1 Greenhouse Gas Emissions Management for Facilities in the Pipeline Industry – A Practical Approach

1.1 Course Description

This course allows participants to gain a holistic view of greenhouse gas (GHG) emissions, focused on pipeline facilities (e.g., compressors, pump stations). The course covers key concepts to align participants' understanding of GHGs, their impacts, and the drivers for effective management. With an emphasis on facilities-specific aspects of GHG emissions management, an industry-leading Subject Matter Expert instructor will guide participants through a combination of lectures and interactive learning activities associated with each phase of the GHG emissions management framework, enabling learners to practice key skills and apply course content through simplified scenarios or case studies.

In particular, this course allows participants access to the PRCI CO_2e Economic Analysis Tool (PR-663-20208-Z03) developed as a part of the CPS-17-06 project, for use during interactive learning activities.

Format: In-Person

Duration: 3 days

Recommended Prerequisite Courses:

- Fundamentals of Greenhouse Gas Emissions Management

Required Materials:

- The CO2e Economic Analysis Tool (PR-663-20208-Z03).
  - Purchase at a 25% discount by entering code "EconTool-25" at checkout.

1.2 Learning Objectives

By the end of the course, participants should be able to:

1 Articulate the definition of GHGs and their associated impacts.

2 Identify the regulations, codes, and standards that create requirements or offer guidance for managing GHG emissions for pipeline facilities.

3 Explain, for facilities, the three main sources of GHG emissions in the pipeline industry (i.e., combustion, vented, and fugitive) and their significance at each stage of the pipeline lifecycle.

4 Identify the four main methods for quantifying GHG emissions and their applications and limitations.
- *The methods covered are direct measurement, material balance, engineering data, and emission factors.*

5 Complete GHG emissions quantification example calculations based on idealized scenarios and datasets.
- *Learners will practice using the four methods to quantify/estimate emissions. They will apply them to realistic but simplified scenarios that demonstrate the mechanics and theory of each method, providing an opportunity to discuss the practical aspects of real-world application.*

6 Identify key challenges and sources of uncertainty associated with GHG emissions management for the pipeline industry.
- *The course introduces many practical challenges, pitfalls, and sources of uncertainty that uniquely affect GHG management practitioners in the pipeline industry (e.g., regulatory and jurisdictional variation, complex owner-operatorship structures, and the inherent cross-disciplinary collaboration involved in management)*

7 Describe a framework for GHG emissions management and apply the framework via a case study/scenario.
- *The course introduces a 4-Phase framework representing the development and deployment of a GHG emissions management program. Accompanying this topic is a cumulative learning activity, in which learners act as a working group carrying out key tasks in a simulated run-through of each phase of the management framework*

8 Compare emission reduction options using the CO2e Economic Analysis Tool (CEAT).

1.3 Who Should Take This Course

The course is best suited for:

- Individuals with an engineering/ technical background who are involved with the topic area, have a basic understanding of concepts, and are looking to extend their skills to a pipeline facilities context.
- Individuals with a basic understanding of pipeline design, construction, and operation, looking to become more familiar with the principles of GHG emissions management.

1.4 Course Topics

Main topic areas covered in this course include:

- **Day 1:**
  - Topic 1: Background – Greenhouse Gases and Their Impacts
    - Greenhouse Gases
    - GHGs of Concern
    - Representing GHGs and Emissions
    - Drivers for GHG Emissions Management
    - Codes, Standards, and Industry Guidance
  - Topic 2: Classifying, Quantifying, and Reducing Emissions for Pipeline Facilities
    - Course Context: Pipeline Facilities
    - Classifying GHG Emissions: Emissions Inventories
- **Day 2:**
  - Topic 2 (Continued): Classifying, Quantifying, and Reducing Emissions for Pipeline Facilities
    - Quantifying Emissions
    - Emissions Reduction
    - The CO2e Economic Analysis Tool
- **Day 3:**
  - Topic 3: A Framework for GHG Emissions Management
    - Overview of the Management Framework
    - Phase 1: Set the Boundaries of the GHG Emissions Management Program
    - Phase 2: Establish the Base Year Inventory and Quantify Emissions
    - Phase 3: Develop a Detailed GHG Emissions Management Program
    - Phase 4: Implement the GHG Emissions Management Program