



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

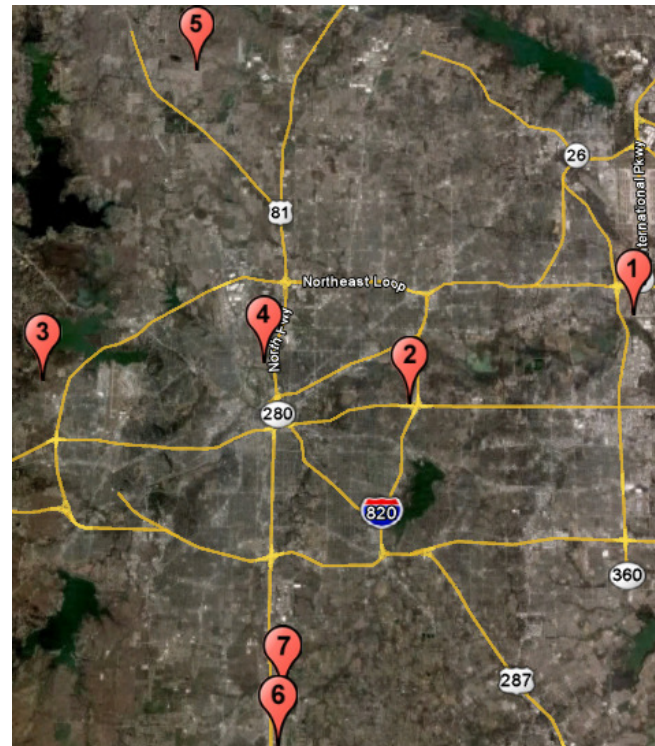
Date: October 29, 2010
To: City of Fort Worth
From: Eastern Research Group, Inc. (ERG)
Re: Natural Gas Air Quality Study Biweekly Update #5: October 11 – October 24

Activity Summary: Between October 11 and October 24, ERG and its subcontractors continued with field activities for the Natural Gas Air Quality Study. Both ambient air monitoring and point source emissions testing continued during this period, in accordance with specifications in the approved project plans. Additional details on ambient air monitoring and point source emission testing field activities follow.

Ambient Air Monitoring: Ambient air monitoring continued at seven monitoring stations from October 11 through October 24. Site 3 was moved on October 9 from a flowback operation to a fracturing operation on the west side of the city. The figure below shows the location of each of the seven monitoring sites.

Over this 2 week period, air samples were scheduled to be collected on October 13, 16, 19, and 22. We continue to have great success in sample collection, as all samples on these dates were collected as scheduled from all seven monitoring sites. The table below summarizes sample collection statistics from September 4 through October 24.

Monitoring Site	Number of Samples Collected	Number of Samples Scheduled	Collection Percentage
1	17	17	100%
2	15	17	88%
3	13	13	100%
4	34	34	100%
5	33	34	97%
6	16	17	94%
7	15	17	88%
Total	143	149	96%



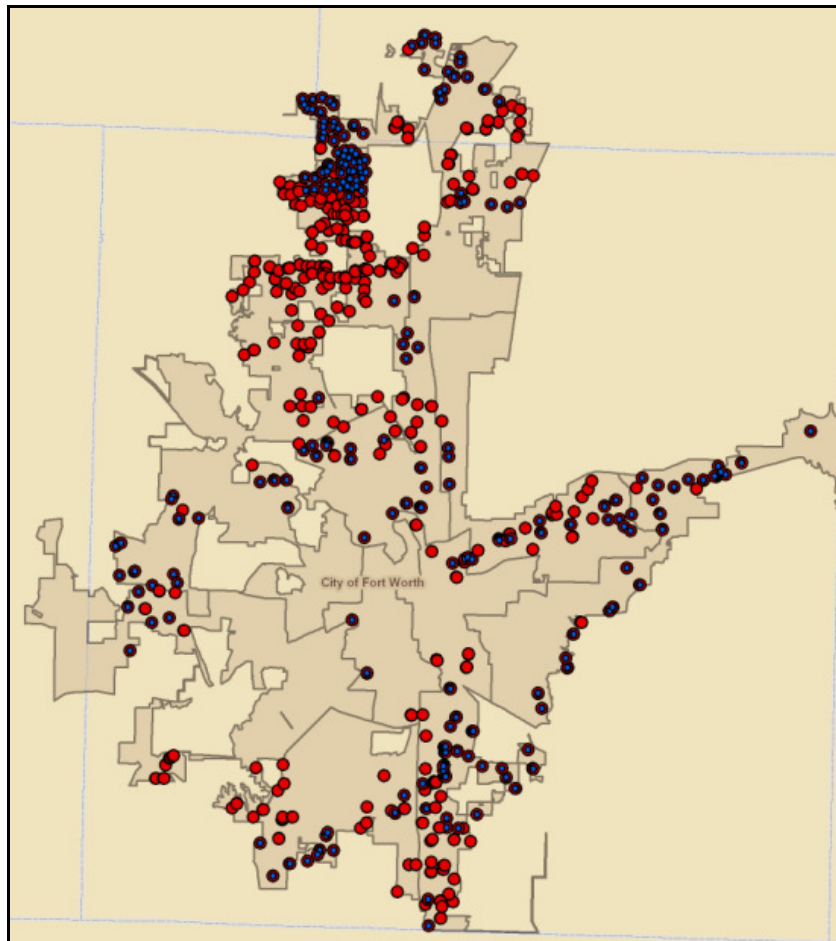
(Note: Most sites had seventeen scheduled sampling dates since September 4. Monitoring sites 4 and 5 had twice as many scheduled samples, because two different types of air samples are collected at these locations. Monitoring site 3 had only thirteen scheduled samples, because this station was installed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

Location of Ambient Air Quality Monitors

Point Source Emissions Testing: The emissions testing of point sources continued from October 11 through October 24. This testing is being conducted at well pads, compressor stations, 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 October 11, the ERG team’s field surveyors visited 24 well pads containing 67 wells, and a gas processing plant. The following week, 25 well pads containing 70 individual wells were visited, and the point source team conducted testing at the Brentwood Saltwater Recycling/Evaporation unit and injection well, and at a hydraulic fracturing operation. Across these 52 sites, 18 air samples were collected in Summa Canisters and sent to the laboratory for analysis.

Through October 24, the point source team has visited 189 well pads representing 509 wells, 8 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, 73 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 have been tested (red dots represent active wells, blue dots represent tested wells).



Point Source Well Testing Locations