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Nederland, TX 77627
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Beaumont, TX 77703
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Pipeline Operation Qualification Training

Industrial Safety Training Council, in conjunction with OverNite Software, Inc., has the solution for compliance with the Department of Transportation's Operator Qualification Rule.

Members of the Association of Reciprocal Safety Councils (ARSC), with the capability of delivering Internet-based training, are already delivering over 70 modules that comply with the covered task list mandated by the DOT. ISTC has the solution for pipeline operators – transmission, distribution, and liquids – and their contractors.

All ARSC safety councils are evaluation centers that ensure quality control and quality assurance for the training and evaluation of contract employees. As such, these centers provide quality, verifiable and audited training and testing on demand. By utilizing ISTC for this training, you can avoid redundancies in training and expenditures for training, as ARSC participants have established reciprocity for qualifying courses.

The Pipeline Operator Qualification training is interactive and allows trainees to learn at their own pace. Every module has been designed to deliver all of the learning objectives and then evaluate the proficiency of the trainee.

Upon successful completion of various modules, trainees will receive a badge with photo ID and completed courses. And as an added bonus, member organizations can run their own training reports online at no additional cost!

Each employer is responsible for determining the required training modules for their employees based on the tasks they will be performing.

For additional information contact ISTC at 409-724-2565 ext. 1130 (Nederland location) or 281-421-0459 ext. 1174 (Baytown location). You may also visit our website at www.istc.net.

Web-based Pipeline Operator

Qualification Training

Pipeline Operation Qualification Announcement

Industrial Safety Training Council, in conjunction with the Overnite Software, Inc., has the solution for meeting the October 28, 2002 deadline for compliance with the Department of Transportation's Operator Qualification Rule.

ISTC is delivering 79 modules that comply with the covered task list mandated by the DOT. ISTC has the solution for pipeline operators – transmission, distribution, and liquids – and their contractors.

The Pipeline Operator Qualification training is interactive and allows trainees to learn at their own pace. Every module has been designed to deliver all of the learning objectives and then evaluate the proficiency of the trainee.

Upon successful completion of various modules, trainees will receive a certificate of completion of completed courses. And as an added bonus, member organizations can run their own training reports online at no additional cost!

For additional information contact ISTC at 409-724-2565 ext. 1130 (Nederland location) or 281-421-0459 ext. 1174 (Baytown location). You may also visit our website at www.istc.net.

Web-Based Training Modules – DOT Pipeline Operator Qualification

for more information contact ISTC Nederland – 409-724-2565 or Baytown 281-421-0459

	ISTC Code	Module Title
1	09OQIGN	Prevention of Accidental Ignition & Potential Ignition Sources
2	09OQABN	Recognize & React to Abnormal Operating Conditions & Safety Related Conditions
3	09OQEMER	Emergency Plans & Public Contractor Education
4	09OQGAS	Characteristics & Properties of Natural Gas
5	09OQCGI	Use, Care & Calibration of Combustible Gas Instruments and Flame Ionization Units
6	09OQEXCV	OSHA/DOT - Excavation Safety
7	09OQPIG	Pipeline Pigging
8	09OQLEAK	Leak Survey & Leak Classification
9	09OQPLPT	Population Density Change & Pipeline Patrol
10	09OQODOR	Odorization
11	09OQPCRS	Pipeline Crossings
12	09OQPFAIL	Leak Investigation
13	09OQPINV	Investigating Pipeline Failures
14	09OQDPRV	Damage Prevention: Locating and Marking Pipeline Facilities
15	09OQVOPR	Valve Operators
16	09OQVALV	Valve Maintenance
17	09OQRVLV	Inspecting & Testing Relief Valves, Regulators, & Control Valves
18	09OQPTST	Pressure Testing Steel & Plastic Pipelines

Web-Based Training Modules – DOT Pipeline Operator Qualification

for more information contact ISTC Nederland – 409-724-2565 or Baytown 281-421-0459

	ISTC Code	Module Title
19	09OQPPFS	Plastic Pipe Fusion
20	09OQSPPF	Plastic Pipe Fusion – Spanish Version
21	09OQELFS	Electrofusion
22	09OQMECH	Mechanical Fittings
23	09OQPLKR	Pipeline Leak Repair
24	09OQPURG	Pipeline Purging
25	09OQHOTT	Hot Tapping and Stopping
26	09OQUPRT	Up-rating Pipeline Systems
27	09OQABAN	Abandonment of Facilities
28	09OQANOD	Installation of Anodes
29	09OQSHUT	Pipeline Shutdown and Startup Planning
30	09OQPLS1	Installation of Plastic Mains & Services Part 1
31	09OQPLS2	Installation of Plastic Mains & Services Part 2
32	09OQSAFT	Natural Gas Operations & Maintenance Safety
33	09OQSTLM	Installation of Steel Mains & Services
34	09OQATMC	Atmospheric Corrosion
35	09OQCTHP	Cathodic Protection Troubleshooting

