



LIQUID PIPELINE CONTROL CENTER OPS

Competencies / Objectives

MODULE 66101-02 – INTRODUCTION TO THE PIPELINE INDUSTRY

1. Explain the basic functions and purposes of pipelines and facilities and identify the characteristics and hazards of common pipeline products.
2. Identify maps and drawings used to depict pipelines and facilities.
3. Explain the roles of control personnel and equipment in the overall operation of a pipeline.
4. Explain liquid pipeline hydraulics and gas pipeline pneumatics.
5. Explain the types and purposes of pipeline equipment.
6. Explain pipeline electrical power systems and corrosion control.
7. Review operations, maintenance, and emergency procedures and perform documentation required for pipeline operations.

MODULE 65102-02 – CONTROL CENTER ABNORMAL OPERATING CONDITIONS

1. Recognize and react to abnormal facility conditions.
2. Recognize and react to activation of a safety device.
3. Recognize and react to communications failures.
4. Recognize and react to control system failures.
5. Recognize and react to power interruptions.
6. Respond appropriately to fire, explosions, and natural disasters.
7. Recognize and react to pipeline damage.
8. Recognize and react to unexpected hazardous liquid or carbon dioxide encountered.
9. Recognize and react to unexplained flow rate deviation.
10. Recognize and react to unexplained pressure deviations.

MODULE 65103-02 – BASIC PIPELINE HYDRAULICS AND EQUIPMENT

1. Explain basic hydraulic systems.
2. Describe hydraulics as applied to pipeline operations.
3. Identify and explain basic types of hydraulic pumps and valves.
4. Describe the operation of pumps used in pipelines.
5. Identify and explain basic types of valves used in pipelines.

MODULE 65104-02 – PIPELINE COMMUNICATIONS

1. Identify and explain the internal communications requirements that are necessary to operate the pipeline and the pipeline facility.
2. Explain the communications responsibilities of the pipeline facility scheduling department.
3. Identify and explain the external communications procedures that must be followed to inform and educate the general public of pipeline issues.

MODULE 65105-02 – MONITORING PIPELINE OPERATIONS – CONTROL CENTER (CT 63.3)

1. Understand the concepts, theories, and applications of the SCADA computer system.
2. Monitor and prioritize the various alarms and functionalities of the SCADA system (CT 43.3).
3. Perform pipeline system monitoring with the SCADA system (CT 43.3).
4. Perform pipeline station monitoring with the SCADA system (CT 43.3).
5. Document pipeline activities with the SCADA system.

MODULE 65106-02 – ROUTINE CONTROL CENTER OPERATIONS (CT 63.1, 63.2, AND 63.4)

1. Understand the theories, concepts, and operation of tanks.
2. Explain and perform manifold operations (CT 43.4).
3. Explain and perform pump operations (CT 43.4).
4. Start up a pipeline system (CT 43.1).
5. Shut down a pipeline system (CT 43.2).

MODULE 65107-02 – LIQUID PIPELINE MEASUREMENT AND QUALITY CONTROL

1. Activate tank mixing devices.
2. Perform product testing.
3. Perform pipeline grade changes and tank capacity operations.
4. Explain the use of and inject appropriate additives.
5. Identify types of meters.
6. Maintain accurate measurement on all custody receipts.
7. Explain the meter proving process.



NCCER

13614 Progress Blvd., Alachua, Florida 32615
Phone: (888) 622-3720 Email: info@nccer.org

LIQUID PIPELINE CONTROL CENTER OPS

Materials and Equipment

MODULE 66101-02 - INTRODUCTION TO THE PIPELINE INDUSTRY

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Copies of Quick Quiz*
Module Examinations**
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company's policy and procedures manual
Samples of P&IDs, blueprints, and strip maps/alignment sheets
Posterboard or other large sheets of paper
Colored markers
Assorted valves
Copies of API 650 and API 653
Copies of API 510 and 2510
Assorted fittings
Copies of 49 CFR Part 192 (Gas) and/or 49 CFR Part 195 (Liquid), including Parts 192.327 and 195.248
Assorted corrosion coupons
Various examples of documentation, including:
Operations logs
Work orders
Event logs

MODULE 65102-02 - CONTROL CENTER ABNORMAL OPERATING CONDITIONS

Transparencies

Markers/chalk

Blank acetate sheets

Transparency pens

Pencils and scratch paper

Module Examinations*

Overhead projector and screen

Whiteboard/chalkboard

Appropriate personal protective equipment

Copies of your company's policy and procedure book

Copies of 49 CFR Part 195

Copies of your company's safety-related condition report form or the one in Figure 1

Copies of your company's incident report form or the one in Figure 2

Copies of incident report form instructions (available at <http://ops.dot/gov>)

Sample documentation forms such as:

