PM _{2.5} Metals

The TCEQ Monitoring Operations Division reported the data for all chemicals evaluated in this memorandum. The data collected for both monitoring sites met the data completeness objective of 75 percent data return, or 45 valid samples per year. The TS evaluated the reported annual average concentrations from the Webberville Road and Audubon monitors for chronic health concerns by comparing measured concentrations to their respective TCEQ long-term health-based ESLs. Information on the ESLs can be obtained by contacting the TS at (512) 239-1795, or by visiting the following web site:

<http://www.tceq.state.tx.us/implementation/tox/esl/ESLMain.html>.

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Evaluation:

VOCs

Of the 95 reported VOCs, annual average concentrations of 36 VOCs were detected. All detected VOCs were below their respective long-term health-based ESLs. Therefore, the reported concentrations would not be expected to cause long-term adverse health effects.

Metals

Of the 14 reported PM_{2.5} metals in 2006, annual average concentrations of nine PM_{2.5} metals were detected. All detected PM_{2.5} metals were below their respective long-term health-based ESLs. Therefore, the reported concentrations would not be expected to cause long-term adverse health effects. Only six months of data was available for 2005, of that data only six PM_{2.5} metals were detected. All detected metals were only slightly above their method detection limits (MDLs) and below levels of health concern.

If you have any questions regarding this memorandum, please contact me at (512) 239-2269 or tphillip@tceq.state.tx.us.

Table 2. VOCs and PM_{2.5} Metals Evaluated

CATMN VOCs		
1,1,1-Trichloroethane	3-hexanone	Tetrachloroethylene - Perchloroethylene
1,1,2,2-Tetrachloroethane	3-pentanone	Toluene
1,1,2-Trichloroethane	4-Methyl-1-Pentene	Trichloroethylene
1,1-Dichloroethane	Acetylene	Trichlorofluoromethane
1,1-Dichloroethylene	Benzene	Vinyl Chloride
1,2,3-Trimethylbenzene	Bromomethane	c-2-Butene
1,2,4-Trimethylbenzene	Butyl Acetate	c-2-Hexene
1,2-Dibromoethane	CIS 1,3-dichloropropylene	c-2-Pentene
1,2-Dichloroethane	Carbon Tetrachloride	dichlorodifluoromethane
1,2-Dichloropropane	Chlorobenzene	isobutyraldehyde
1,3,5-Trimethylbenzene	Chloroform	m-Diethylbenzene
1,3-Butadiene	Chloroprene*	m-Ethyltoluene
1-Butene	Cyclohexane	methyl chloride
1-Hexene+2-methyl-1-pentene	Cyclopentane	n-Butane
1-Pentene	Cyclopentene	n-Decane
2,2,4-Trimethylpentane	Ethane	n-Heptane
2,2-Dimethylbutane - Neohexane	Ethyl Acetate	n-Hexane
2,3,4-Trimethylpentane	Ethyl Benzene	n-Nonane
2,3-Dimethylbutane	Ethylene	n-Octane
2,3-Dimethylpentane	Isobutane	n-Pentane
2,4-Dimethylpentane	Isopentane	n-Propyl Acetate
2-Butanone	Isoprene	n-Propylbenzene
2-Chloropentane	Isopropylbenzene	n-Undecane
2-Methyl-2-Butene	Methyl Butyl Ketone (MBK)	o-Ethyltoluene
2-Methylheptane	Methyl t-Butyl ether	o-Xylene
2-Methylhexane	Methylcyclohexane	p-Diethylbenzene
2-Methylpentane - Isohexane	Methylcyclopentane	p-Ethyltoluene
2-methyl-3-hexanone	Methylene Chloride	p-Xylene + m-Xylene
3-Methyl-1-Butene	Methylisobutylketone	t-2-Butene
3-Methylheptane	Propane	t-2-Hexene
3-Methylhexane	Propylene	t-2-Pentene
3-Methylpentane	Styrene	trans-1-3-dichloropropylene
PM _{2.5} Metals		
Aluminum	Chromium	Nickel
Antimony	Cobalt	Selenium
Arsenic	Copper	Tin
Barium	Manganese	Zinc
Cadmium	Molybdenum	

*Chloroprene was removed from the target analyte list near the beginning of January 2006; therefore there is only one sample available for 2006. Chloroprene was not detected and is not further evaluated in this memorandum.