Web-Based Training Modules – DOT Pipeline Operator Qualification

for more information contact ISTC Nederland – 409-724-2565 or Baytown 281-421-0459

	ISTC Code	Module Title
36	09OQRECT	Cathodic Protection - Rectifier Inspections
37	09OQCOAT	Protective Coatings
38	09OQITST	Installation of Test Stations
39	09OQRIT	Cathodic Protection Criteria
40	09OQINSL	Electrical Insulator Inspections & Testing Casings
41	09OQINTC	Internal Corrosion Monitoring
42	09OQACDC	Interference (A/C and D/C)
43	09OQPSSR	Pipe-to-Soil Surveys
44	09OQWELD	Electric Arc Welding
45	09OQWQUL	Welder Qualification
46	09OQWRPR	Weld Repairs & Welding Procedures
47	09OQOAWL	Oxygen Acetylene Welding and Cutting
48	09OQCSOS	Compressor Station Operations & Safety
49	09OQRCIP	Reciprocating Compressor Units
50	09OQTRBU	Compressor Station Operation - Turbine Units
51	09OQCCYL	Compressor Operation - Compressor Cylinders
52	09OQGSPI	Compressor Operation - Gas Path Integrity

Web-Based Training Modules – DOT Pipeline Operator Qualification
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	ISTC Code	Module Title
53	09OQENBL	Compressor Operations - Power Cylinder Balancing
54	09OQGCNT	Gas Control Operations
55	09OQELCF	Fundamentals of Electricity
56	09OQPLCS	Basic Electronics: PLCs
57	09OQSCDA	Basic Electronics: SCADA
58	09OQELCF	Fundamentals of Electricity
59	09OQPLCS	Basic Electronics: PLCs
60	09OQSCDA	Basic Electronics: SCADA
61	09OQHRPS	HR: Human Performance Systems
62	09OQHRMP	HR: The Mentoring Process
63	09OQHRJE	HR: Job Performance Evaluations
64	09OQLQBP	LQ: Below Ground Pipe Coatings & Exposed Pipe
65	09OQLQPP	LQ: Pipeline Patrol
66	09OQLQIA	LQ: Installation of Anodes
67	09OQLQAS	LQ: Conduct Annual Surveys

68	09OQLQRI	LQ: Rectifier Inspections
69	09OQLQAC	LQ: Interference (AC and DC)
70	09OQLQPO	LQ: Introduction to Compressor and Pump Operations
71	09OQLQSC	LQ: Pipeline System Control
72	09OQLQLC	LQ: Programmable Logic Controllers
73	09OQLQPS	LQ: Pressure Switches
74	09OQLQPT	LQ: Pressure Transmitters
75	09OQLQCP	LQ: Cathodic Protection – Aboveground Storage Tanks
76	09OQLQST	LQ: Inspection – Aboveground Storage Tanks
77	09OQLQMP	LQ: Marking Pipelines – Temporary and Permanent
78	09OQLQCT	LQ: Cathodic Protection Troubleshooting
79	09OQLQTS	LQ: Installation of Test Stations

Web-Based Training Modules – DOT Pipeline Operator Qualification

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1. Title: Prevention of Accidental Ignition & Potential Ignition Sources - DOT 192.751
Course Number: 09OQIGN
Course Summary: Course describes steps to minimize accidental ignition of gas and accidental natural gas releases in reference to DOT 192.751. After completing this course the learner will be able to explain the DOT rules governing Accidental Ignition Sources of Natural Gas and describe the steps necessary to eliminate or minimize these dangers including:

- Define the fire triangle elements
- Explain the requirements of DOT regulation 192.751 "Prevention of Accidental Ignition of Natural Gas."
- List four common ignition sources for escaping natural gas:
    - Hot work (welding/cutting)
    - Open flames (smoking)
    - Static electricity
    - Internal combustion engines
- Describe actions that can be taken to reduce the buildup and/or discharge of static electricity on natural gas piping.
- Define Hot cutting and welding as it applies to natural gas piping.
- Define Cold cutting and welding as it applies to natural gas piping.
- Explain the safety precautions to be taken when hot welding or cutting.
- Explain the safety precautions to be taken when cold welding or cutting.
- Describe how to isolate pipeline segments to minimize the potential of Accidental Ignition of Natural Gas.

