

# TCEQ Interoffice Memorandum

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**To:** Jeff Bertl, Regional Director  
Jared Basurto, Air Section Manager  
Randy Ammons, North Central and West Texas Area Director

**From:** Lindsey Jones, M.S.   
Toxicology Division, Chief Engineer's Office

**Date:** February 17, 2011

**Subject:** Health Effects Review of 2009 Ambient Air Network Monitoring Data in Region 7, Midland

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## Conclusions

- Exposure to monitored levels of volatile organic compounds (VOCs) at the Odessa-Hays or Odessa Gonzales monitoring locations would not be expected to cause acute or chronic adverse health effects, nuisance odor conditions, or vegetative effects.

## Background

The Toxicology Division (TD) has reviewed ambient air sampling data collected from two network monitoring sites in TCEQ Region 7, Midland. The data collected at the Odessa-Hays monitoring site from January 1 through December 31, 2009, was evaluated from both a short-term and long-term health and welfare perspective. The Odessa-Gonzales monitoring site was deactivated in August 2009; therefore, the eight months of available data in 2009 were evaluated from a short-term perspective and the final 12 months of sampling (September 1, 2008, through August 31, 2009) were evaluated from a long-term perspective. Monitoring site information is presented in Table 1, along with hyperlinks to the monitoring site maps and more detailed information. The TCEQ Field Operations Support Division (FOSD) reported the data for all chemicals evaluated in this memorandum and a complete list of all chemicals examined is provided in List 1 in Attachment A.

TD reviewed air monitoring summary results for 46 VOCs from samples collected every hour by the Odessa-Hays and Odessa-Gonzales automated gas chromatographs (autoGCs). All VOC data evaluated from the Odessa-Hays monitoring site exceeded TCEQ's 75 percent annual data completeness objective, except for 2-methylheptane and 2,4-dimethylpentane. Therefore, annual average data for 2-methylheptane and 2,4-dimethylpentane at the Odessa-Hays site were not evaluated. The available data for the 44 VOCs at the Odessa-Hays site are expected to provide representative annual average VOC concentrations.

Because the Odessa-Gonzales monitoring site was deactivated in August 2009, none of the 46 VOCs met the TCEQ's 75 percent annual data completeness objective for 2009. The individual hourly sample concentrations from this monitor for the January 1 through August 31, 2009, period were evaluated from a short-term perspective. In order to evaluate long-term concentrations, the rolling average of the final 12 months of sampling (September 1, 2008,

through August 31, 2009) was evaluated. In this 12-month period all 46 VOCs, except acetylene, met the TCEQ's 75 percent annual data completeness objective. Therefore, the 12-month rolling average for acetylene was not considered in this analysis.

TD compared the measured hourly concentrations for 46 VOCs from both autoGC monitoring sites, 2009 annual averages for the 44 VOCs that met the annual data completeness objective at the Odessa-Hays site, and the 12-month averages for 45 VOCs at the Odessa-Gonzales site to their respective short-term and long-term air monitoring comparison values (AMCVs). More information about AMCVs is available online at:

<http://www.tceq.state.tx.us/implementation/tox/AirToxics.html#amcv>.

**Table 1. Monitoring Sites Located in TCEQ Region 7**

City and Site Location	County	EPA Site ID	Monitored Compounds
<a href="#">Odessa-Hays</a> , Barrett and Monahans Streets	Ector	48-135-0003	VOCs (hourly autoGC)
<a href="#">Odessa-Gonzales</a> *, 2700 Disney	Ector	48-135-1014	VOCs (hourly autoGC)

\* The Odessa-Gonzales VOC monitor was deactivated on August 31, 2009.

## Evaluation

### Short-Term Data

All but one of the measured hourly concentrations of each of the 46 VOCs reviewed from both monitoring sites were below their respective short-term AMCVs. Therefore, acute adverse health effects, odors, or vegetative effects are not expected to occur as a result of exposure to the reported levels of these chemicals at the Odessa-Hays or Odessa-Gonzales monitoring sites.

One hourly sample collected at the Odessa-Hays monitoring site detected a concentration of 6 parts per billion by volume (ppb<sub>v</sub>) of isoprene, which is just over the odor AMCV of 5 ppb<sub>v</sub>. Because the detected concentration of isoprene was not of high intensity, the duration of the slightly elevated concentration was small (only one hourly sample), and historical monitoring at the site indicates no other exceedances of the isoprene AMCV in the last three years, this concentration was not determined to be of any health or welfare concern nor indicative of a potential issue.

### Long-Term Data

The 2009 annual average concentrations of the 44 VOCs evaluated at the Odessa-Hays monitoring site and 12-month average concentrations of the 45 VOCs evaluated at the Odessa-Gonzales monitoring site were well below their respective long-term AMCVs. Therefore, adverse health effects would not be expected to occur as a result of long-term exposure to the reported levels of these chemicals at either the Odessa-Hays or Odessa-Gonzales monitoring sites.

Jeff Bertl, et al.  
February 17, 2011  
Page 3 of 4

If you have any questions regarding the contents of this review, please do not hesitate to contact me at (512) 239-1784 or via email at [lindsey.jones@tceq.texas.gov](mailto:lindsey.jones@tceq.texas.gov).

cc (via email):

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## Attachment A

### List 1. Target VOC Analytes in AutoGC

1-Butene	Benzene	n-Heptane
1-Pentene	c-2-Butene	n-Hexane
1,2,3-Trimethylbenzene	c-2-Pentene	n-Nonane
1,2,4-Trimethylbenzene	Cyclohexane	n-Octane
1,3-Butadiene	Cyclopentane	n-Pentane
1,3,5-Trimethylbenzene	Ethane	n-Propylbenzene
2-Methylheptane	Ethyl Benzene	o-Xylene
2-Methylhexane	Ethylene	p-Xylene + m-Xylene
2,2-Dimethylbutane	Isobutane	Propane
2,2,4-Trimethylpentane	Isopentane	Propylene
2,3-Dimethylpentane	Isoprene	Styrene
2,3,4-Trimethylpentane	Isopropyl Benzene - Cumene	t-2-Butene
2,4-Dimethylpentane	Methylcyclohexane	t-2-Pentene
3-Methylheptane	Methylcyclopentane	Toluene
3-Methylhexane	n-Butane	
Acetylene	n-Decane	