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Northeast Wisconsin Technical College

## **31-469-320 023865 Gas Utility Field Training 2**

### **Course Outcome Summary**

#### **Course Information**

<b>Description</b>	31-469-320 GAS UTILITY FIELD TRAINING 2 ...natural gas line installation standards for plastic pressure testing, fusion, leak detection procedures, general installation procedures and repair of plastic mains and services, introduction to propane gas systems and safety. (Prerequisite: 31-469-311, Gas Utility Field Training 1)
<b>Total Credits</b>	5
<b>Total Hours</b>	180

#### **Course History**

<b>Last Revision Date</b>	8/28/2020
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#### **Employability Skills**

Communicate Effectively  
Demonstrate Personal Accountability  
Solve Problems Effectively  
Think Critically and Creatively  
Value Individual Differences and Abilities  
Work Cooperatively and Professionally

#### **Program Outcomes**

TSA1 - Install gas piping for natural and propane gases  
TSA2 - Adhere to OSHA Safety procedures  
TSA3 - Maintain gas distribution systems  
TSA4 - Service gas appliances

#### **Course Competencies**

1. **Explain Gas Distribution Systems**

### **Assessment Strategies**

by explaining Gas Distribution Systems  
by drawing a diagram of a Gas Distribution System.  
by explaining a list of materials and their uses.

### **Learning Objectives**

- 1.a. Differentiates Components
- 1.b. Lay out a list of materials used in the system.
- 1.c. Construct a working diagram of the system.
- 1.d. Describes the Total System
- 1.e. Lists Sequence of Installation
- 1.f. Discusses Economics of Installation

### **Criteria**

*Your performance will be successful when:*

Receives an overall grade of 80% or better on MEA objective tests with 100% on critical questions

you make a list of materials and explain their uses in a Gas Distribution System.

Presents a diagram to the class according to instruction sheet. Must include: gate station and functions, district regulator station, mains, types of material, sizes, services, types of material, sizes, and types of customers

you make a diagram includes gate station and function

you make a diagram includes district

## **2. Install plastic gas mains**

### **Assessment Strategies**

Install main in field lab

Follow proper procedures

Assume foreman responsibilities

### **Learning Objectives**

- 2.a. Plan and laying out the installation of a gas main
- 2.b. Determine the methods that will be used in the installation
- 2.c. Summarize the Codes and Standards that will be followed
- 2.d. Construct and install a gas main
- 2.e. Demonstrate how to cross roads and other utilities
- 2.f. Plan and laying out the installation of a gas main
- 2.g. Demonstrate purging a gas main
- 2.h. Demonstrate pressure testing a gas main
- 2.i. Demonstrate backfilling and restoration of a excavation

### **Criteria**

*Your performance will be successful when:*

Receives an overall grade of 80% or better on MEA objective tests with 100% on critical questions

Prepare a drawing of the completed main installation including measurements.

Demonstate that all procedures were followed.

Produce quality fusions of joining plastic gas pipe

Plan and install gas main

## **3. Install Gas Service PE**

### **Assessment Strategies**

Install gas service in field lab

Follow proper procedures

Assume foreman responsibilities

### **Learning Objectives**

- 3.a. Plan and laying out the installation of a gas service
- 3.b. Demonstrate tapping procedures of a gas service
- 3.c. Determine the methods that will be used in the installation
- 3.d. Summarize the Codes and Standards that will be followed
- 3.e. Costruct and install a gas service
- 3.f. Prepare and construct a main connection

- 3.g. Demonstrate purging a gas service
- 3.h. Demonstrate pressure testing a gas service
- 3.i. Demonstrate backfilling and restoration of an excavation

**Criteria**

*Your performance will be successful when:*

- Receives an overall grade of 80% or better on MEA objective tests with 100% on critical questions
- Produce quality fusions of joining plastic gas pipe
- Demonstrate that all procedures were followed.
- Prepare a drawing of the completed service installation including measurements.
- Plan and install gas service

**4. Install meters and regulators**

**Assessment Strategies**

- by installing and setting up 5 different meter and regulator sets
- by reading 25 meters with no errors

**Learning Objectives**

- 4.a. Construct and install a prefab meter bar
- 4.b. Demonstrate how to test a regulator
- 4.c. Demonstrate the installation of a residential meter
- 4.d. Demonstrate how to read a gas meter
- 4.e. Complete paperwork

**Criteria**

*Your performance will be successful when:*

- you can install a meter set
- you complete the paperwork necessary for a gas meter
- you can complete exercises with no leaks
- you can install and set a regulator
- you can read a meter correctly
- you can identify different pressures used by regulators
- you can perform the purging of a gas meter

