

**Mobile Monitoring Team Sampling Plan
Barnett Shale Phase II Monitoring Project
Region 4 Area
October 9 - 16, 2009**

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APPROVAL PAGE

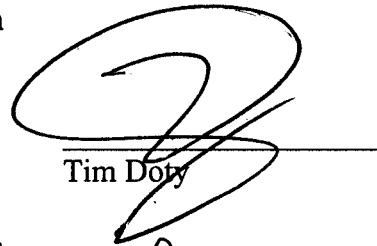
Air Laboratories and Quality Assurance Section Sampling Plan

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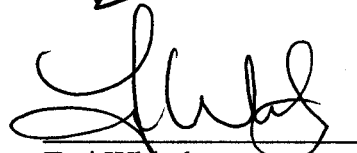
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A. SCOPE

Introduction

This Mobile Monitoring Team Sampling Plan describes the scope, organization, roles and responsibilities, data quality objectives (DQOs), and project-specific policies and procedures for the **Barnett Shale Phase II Monitoring Project**. This project may be identified by **ACL #090920**. This plan is intended as a guide. Unforeseen conditions that may arise in the field may necessitate modifications to this plan.

Project Description

This project has been requested by Texas Commission on Environmental Quality executive management, the Chief Engineer's Office, and Region 4 staff. The project is a follow-up to the Barnett Shale Formation Survey Project that took place August 24 – 28, 2009, and will be conducted from approximately October 9 - 16, 2009. Ambient air monitoring will occur in Denton, Wise, Parker, Johnson, and Tarrant counties.

This project involves measuring volatile organic compounds (VOCs) by real-time gas chromatography using an Agilent 6890N Gas Chromatograph equipped with dual Flame Ionization Detectors. In addition, passivated, stainless steel canisters will be used to collect air samples for a general organic screen of 84 compounds. These canisters will be analyzed by the Organic Analysis Laboratory. Analysis of oxides of nitrogen (NO_x) in ambient air will be conducted using a Teledyne API 200E Analyzer.

Personnel will also use the FLIR Systems ThermaCAM™ GasFind Infrared (IR) camera to conduct video surveillance and identify potential sampling sources. A Toxic Vapor Analyzer (TVA)-1000 will be used to provide detection and estimation of total organic vapor concentrations. The TVA and IR camera are screening tools utilized during patrols throughout the areas of interest to search for maximum ground level concentrations, identify specific emission sources, and determine suitable sampling locations for real-time GC and canister sampling.

Downwind sampling platforms will be equipped to collect real-time wind direction, wind speed, and temperature data. The sample and image collection locations will be documented using global positioning system (GPS) equipment.

Project Organization

Project Leader

The project leader is responsible for resource, personnel, and materials coordination for the project, as well as the sampling plan and final report summary preparation.

Quality Control (QC) Coordinator

The QC Coordinator is responsible for the final review of the QC data.

Safety Officer

The safety officer is responsible for ensuring that all accidents/incidents/near misses are investigated, documented, and reported to the Division Safety Officer, all safety checklists are completed and forwarded, and safety-related issues are resolved.

Individual Analysts

Individual analysts are responsible for sample collection, QC sample collection, and documentation procedures required in the Standard Operating Procedures (SOPs) for the methods performed.

B. MEASUREMENT AND DATA ACQUISITION

Sampling Method Requirements

The sampling SOPs to be used for this project are listed in Table 1. For more detailed information on the analytical procedures, see the individual SOPs.

Table 1: Summary of Sampling Methods

Analytical Parameter	Sampling/ Analytical Method	Sample Preparation	Collection Media	Flow Rate	Sample Collection Period	Sample Volume	Sample Preservation	Media Hold Time (days)
Real-time Analysis of Organic Compounds in Ambient Air	SOP AMOR-001	NA	Sample Loop	50-100 ml/min	<1 minute	2 ml loop	NA	NA
Analysis of NOx in Ambient Air using Teledyne API 200E	SOP AMIN-021	NA	NA	400 – 600 ccm	NA	NA	NA	NA
Operation of FLIR Systems THERMACAM GasFindIR Camera	SOP SAMP-020	NA	NA	NA	NA	NA	NA	NA
VOCs Using Summa Canisters	SOP SAMP-008	Cryogenic microscale purge and trap	Passivated canisters	2-6,000 ml/min	Approx. 15 - 30 seconds	≤6 liters	NA	90
Operation of Starlink Invicta 210S, TDS GPS and Solo CE Software	SOP SAMP-023	NA	NA	NA	NA	NA	NA	NA
Operation of TVA-1000	SOP AMOR-021	NA	NA	1,000 ccm	3.5 seconds	NA	NA	NA

NA = not applicable.
 ml = milliliter
 min = minute
 ccm = cubic centimeters

Data Quality Objectives

Project DQOs are described in terms of accuracy, precision, sensitivity, and analytical data capture. The analytical data capture, defined as the percentage of samples successfully prepared and analyzed as compared to the total number of samples analyzed, is expected to be 75 percent or higher for all analyses.

Method-specific QC requirements for the data collected during this project are presented in each sampling SOP. A copy of each applicable SOP is placed in Trip Notebooks prepared for each sampling vehicle.

C. DISTRIBUTION LIST

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