

## Lesson Plans for Module AOCFG-17

# ABNORMAL OPERATING CONDITIONS – FIELD AND GAS

**Module AOCFG-17** describes how field personnel recognize and properly react to abnormal operating conditions (AOCs) that may occur during pipeline operations. Trainees will learn about the federal regulations and agencies governing the operation of gas and liquid pipelines.

### Objectives

#### Learning Objective 1

- Explain how to recognize abnormal operating conditions for both gas and liquid pipelines.
  - a. Explain how to recognize abnormal pipeline facility conditions.
  - b. Explain how to recognize the activation of a safety device.
  - c. Explain how to recognize a communications failure and a control system failure.
  - d. Explain how to recognize power interruptions.
  - e. Explain how to recognize a fire, explosion, and natural disaster occurring in the vicinity of the pipeline.
  - f. Explain how to recognize the unexpected release of hazardous liquid or gas.
  - g. Explain how to recognize unexplained pressure/flow rate changes.

#### Learning Objective 2

- Describe the proper reaction to abnormal operating conditions for both gas and liquid pipelines.
  - a. Describe the proper reaction to abnormal pipeline facility conditions.
  - b. Describe the proper reaction to the activation of a safety device.
  - c. Describe the proper reaction to a communications failure and a control system failure.
  - d. Describe the proper reaction to power interruptions.
  - e. Describe the proper reaction to a fire, explosion, and natural disaster occurring in the vicinity of the pipeline.
  - f. Describe the proper reaction to the unexpected release of hazardous liquid or gas.
  - g. Describe the proper reaction to unexplained pressure/flow rate changes.

#### Performance Tasks

- This is a knowledge-based module; there are no performance tasks.

### Teaching Time: 5 hours

(Two 2.5-Hour Classroom Sessions)

Session time may be adjusted to accommodate your class size, schedule, and teaching style.

### Before You Begin

As you prepare for each session, allow sufficient time to review the course objectives, content, visual aids (including the PowerPoint® presentation), and these lesson plans, and to gather the required equipment and materials. Consider time required for demonstrations, laboratories, field trips, and testing.

Using your access code, download the PowerPoint presentations from [www.nccerirc.com](http://www.nccerirc.com). For information and updates about accessing the Module Examinations, visit [www.nccer.org/testing](http://www.nccer.org/testing). The passing score for submission into NCCER's Registry is 70 percent or above for the Module Examination.



## **Safety Considerations**

This module does not include Performance Tasks, and as such, no PPE is required for completion of this module. However, trainees should consistently be reminded of all dangers presented by abnormal operating conditions in pipeline work. It should also be stressed that personnel safety is a priority.

## **Classroom Equipment and Materials**

Whiteboard/chalkboard

Markers/chalk

Pencils and paper

PowerPoint® Presentation Slides

Computer

Copies of the Module Examination

Vendor-supplied videos/DVDs showing abnormal operating conditions (*optional*)

TV/DVD player

## **Additional Resources**

The following recommended resources can provide additional helpful information related to the requirements for this covered task:

*Code of Federal Regulations 49, Parts 192 and 195*

*OSHA Occupational Safety and Health Standards 1910, Subpart L, Standard 1910.157.*

There are a number of online resources available for trainees who would like more information on abnormal operating conditions. A search for additional information may be assigned as homework to interested trainees.

# Lesson Plans for Module AOCCC-17

## ABNORMAL OPERATING CONDITIONS – CONTROL CENTER

**Module AOCCC-17** describes how control center personnel recognize and properly react to abnormal operating conditions (AOCs) that may occur during pipeline operations. Trainees will learn about the federal regulations and agencies governing the operation of gas and liquid pipelines.

### Objectives

#### Learning Objective 1

- Explain how to recognize abnormal operating conditions in a control center for both gas and liquid pipelines.
  - a. Explain how to recognize abnormal facility conditions and pipeline system damage.
  - b. Explain how to recognize the activation of a safety device.
  - c. Explain how to recognize a communications failure and a control system failure.
  - d. Explain how to recognize power interruptions.
  - e. Explain how to recognize a fire, explosion, and natural disaster occurring in the vicinity of a pipeline.
  - f. Explain how to recognize hazardous liquid or gas encounters.
  - g. Explain how to recognize an unexplained flow rate/pressure change.

#### Learning Objective 2

- Describe the proper reaction to abnormal operating conditions in a control center for both gas and liquid pipelines.
  - a. Describe the proper reaction to abnormal facility conditions and pipeline system damage.
  - b. Describe the proper reaction to the activation of a safety device.
  - c. Describe the proper reaction to communications failure and a control system failure.
  - d. Describe the proper reaction to power interruptions.
  - e. Describe the proper reaction to a fire, explosion, and natural disaster occurring in the vicinity of a pipeline.
  - f. Describe the proper reaction to hazardous liquid or gas encounters.
  - g. Describe the proper reaction to unexplained flow rate/pressure change.

#### Performance Tasks

- This is a knowledge-based module; there are no performance tasks.

### Teaching Time: 5 hours

(Two 2.5-Hour Classroom Sessions)

Session time may be adjusted to accommodate your class size, schedule, and teaching style.

### Before You Begin

As you prepare for each session, allow sufficient time to review the course objectives, content, visual aids (including the PowerPoint® presentation), and these lesson plans, and to gather the required equipment and materials. Consider time required for demonstrations, laboratories, field trips, and testing.

Using your access code, download the PowerPoint presentations from [www.nccerirc.com](http://www.nccerirc.com). For information and updates about accessing the Module Examinations, visit [www.nccer.org/testing](http://www.nccer.org/testing). The passing score for submission into NCCER's Registry is 70 percent or above for the Module Examination.



## **Safety Considerations**

This module does not include Performance Tasks, and as such, no PPE is required for completion of this module. However, trainees should consistently be reminded of all dangers presented by abnormal operating conditions in pipeline work. It should also be stressed that personnel safety is a priority.

## **Classroom Equipment and Materials**

Whiteboard/chalkboard

Markers/chalk

Pencils and paper

PowerPoint® Presentation Slides

Computer

Copies of the Module Examination

Vendor-supplied videos/DVDs showing abnormal operating conditions (optional)

TV/DVD player

## **Additional Resources**

The following recommended resources can provide additional helpful information related to the requirements for this covered task:

*Code of Federal Regulations 49, Parts 192 and 195*

*OSHA Occupational Safety and Health Standards 1910, Subpart L, Standard 1910.157.*

There are a number of online resources available for trainees who would like more information on abnormal operating conditions. A search for additional information may be assigned as homework to interested trainees.