



- M E M O R A N D U M -

Date: January 20, 2011
To: City of Fort Worth
From: Eastern Research Group, Inc. (ERG)
Re: Natural Gas Air Quality Study Biweekly Update #7: January 3 – January 15

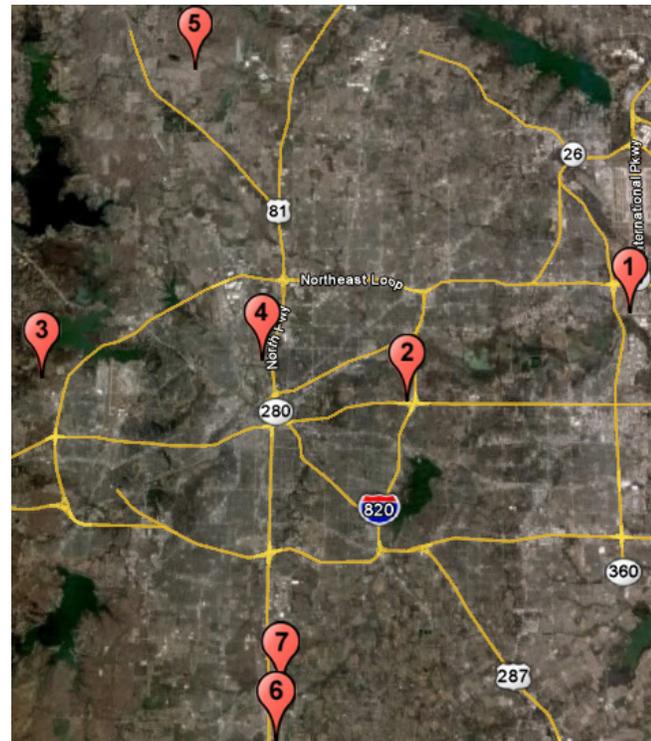
Activity Summary: Between January 3 and January 15, ERG and its subcontractors resumed point source testing field activities for the Natural Gas Air Quality Study. While the ambient air monitoring program concluded on October 31, 2010, and the initial phase of point source testing (Phase I) wrapped up on October 22, 2010, additional point source testing is now being conducted (Phase II). Details on the ambient air monitoring program and point source emission testing field activities follow.

Ambient Air Monitoring: Ambient air monitoring concluded on October 31, 2010. The figure below shows the location of each of the seven monitoring sites that were evaluated under this study.

Over the 8 week sampling period (September 4, 2010 through October 31, 2010), 176 air samples were scheduled to be collected. We had a high level of success in sample collection and achieved a 96% sample collection rate. The table below summarizes sample collection statistics from September 4 through October 31 for each monitoring site.

Monitoring Site	Number of Samples Collected	Number of Samples Scheduled	Collection Percentage
1	20	20	100%
2	18	20	90%
3	15	16	94%
4	40	40	100%
5	39	40	98%
6	19	20	95%
7	18	20	90%
Total	169	176	96%

(Note: Most sites had twenty scheduled sampling dates since September 4. Monitoring sites 4 and 5 had twice as many scheduled samples, because two different types of air samples are collected at these locations. Monitoring site 3 had only sixteen scheduled samples, because this station was installed on September 15.)



Location of Ambient Air Quality Monitors

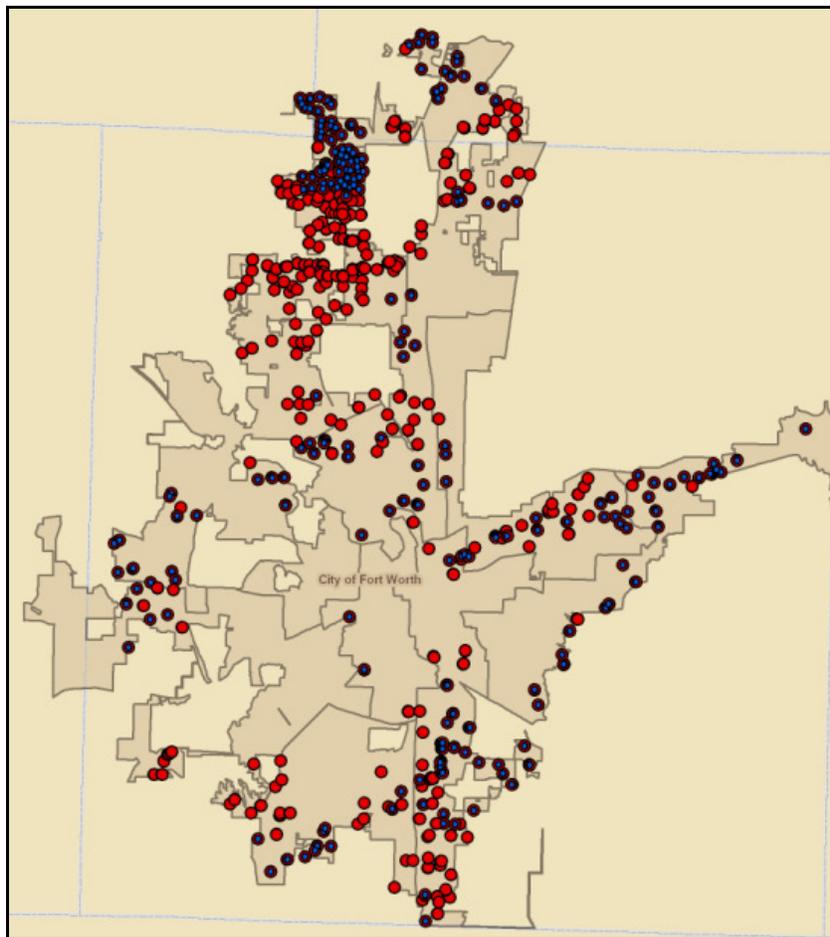
Point Source Emissions Testing: The emissions testing of point sources resumed on January 4, 2011. This testing is being conducted at natural gas well pads and other sites with natural gas processing activity. At each point source tested, field crews used an “infrared

camera” (IR camera) to determine which sources have the highest emissions. In addition to using the IR camera, toxic vapor analyzers (TVAs) and HiFlow samplers are used to measure the rate that pollutants are released to the air. Summa Canisters are then used to collect gas samples that are analyzed at the lab to determine the presence of air toxics such as benzene and toluene.

During the week of January 4, the ERG team’s field surveyors visited 28 well pads containing 96 wells. The following week, 39 well pads containing 106 individual wells were visited. Across these 67 sites, 29 air samples were collected in Summa Canisters and sent to the laboratory for analysis.

Through January 15, the point source team has visited 256 well pads representing 711 wells, 7 compressor stations, a drilling site, an active fracturing site, the Brentwood Saltwater facility, a gas processing plant, and a flowback/well completion site. At these locations, 102 Summa Canister samples have been collected. These samples will be used to estimate emission rates for volatile organic compounds (VOCs) and individual toxic chemicals (like benzene).

The figure below presents a graphical representation of the well sites that were tested under Phase I (red dots represent active wells, blue dots represent tested wells). This figure will be updated at the conclusion of Phase II of the point source testing to illustrate the location of all well sites tested under this program.



Phase I Point Source Well Testing Locations