**5. Install and Maintain Valves**

**Assessment Strategies**

- when you grease the different types of valves in the field
- when you can read a mapping system showing valves
- when you install and operate a main valve in the field

**Learning Objectives**

- 5.a. Identify the different types of valves
- 5.b. Prepare a mapping system showing valves
- 5.c. Complete and explain valve maintenance
- 5.d. Demonstrate proper valve installation
- 5.e. Identify and recognize Isolation Sections

**Criteria**

*Your performance will be successful when:*

- you receive an overall grade of 80% or better on MEA objective tests with 100% on critical questions
- you grease the different steel gas valves in the field
- you install a main valve
- you operate a main valve
- you demonstrate proper use of high pressure grease gun

**6. Maintaining Gas Systems**

**Assessment Strategies**

- by complete leak investigation
- by making emergency repairs

### **Learning Objectives**

- 6.a. Show how to perform a gas leak investigation
- 6.b. Classify and recognize emergency conditions
- 6.c. Outline emergency procedures
- 6.d. Demonstrate how to make emergency repairs

### **Criteria**

*Your performance will be successful when:*

- you receives an overall grade of 80% or better on MEA objective tests with 100% on critical questions
- you perform a complete leak investigation
- you extinguish a gas pit fire and gas meter fire
- you complete a emergency repair on a gas main

## **7. Mapping and Record Keeping**

### **Assessment Strategies**

- by showing how to use the mapping system
- by explaining why record keeping is so important

### **Learning Objectives**

- 7.a. Illustrate mapping and property descriptions - plat books
- 7.b. Document and map gas main and service installation
- 7.c. Demonstrate how to use WPS mapping

### **Criteria**

*Your performance will be successful when:*

- you complete a map of a installed gas service
- you complete a map of a installed gas main
- you attend the WPS mapping presentation
- you demonstrate how to use the mapping system

## **8. Gas System Upgrading**

### **Assessment Strategies**

- by explaining why and how you would upgrade a gas system

### **Learning Objectives**

- 8.a. Examine MAOP Pressures
- 8.b. Explore piping and fitting inventories
- 8.c. Outline pressure increase
- 8.d. Identify leak surveys for systems upgrades

### **Criteria**

*Your performance will be successful when:*

- Receives an overall grade of 80% or better on MEA objective tests with 100% on critical questions

## **9. Abandoning mains and services**

### **Learning Objectives**

- 9.a. Review gas company procedure manuals: abandoning mains and services and purging
- 9.b. Complete MEA module 471

### **Criteria**

*Your performance will be successful when:*

- Receives an overall grade of 80% or better on MEA objective tests with 100% on critical questions

## **10. Prepare site for traffic and worker protection**

### **Assessment Strategies**

- by preparing site for traffic and worker protection

### **Learning Objectives**

- 10.a. Apply worker protection
- 10.b. Explain the DOT procedures for traffic control and safety
- 10.c. Develop a plan for traffic control and hazard practice
- 10.d. Practice safety control on campus road

**Criteria**

*Your performance will be successful when:*

you receive an overall grade of 80% or better on MEA Energy U online course  
you implement a written plan for traffic control

**11. Demonstrate pipe burial methods**

**Assessment Strategies**

by performing a pipe burial

**Learning Objectives**

- 11.a. Explain the use of oiler
- 11.b. Use trencher to plow in service line
- 11.c. Complete road boring exercise

**Criteria**

*Your performance will be successful when:*

you receive an overall grade of 80% or better on MEA Energy U online course  
you bore a 30 foot crossing to proper depth in horizontal and vertical directions  
you operate a vibrator plow to plant gas line

**12. Join Plastic Pipes with heat fusion using saddle fusion process**

**Assessment Strategies**

by joining plastic pipes with heat fusion using saddle fusion process

**Learning Objectives**

- 12.a. Review different fittings used in electro fusion joints
- 12.b. Inspect electrofusion control box
- 12.c. Review procedures for joining pipes
- 12.d. Prepare pipe and fitting for electrofusion
- 12.e. Observe a distinctive review of fitting integrity
- 12.f. Critique inspection of completed joints
- 12.g. Cut joint to inspect melt

**Criteria**

*Your performance will be successful when:*

you prepare and complete electrofusion joint  
you receive a grade of 80% or better on MEA tests with 100 % on critical questions  
your joints pass visual inspection  
your joints do not leak