

# TCEQ Interoffice Memorandum

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**To:** Leroy Biggers, Regional Director  
Michelle Baetz, Air Section Manager  
Kelly Keel, Coastal and East Texas Area Director  
Tara Capobianco, Air Pollutant Watch List Coordinator

**From:** Darrell McCant, B.S.   
Toxicology Division, Office of the Executive Director

**Date:** October 8, 2012

**Subject:** Health Effects Review of 2011 Ambient Air Network Monitoring Data in Region 5, Tyler

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## Conclusions

- Exposure to monitored levels of VOCs at the Community Air Toxics Monitoring Network (CATMN) site (Longview monitoring location) in Region 5 would not be expected to cause chronic adverse health or vegetative effects.
- Exposure to monitored levels of volatile organic compounds (VOCs), carbonyls, or speciated metals from particulate matter less than 2.5 and/or 10 microns in diameter (PM<sub>2.5</sub> & PM<sub>10</sub>), at the Karnack monitoring location would not be expected to cause chronic adverse health or vegetation effects.

## Background

This memorandum conveys the Toxicology Division's evaluation of ambient air sampling conducted at two ambient air network monitoring sites in Region 5–Tyler during 2011. Summary 24-hour VOC results collected every sixth day from a site located at Gregg County Airport in Longview, and 24-hour VOC, carbonyl, and speciated metal (PM<sub>2.5</sub> & PM<sub>10</sub>) results collected every sixth day from a site located at Highway 143 and Spur 449 in Karnack, were evaluated on a chemical-by-chemical basis. 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 chemicals evaluated are provided in Attachment A.

**Table 1. Monitoring Sites Located in TCEQ Region 5**

| City and Site Location                            | County   | Monitor ID | Monitored Compounds   |
|---|----------|------------|---|
| <a href="#">Longview, Gregg County Airport</a>    | Gregg    | 481830001  | VOCs  |
| <a href="#">Karnack, Highway 143 and Spur 149</a> | Harrison | 482030002  | VOCs, carbonyls, and metals (PM <sub>2.5</sub> & PM <sub>10</sub> ) |

The Texas Commission on Environmental Quality (TCEQ) Monitoring Division reported data for all chemicals evaluated in this memorandum. Because every sixth day 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; therefore, daily maximum concentrations have limited use in evaluating the potential for acute health effects. The data return for the monitored compounds at the Longview and Karnack monitor sites met completeness requirements for estimating annual average concentrations. All annual average concentrations were compared to their respective 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>.

## **Evaluation**

### **Longview, Gregg County Airport Site**

All annual average concentrations of 84 VOCs monitored at the Longview site were below their AMCVs and would not be expected to cause adverse health effects.

### **Karnack, Highway 143 and Spur 449 Site**

All reported annual average concentrations of the 85 VOCs, 17 carbonyls, and the 15 speciated metals monitored at the Karnack site were below their AMCVs and would not be expected to cause long-term adverse health effects.

### **Air Pollutant Watch List (APWL) Area**

There is one APWL area ([APWL0501](#)) in Region 5 which covers parts of both Bowie and Cass Counties. This area is discussed in detail in the 2012 [annual APWL](#) report.<sup>1</sup>

Briefly, the most recent sampling at APWL0501 was in 2009, when the TCEQ Small Business and Local Government Assistance staff conducted air sampling using a Jerome analyzer. The purpose of the sampling was not to conduct testing to ensure compliance with the state 30-minute average hydrogen sulfide standard; however, one instantaneous concentration measured with the Jerome analyzer indicated that the concentration may be above the state standard. It is noted that regional staff have not received citizen complaints in the past couple of years, including 2011, and that regional staff are planning to conduct a follow-up sampling event to assess up-to-date hydrogen sulfide levels in the near future. Additional data concerning the levels of hydrogen sulfide in APWL0501 would be necessary in order to provide a complete evaluation.

If you have any questions about this evaluation, please call me at (512) 239-4477 or e-mail me at [darrell.mccant@tceq.texas.gov](mailto:darrell.mccant@tceq.texas.gov).

cc (via email):

Casso, Ruben- EPA Region 6, Dallas

Prosperie, Susan- Department of State Health Services

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<sup>1</sup> Report on the Air Pollutant Watch List Areas in Texas; Prepared by the Texas Commission on Environmental Quality, February 2012

