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Northeast Wisconsin Technical College

31-469-311 059790 Gas Utility Field Training 1

Course Outcome Summary

Course Information

Description	31-469-311 GAS UTILITY FIELD TRAINING 1 ...construction equipment safety and operation (trenching, backhoe, boring), equipment maintenance, gas and vehicular safety, and field mapping. (Prerequisite: Accepted into Gas Utility Construction & Service)
Total Credits	5
Total Hours	180

Course History

Last Revision Date	6/12/2017
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Employability Skills

Communicate Effectively
Demonstrate Community and Global Accountability
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 Characteristics and Hazards of Propane & Natural gas**

Assessment Strategies

by explaining the characteristics and hazards of propane and natural gas

Learning Objectives

- 1.a. Record properties of natural gas
- 1.b. Record properties of LP gas
- 1.c. Explain fire tetrahedron
- 1.d. Outline combustion characteristics of natural gas
- 1.e. Plan natural gas safety

Criteria

Your performance will be successful when:

- you receives an overall grade of 80% or better on MEA Energy U online course
- you define the explosive limits of natural gas
- you define the explosive limits of propane gas
- you state the ignition temperature of natural gas
- you state the ignition temperature of propane gas
- you state the physical properties of natural gas
- you state the physical properties of propane gas
- you define the combustion characteristics of natural gas
- you define the combustion characteristics of propane gas

2. Operate tools in the gas industry in a safe manner

Assessment Strategies

by operating tools in the gas industry in a safe manner

Learning Objectives

- 2.a. Differentiate common hand tools
- 2.b. Differentiate common power tools
- 2.c. Explain safe operations of hand and power tools
- 2.d. Inspect power tools
- 2.e. Inspect hand tools

Criteria

Your performance will be successful when:

- you receives an overall grade of 80% or better on MEA Energy U online course
- you identify purpose of hand tools
- you define the safety associated with hand tools
- you identify purpose of power tools
- you define the safety associated of power tools

3. Operate vehicles commonly used by the gas industry

Assessment Strategies

by operating vehicles commonly used by the gas industry

Learning Objectives

- 3.a. Use battery jumper cables
- 3.b. Back vehicle with use of spotter
- 3.c. Safely operate service truck
- 3.d. Safely operate crew truck
- 3.e. Safely operate fusion vans

Criteria

Your performance will be successful when:

- you receives an overall grade of 80% or better on MEA Energy U online course
- you safely drive vehicle with manual transmission
- you back vehicle safely with spotter
- you perform a pre trip inspection
- you use jumper cables to restart vehicles

you obtain skills to receive CDL permit

4. Demonstrate Personal Protective Equipment (PPE)

Assessment Strategies

by demonstrating personal protective equipment (PPE)

Learning Objectives

- 4.a. Prescribe to proper use of equipment
- 4.b. Recommend safe work practices
- 4.c. Explain OSHA requirements.
- 4.d. Explain daily inspection of each PPE

Criteria

Your performance will be successful when:

you receive an overall grade of 80% or better on MEA Energy U online course
you explain OSHA PPE requirements
you complete daily inspection of PPE
you use personal protective equipment (PPE) in daily work

5. Operate Backhoe/Loader

Assessment Strategies

by operating a backhoe

Learning Objectives

- 5.a. Complete servicing and maintaining of equipment
- 5.b. Become familiar with equipment controls
- 5.c. Practice equipment operation
- 5.d. Dig a trench to specifications
- 5.e. Back fill a trench with front end loader

Criteria

Your performance will be successful when:

you receives an overall grade of 80% or better on MEA Energy U online course
you grease construction equipment
you check fluid levels of equipment
you safely operate a backhoe/loader
you dig a trench to specifications
you back fill a trench with front end loader to specifications

6. Operate Trenchers

Assessment Strategies

by operating a trencher

Learning Objectives

- 6.a. Complete servicing and maintaining of equipment
- 6.b. Become familiar with equipment controls
- 6.c. Practice equipment operation
- 6.d. Dig a trench to specifications
- 6.e. Fill a trench with backfill blade

Criteria

Your performance will be successful when:

you receive an overall grade of 80% or better on MEA Energy U online course
you grease construction equipment.
you check fluid levels of equipment
you safely operate a trencher
you dig a trench to specifications
you fill a trench with backfill blade to specifications