Figure 1. Location of Austin Webberville Road Monitor

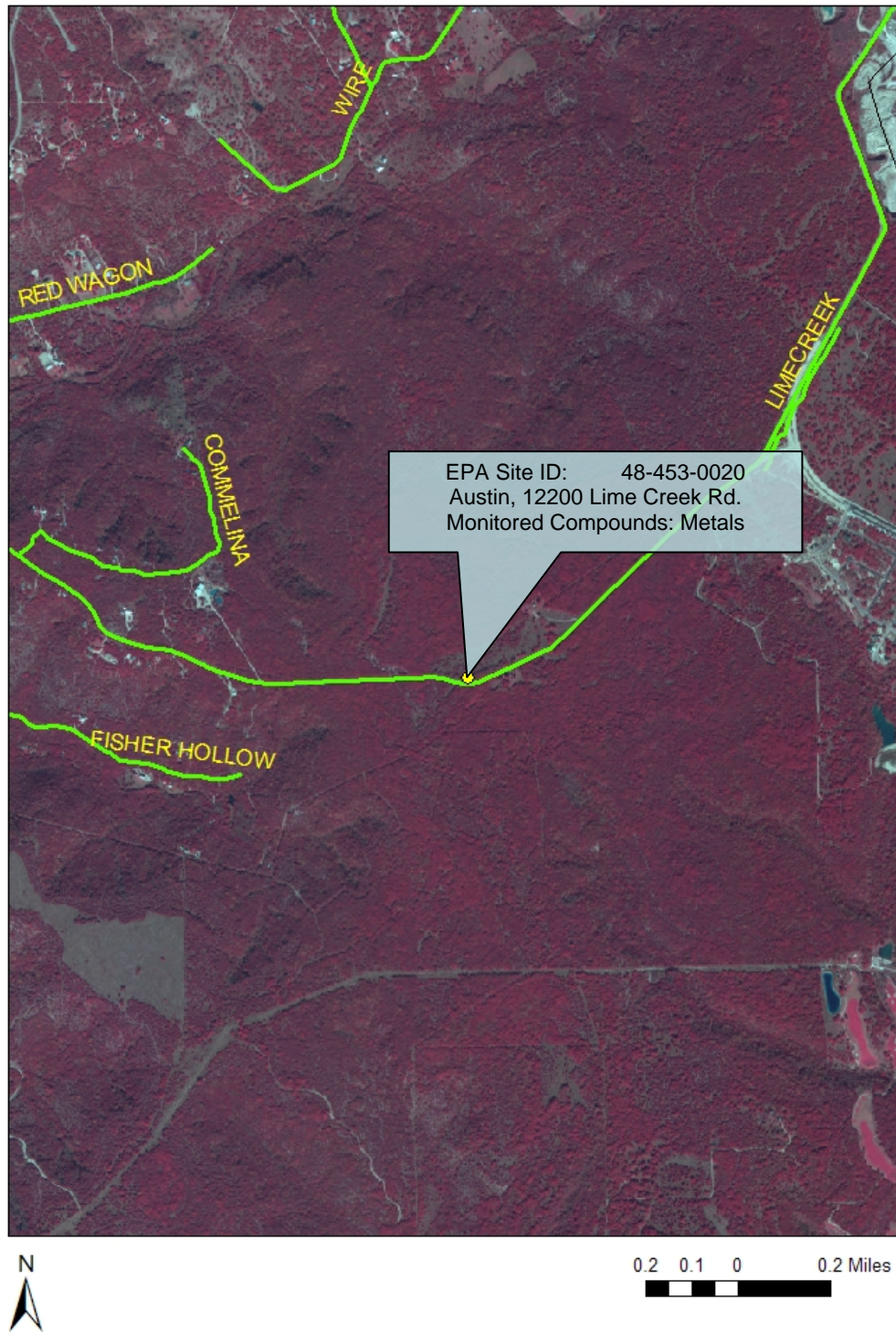


Figure 2. Location of Austin Audubon Monitor

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cc (via e-mail): Ruben Casso, USEPA Region 6, Dallas
Susan Prosperie, Department of State Health Services