

**GHG Emission Factor Development Project for Selected  
Sources in the Natural Gas Industry**

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Quarterly Progress Report

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Submitted to

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## **Project Overview**

Methane (CH<sub>4</sub>) is the primary component of natural gas and is also a potent greenhouse gas (GHG). Emissions of CH<sub>4</sub> from natural gas production, processing, and distribution are among the top ten source categories of greenhouse gas emissions in the United States, expressed on a CO<sub>2</sub> equivalent basis. The overall goal of the project is to update default CH<sub>4</sub> emission factors for selected processes and equipment used in the natural gas industry. The default emission factors will be updated by compiling and synthesizing existing data for a variety of source categories and by acquiring new emission rate measurement data for selected sources where existing data have unacceptably large uncertainties or are insufficiently representative of current practices or equipment.

The project is organized into four tasks:

- *Task 1, Data Synthesis and Gap Analysis:* The purposes of this task are to: (1) identify, compile, and synthesize existing CH<sub>4</sub> emission factor and activity factor data; (2) critically review the quality and representativeness of the existing data; (3) recommend and prioritize emission source characteristics for new data collection efforts under Task 3.
- *Task 2, Technical Plan Development:* The purpose of this task is to develop technical work plans and detailed cost estimates for conducting data collection and measurement studies aimed at filling the emission data gaps identified in Task 1. In doing so, we will consider the range of potential activity data metrics that could be used for updating default emission factors and gather preliminary data on relevant metrics to ensure that all the major subgroups of equipment or processes are taken into account.
- *Task 3, Measurements and Analysis:* The purposes of this task are to: (1) execute the technical plans developed in Task 2, contingent on authorization by EPA; and (2) analyze the resulting data to develop new default emission factors and uncertainty estimates for the measured sources.
- *Task 4, Reporting and Dissemination:* The purpose of this task is to report on the default emission factors developed in Tasks 1 and 3 of this study, including the methods used in the process. Reporting and communication with stakeholders will be integrated into all of the tasks and a final reporting will disseminate project results.

## **Progress on Tasks**

### ***Task 1***

A draft review of sources of emission factor and/or activity factor data that may have relevance to the natural gas sources of interest was prepared at the end of 2008. A series of stakeholder conference calls to solicit input on the report were organized (calls were held beginning in January, 2009) and an updated literature review was prepared. The updated review, dated March 31, 2009, was posted to the project web site:

(<http://www.utexas.edu/research/ceer/GHG/tasks.htm> )

On a subsequent conference call (May 12, 2009), stakeholders identified additional reports and reports that, while not currently available, would likely become available during the lifetime of the project. These reports will be incorporated into the Task 1 report as they emerge, so the report will continue to be updated throughout the project.

### ***Task 2***

During the first quarter of 2009 a work plan specifying methods and procedures for gathering additional data needed for updating factors used for estimating methane emissions from centrifugal and reciprocating compressors used in natural gas processing was drafted. A series of stakeholder conference calls to solicit input on the plan were organized (calls were held beginning in January, 2009). A second draft of the work plan was added to the project web site: (<http://www.utexas.edu/research/ceer/GHG/tasks.htm> ). During the third quarter, final updates were made to the Quality Assurance Project Plan for compressor sampling, in anticipation of sampling beginning in the fourth quarter.

During the second and third quarters of 2009, the focus was on identifying compressor sampling sites. At least 4 different companies considered opening multiple sites to the study team. During the third quarter, negotiations for site access reached the final stages with 2 of the companies. Full execution of the site access agreements occurred in October 2009, with data collection scheduled to begin in November. Both of these companies have made multiple sites available for sampling, with multiple compressors at each site. Based on experiences with these two companies, it will be determined if revisions to the site access agreements are needed, and after the initial sampling with the first two companies is completed, development of access agreements will move forward with the additional companies. The University has also procured additional liability insurance through November 2010, with an option to extend coverage, if necessary.

### **Plans for Next Quarter**

#### ***Task 1***

The literature review will be updated, as appropriate, on an on-going basis.

#### ***Task 3***

With site access agreements finalized, the first group of compressors will be sampled during November, 2009 at multiple sites. This first sampling event will be used to establish detailed cost estimates for the first group of measurements. These cost estimates will then be used by the study team, the EPA and the stakeholder group to establish priorities for compressor measurements.