7. Operate Compressors

Assessment Strategies

by operating a compressor

Learning Objectives

- 7.a. Differentiate between pull behind and truck mounted compressors
- 7.b. Complete servicing and maintaining of equipment
- 7.c. Demonstrate equipment operation
- 7.d. Operate Air Tools

Criteria

Your performance will be successful when:

you check all fluid levels
you become familiar with operation & controls of each compressor
you perform start up of compressor
you perform operation of compressor
you become familiar safety requirements of each compressor
you connect air hoses to tools: jack hammer, air spade, tamper
you operate tools: jack hammer, air spade, tamper

8. Join Plastic Pipes with heat fusion using butt fusion process

Assessment Strategies

by joining plastic pipes with heat fusion using butt fusion process

Learning Objectives

- 8.a. Prepare plastic pipe for butt fusion
- 8.b. Operate butt fusion equipment
- 8.c. Identify industry standards for butt fusion joints
- 8.d. Demonstrate butt fusion process
- 8.e. Visually inspect all joints

Criteria

Your performance will be successful when:

you receive an overall grade of 80% or better on MEA Energy U online course
you fuse butt fusion joints per industry standards
you visually inspect butt fusion joints

9. Join Plastic Pipes with heat fusion using socket fusion process

Assessment Strategies

by joining plastic pipes with heat fusion using socket fusion process

Learning Objectives

- 9.a. Complete a socket fusion joint
- 9.b. Prepare plastic pipe for socket fusion
- 9.c. Operate socket fusion equipment
- 9.d. Identify industry standards for socket fusion joints
- 9.e. Demonstrate socket fusion process
- 9.f. Visually inspect all joints

Criteria

Your performance will be successful when:

you receive an overall grade of 80% or better on MEA Energy U online course
you fuse socket fusion joints per industry standards
you visually inspect socket fusion joints

10. Prepare for excavation hazards

Assessment Strategies

by preparing for excavation hazards

Learning Objectives

- 10.a. Apply worker protection in excavations
- 10.b. Become familiar with OSHA excavation safety
- 10.c. Identify OSHA competent person
- 10.d. Identify type A,B and C soils
- 10.e. Determine correct slopes
- 10.f. Use of trench shoring

Criteria

Your performance will be successful when:

Receives an overall grade of 80% or better on MEA Energy U online course
identifies soil type from samples
identifies correct sloping for excavations

11. Demonstrate confined space entry and rescue requirements

Assessment Strategies

by demonstrating confined space entry and rescue requirements.

Learning Objectives

- 11.a. Define OSHA confined space requirements
- 11.b. Define environmental monitoring requirements
- 11.c. Use pre-entry checklist

Criteria

Your performance will be successful when:

you demonstrate using specific monitoring equipment
you demonstrate how measure environment using four-gas monitoring equipment
you complete pre-entry checklist per OSHA standards
you demonstrate the use of rescue equipment

12. Locate underground facilities

Assessment Strategies

by locating underground facilities

Learning Objectives

- 12.a. Differentiate types of pipe locators
- 12.b. Maintain pipe locators
- 12.c. Operate pipe locators

Criteria

Your performance will be successful when:

you receive an overall grade of 80% or better on MEA Energy U online course
you confirm location of pipe using the conduction method
you confirm location of pipe using the 1 person inductive method
you confirm location of pipe using the 2 person inductive method
you mark location of facility per industry standards

13. Perform tracer wire connections

Learning Objectives

- 13.a. Identify common types of wire splices
- 13.b. Install tracer wire using western union splices
- 13.c. Install tracer wire using pigtail splices
- 13.d. Be aware of mechanical wire splices

Criteria

Your performance will be successful when:

you receive an overall grade of 80% or better on MEA Energy U online course
you prepare, solder, and tape a #14 tracer wire using a western union splice
you complete a western union and pigtail wire splice per industry standards
you prepare, solder, and tape a #14 tracer wire using a pigtail splice

14. Become familiar with OQ (Operator Qualifications) used in gas utility industry

Assessment Strategies

by becoming familiar with the OQ (Operator Qualifications) used in the gas utility industry

Learning Objectives

- 14.a. Explain the history of the gas utility OQ (Operator Qualifications) program
- 14.b. Recognize OQ covered tasks requirements
- 14.c. Recognize AOC (Abnormal Operating Conditions) associated with covered tasks

Criteria

Your performance will be successful when:

- you receive an overall grade of 80% or better on MEA Energy U online course
- you identify AOC (Abnormal Operating Conditions)
- you identify OQ covered tasks