MEMORANDUM

Date: July 14, 2011

To: The Honorable Mayor and Members of the City Council of Fort Worth

From: Michael A. Gange, Assistant Director
Transportation and Public Works Department

Subject: Natural Gas Air Quality Study – Final Report

The purpose of this memorandum is to summarize the Natural Gas Air Quality Study – Final Report prepared by Eastern Research Group, Inc. (ERG).

The Final Report contains an Executive Summary as well as sections discussing in detail the various components of the study including Ambient Air Monitoring, Point Source Testing, Air Dispersion Modeling, Full Build-Out Estimates, Regulatory Assessment, Public Health Evaluation and Conclusions and Recommendations.

ERG performed Point Source Testing at 388 gas production sites (with more than 1,000 active wells and more than 1,200 storage tanks) that included emissions samples from all stages of the gas production process. The data from the up close point source air samples were used to calculate site emissions, perform air dispersion modeling, estimate full build-out impacts, and perform regulatory assessment. These tasks were combined with data from ambient air tests to create a broad and comprehensive look at the air quality impacts of natural gas production.

As you may recall, ERG at the beginning of the Air Quality Study was tasked with answering 4 primary questions and a summary of ERG's answers from the final report are detailed below:

1. **What quantity of emissions is coming from natural gas exploration and production sites located within the City of Fort Worth?**

   "ERG estimated emissions for 375 well pads, eight compressor stations, one gas processing plant, a saltwater treatment facility, a drilling operation, a fracking operation and a completion operation. Summed across all of these sites, the total estimated emissions of organic compounds

was 20,818 tons per year…Pollutants with relatively low toxicities (e.g., methane, ethane, propane, and butane) accounted for the overwhelming majority—approximately 98 percent—of the citywide emissions. However, several pollutants with relatively high toxicities (e.g., benzene) were also emitted from these sites, though in considerably lower quantities." – ERG

2. **Do the sites comply with applicable regulatory limits?**

"Based on the emission rates that ERG calculated for this project, five sites—a processing facility, three compressor stations, and one well pad—had overall emission rates that exceed regulatory thresholds that are supposed to trigger certain permitting requirements." – ERG

Site ID	**Site Type**	**Address**
PS-118	Compressor Station	590 NW Loop 820
PS-119	Compressor Station	6900 E. Rosedale St.
PS-127	Compressor Station	5297 West Bailey Boswell
PS-159	Gas Processing Plant	10500 Hicks Field Road
238	Gas Well Pad	798 Industrial Blvd E

These sites are graphically depicted on the map via the city's website.

3. **How do releases from these sites affect off-site air pollution levels?**

"A health-screening analysis of the measured and estimated air pollution levels identified three pollutants—acrolein, benzene, and formaldehyde—as the most important from a risk perspective. While Fort Worth residents are exposed to these and other pollutants released from natural gas sites, the measured and estimated air pollution levels did not reach levels that have been observed to cause adverse health effects. Further, the measured benzene and formaldehyde levels in Fort Worth were not unusually elevated when compared to levels currently measured by TCEQ elsewhere in Texas. There was insufficient data available to do a similar comparison for acrolein." – ERG

4. **Are the city's required setbacks for wells, tanks and compressors adequate to protect public health?**

> *"For the overwhelming majority of sites considered in this study, the modeling analysis indicates that Fort Worth's 600-foot setback distance is adequate. For the relatively few sites with multiple, large line compressor engines, the modeling analysis found some areas beyond the setbacks to have estimated acrolein and formaldehyde concentrations greater than protective health-based screening levels published by TCEQ. However, the estimated air pollution levels did not reach levels that have actually been found to cause symptoms or illness among exposed populations." – ERG*

Although ERG's study did not reveal any significant health threats beyond setback distances, ERG did recommend that "all reasonable precautions to reduce emissions from the well pads and compressor stations should be made." Such precautions, ERG reported, might include the installation and operation of air pollution control equipment such as vapor recovery units, catalytic oxidizers on compressor engines, electric compressor engines and low bleed pneumatic valve controllers.

Briefings will be provided to the Natural Gas Air Quality Study Committee, the Mayor and City Council, as well as the General Public.

Audience	**Date**	**Location**
Natural Gas Air Quality Study Committee	Monday, July 18 at 3:00 p.m.	Pre-Council Chamber City Hall, 1000 Throckmorton Street
Mayor and City Council	Tuesday July 19 at 8:30 a.m.	Pre-Council Chamber City Hall, 1000 Throckmorton Street
General Public	Tuesday, July 19 at 6:00 p.m.	Council Chamber City Hall, 1000 Throckmorton Street

Staff is in the process of reviewing this report in depth as well as preparing for the impending public briefings on the report. Following the meetings, staff will report back to Council regarding the details of the meetings and recommendations for further action.

A full copy of the study results is posted to the city's website at www.fortworthgov.org.

Please contact me at 817.392.6569 with questions you may have regarding this information.

Cc: Tom Higgins, Interim City Manager
Fernando Costa, Assistant City Manager
Douglas Wiersig, P.E., TPW Director