- Incident investigation and analysis report
- Incident report
- Event notification forms
- Control center logs
- Station logs (if involved)
- Records of recommendations for corrective actions and training
- Documentation of such corrections and training after completed

Copies of brief hypothetical scenarios of various AOCs (instructor must create)

MODULE 65103-02 - BASIC PIPELINE HYDRAULICS AND EQUIPMENT

Transparencies

Markers/chalk

Blank acetate sheets

Transparency pens

Pencils and scratch paper

Module Examinations*

Performance Profile Sheets*

Overhead projector and screen

Whiteboard/chalkboard

Appropriate personal protective equipment

Copies of your company's policy and procedure book

Copies of the Quick Quiz**

Copies of 49 CFR 195

Copies of sample P&IDs

Copies of a sample ISO

MODULE 65104-02 - PIPELINE COMMUNICATIONS

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations*
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company's policy and procedure book
Blank work order forms (one per trainee)
Samples of nominations, product specs, PTOs, batch changes, and written confirmations
Copies of your company's call investigation report sheet or Figure 1
A variety of educational brochures or items used to notify residents of pipeline systems
(at least one per trainee)
Copies of 49 CFR 192.614 and 195.442 (one per trainee)
Photos, pictures, or drawings of various right-of-way markers

MODULE 65105-02 - MONITORING PIPELINE OPERATIONS – CONTROL CENTER (CT 43.3)

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations*
Performance Profile Sheets*
Copies of the Performance Verification for CT 43.3**
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company's policy and procedure book
Copies of several printouts of SCADA screen captures
Blade or other piece of metal that has undergone cavitation
Samples of fatigued metal
Various RTDs
Electric motors
Samples of incident reports, event notification forms, incident investigation and analysis reports, control center logs, and station logs

MODULE 65106-02 - ROUTINE CONTROL CENTER OPERATIONS (CT 43.1, 43.2, AND 43.4)

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations*
Performance Profile Sheets*
Copies of the Performance Verification for CT 43.1, 43.2, and 43.4**
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company's policy and procedure book
Copies of 49 CFR 195.402

MODULE 65107-02 - LIQUID PIPELINE MEASUREMENT AND QUALITY CONTROL

Transparencies
Markers/chalk
Blank acetate sheets
Transparency pens
Pencils and scratch paper
Module Examinations*
Performance Profile Sheets*
Overhead projector and screen
Whiteboard/chalkboard
Appropriate personal protective equipment
Copies of your company's policy and procedure book
Assorted Draeger tube unit and tubes
Sample custody tickets



LIQUID PIPELINE CONTROL CENTER OPS

On-the-Job Training

MODULE 66101-02 – INTRODUCTION TO THE PIPELINE INDUSTRY

Task Number	Item	Date(s)	Recorded By
-------------	------	---------	-------------

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

MODULE 65102-02 – CONTROL CENTER ABNORMAL OPERATING CONDITIONS

Task Number	Item	Date(s)	Recorded By
-------------	------	---------	-------------

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

MODULE 65103-02 – BASIC PIPELINE HYDRAULICS AND EQUIPMENT

Task Number	Item	Date(s)	Recorded By
-------------	------	---------	-------------

65103-1	Identify and explain basic types of valves used in pipelines.		
---------	---	--	--

MODULE 65104-02 – PIPELINE COMMUNICATIONS

Task Number	Item	Date(s)	Recorded By
-------------	------	---------	-------------

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

MODULE 65105-02 – MONITORING PIPELINE OPERATIONS- CONTROL CENTER (CT 43.3)

Task Number	Item	Date(s)	Recorded By
-------------	------	---------	-------------

65105-1	Monitor and prioritize the various alarms of the SCADA computer system (CT 43.3).		
---------	---	--	--

65105-2	Perform pipeline system monitoring with the SCADA system.		
---------	---	--	--

65105-3	Perform pipeline station monitoring with the SCADA system.		
---------	--	--	--

65105-4	Document pipeline activities with the SCADA system.		
---------	---	--	--

MODULE 65106-02 – ROUTINE CONTROL CENTER OPERATIONS (CT 43.1, 43.2, AND 43.4)

Task Number	Item	Date(s)	Recorded By
65106-1	Perform manifold operations (CT 43.4).		
65106-2	Perform pumping operations (CT 43.4).		
65106-3	Start up a pipeline system (CT 43.1).		
65106-4	Shut down a pipeline system (CT 43.2).		

MODULE 65107-02 – LIQUID PIPELINE MEASUREMENT/QUALITY CONTROL

Task Number	Item	Date(s)	Recorded By
65107-1	Activate tank mixing devices.		
65107-2	Perform product testing.		
65107-3	Perform pipeline grade changes and tank capacity operations.		
65107-4	Inject appropriate additives.		
65107-5	Identify types of meters.		
65107-6	Maintain accurate measurement on custody receipts and deliveries.		
65107-7	Verify meter accuracy.		