**Attachment A**

**List 1. Target VOC Analytes in Canister Samples**

|                             |                             |                             |
|-----------------------------|-----------------------------|-----------------------------|
| 1,1,2,2-Tetrachloroethane   | Bromomethane                | Methyl Chloroform (1,1,1-   |
| 1,1,2-Trichloroethane       | Carbon Tetrachloride        | Trichloroethane)            |
| 1,1-Dichloroethane          | Chlorobenzene               | Methylcyclohexane           |
| 1,1-Dichloroethylene        | Chloroform                  | Methylcyclopentane          |
| 1,2,3-Trimethylbenzene      | Chloromethane (Methyl       | N-Butane                    |
| 1,2,4-Trimethylbenzene      | Chloride)                   | N-Decane                    |
| 1,2-Dichloropropane         | cis 1,3-Dichloropropene     | N-Heptane                   |
| 1,3,5-Trimethylbenzene      | Cis-2-Butene                | N-Hexane                    |
| 1,3-Butadiene               | Cis-2-Hexene                | N-Nonane                    |
| 1-Butene                    | Cis-2-Pentene               | N-Octane                    |
| 1-Hexene+2-Methyl-1-Pentene | Cyclohexane                 | N-Pentane                   |
| 1-Pentene                   | Cyclopentane                | N-Propylbenzene             |
| 2,2,4-Trimethylpentane      | Cyclopentene                | N-Undecane                  |
| 2,2-Dimethylbutane          | Dichlorodifluoromethane     | O-Ethyltoluene              |
| (Neohexane)                 | Dichloromethane (Methylene  | O-Xylene                    |
| 2,3,4-Trimethylpentane      | Chloride)                   | P-Diethylbenzene            |
| 2,3-Dimethylbutane          | Ethane                      | P-Ethyltoluene              |
| 2,3-Dimethylpentane         | Ethylbenzene                | Propane                     |
| 2,4-Dimethylpentane         | Ethylene                    | Propylene                   |
| 2-Chloropentane             | Ethylene Dibromide (1,2-    | Styrene                     |
| 2-Methyl-2-Butene           | Dibromoethane)              | Tetrachloroethylene         |
| 2-Methylheptane             | Ethylene Dichloride (1,2-   | Toluene                     |
| 2-Methylhexane              | Dichloroethane)             | Trans-1-3-Dichloropropylene |
| 2-Methylpentane (Isohexane) | Isobutane                   | Trans-2-Butene              |
| 3-Methyl-1-Butene           | Isopentane (2-Methylbutane) | Trans-2-Hexene              |
| 3-Methylheptane             | Isoprene                    | Trans-2-Pentene             |
| 3-Methylhexane              | Isopropylbenzene (Cumene)   | Trichloroethylene           |
| 3-Methylpentane             | M-Diethylbenzene            | Trichlorofluoromethane      |
| 4-Methyl-1-Pentene          | M-Ethyltoluene              | Vinyl Chloride              |
| Acetylene                   | M/P Xylene                  |                             |
| Benzene                     |                             |                             |

**List 2. Target Carbonyl Analytes**

|                          |                     |                          |
|--------------------------|---------------------|--------------------------|
| 2,5-Dimethylbenzaldehyde | Formaldehyde        | o-Tolualdehyde           |
| Acetaldehyde             | Heptaldehyde        | p-Tolualdehyde           |
| Acetone                  | Hexanaldehyde       | Propanal-Propionaldehyde |
| Acrolein **              | Isovaleraldehyde    | Valeraldehyde            |
| Benzaldehyde             | Methyl Ethyl Ketone |                          |
| Butyraldehyde            | (MEK)/methacrolein  |                          |
| Crotonaldehyde-2-Butenal | m-Tolualdehyde      |                          |

**List 3. Target Metal (PM<sub>10</sub>) Analytes**

|   |   |  |
|---|---|--|
| Aluminum (PM <sub>2.5</sub> )                   | Cobalt (PM <sub>2.5</sub> )                       | Nickel (PM <sub>2.5</sub> , PM <sub>10</sub> ) |
| Antimony (PM <sub>2.5</sub> )                   | Copper (PM <sub>2.5</sub> , PM <sub>10</sub> )    | Selenium (PM <sub>2.5</sub> )                  |
| Arsenic (PM <sub>2.5</sub> , PM <sub>10</sub> ) | Lead (PM <sub>2.5</sub> , PM <sub>10</sub> )      | Tin (PM <sub>2.5</sub> )                       |
| Barium (PM <sub>2.5</sub> )                     | Manganese (PM <sub>2.5</sub> , PM <sub>10</sub> ) | Zinc (PM <sub>2.5</sub> )                      |
| Cadmium (PM <sub>2.5</sub> , PM <sub>10</sub> ) | Molybdenum (PM <sub>2.5</sub> ,                   |  |
| Chromium (PM <sub>2.5</sub> )                   | PM <sub>10</sub> )                                |  |

\*\* Acrolein was a target analyte in both VOC (CATMN) and carbonyl sample analyses for the Karnack monitor only.