2. Title: Recognize & React to Abnormal Operating Conditions and Safety Related Conditions – DOT 192.605 [c], 192.503, 195.402[d] and195.803
Course Number: 09OQABN
Course Summary: Course content includes factors to consider when responding to emergencies for both natural gas and liquid pipelines Operators. After completing this module:

- The learner will become familiar with the Department of Transportation definition of Abnormal Operating Conditions.
- The learner will be able to recognize Abnormal Operating Conditions on a pipeline facility.
- The learner will be able to take safe corrective action(s) regarding Abnormal Operating Conditions to ensure the safety of people first, property and the environment.
- The learner will be able to explain the difference between "Abnormal Operating Conditions" as defined in the Operator Qualification Rule 192.803 and 195.503 and "Abnormal Operations" as defined in 192.605[c] and 195.402[d].
- The learner will be able to describe potential "Safety Related Conditions."
- The learner will have knowledge of the special consideration that should be given to the development of written procedures for the timely analysis of, and follow through on, information obtained through the use of an instrumented (smart) pig.
- The learner will be able to list typical Abnormal Operating Conditions on a pipeline facility.
- The learner will be able to rate the level of hazard associated with identified Abnormal Operating Conditions.

Web-Based Training Modules – DOT Pipeline Operator Qualification

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3. Title: Emergency Plans & Public and Contractor Education – DOT 192.615 & 192.616
Course Number: 09OQEMER
Course Summary: This training module will aid Team members understanding of compliance issues with DOT Office of Pipeline Safety regulations and model company procedures in the development and review of emergency plans and public and contractor education and Damage Prevention - One call systems. Specific topics covered including:

- Define emergency plans and review intervals.
- Define damage prevention programs including the One call system.
- Define public and contractor education regarding natural gas and products pipelines.
- Reactions Team members should prepare the appropriate procedures concerning damage to a pipeline from an outside force.
- Develop action plans to safely respond to an accidental release of natural gas.
- Review the contents of Emergency Plans and actions required pre and post release.

4. Title: Characteristics and Hazards of Natural Gas
Course Number: 09OQGAS
Course Summary: Upon completion of this module the learner:

- Will learn about the history of the use of natural gas.
- Will learn about the composition and properties of natural gas.
- Will learn about the flammable characteristics of natural gas.
- Will learn about monitoring for natural gas leaks and for carbon monoxide.
- Will learn about methods used to increase the safety of natural gas pipelines.

5. Title: Use, Care and Calibration of Combustible Gas Instruments and Flame Ionization Units
Course Number: 09OQCGI
Course Summary: This module focuses on several combustible gas instruments (CGIs') and flame ionization units (FI) regarding their use, care and calibration. Field operations in the energy industry can destructive to delicately calibrated instruments if precautions are not taken. The use and care precautions are explained. Each manufacturer of this type equipment has specific calibration procedures. No individuals manufacturer's instrument will be reviewed, but the importance and rational for regular calibration is discussed. Typical uses for each type of instrument is also explored.

6. Title: OSHA/DOT Excavation Safety - DOT 192.605
Course Number: 09OQEXCV
Course Summary: This course covers safety procedures to be followed while making excavations. Upon completion of this module the learner:

- Will have a general understanding of the regulations governing excavation safety.
- Will understand many of the specific terms and their definitions relating to excavations.
- Will understand the conditions and forces that can act upon soil to create the potential for dangerous cave-ins.
- Will become familiar with the four basics soil types, including visual and manual tests to determine them, and how they relate to excavation safety.
- Will become familiar with methods used to protect an excavation, including shoring, shielding, and sloping.

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7. Title: Pigging Pipelines - DOT 192.605
Course Number: 09OQPIG
Course Summary: This module covers typical maintenance and "smart pigging" procedures for pipeline facilities. Upon completion of this module the learner:

- Will understand the importance of maintenance pigging,
- Will be able to identify various types of pigs and understand when each should be used.
- Will understand what "Smart Pigging" is and it's role in preserving the integrity of the pipeline system.
- Will understand waste disposal methods regarding pigging wastes.
- Will learn how to launch and receive a pig.
- Understand the safety issues regarding pig trap closures.

8. Title: Leak Surveys & Leak Classification - DOT 192.5, 192.613, 192, 614, 192.705, 192.706, 192.707, 192.709, 192.721, 192.723.
Course Number: 09OQLEAK
Course Summary: Upon completion of this module the learner will be able to:

- Define the different class locations and the "sliding mile' used to determine class locations
- Define the frequency of surveys for transmission, jurisdictional gathering and distribution facilities.
- Define the different types of natural gas facilities that are surveyed.
- Describe the difference between leak surveys and pipeline patrols.
- Describe the survey procedure for transmission, jurisdictional gathering and distribution facilities including defining a of "Business District."
- Formulate a leak survey and patrol plan.
- Describe natural gas detection instruments used during surveys.
- Describe bar hole testing procedures.
- Describe natural gas migration patterns.
- Explain the importance of maintaining leak survey records.
- Describe four leak classes based on model industry procedures.

9. Title: Pipeline Patrol and Population Density Course – DOT 192.5, 192.459, 192.607, 192.609, 192.611, 192.705, 192.706, 192.707, 192.721, 192.723.
Course Number: 09OQPLPT
Course Summary: Scheduled pipe patrols of the natural gas and liquid pipeline system. Upon completion of this module the learner will be able to:

- Define the DOT class locations as defined in DOT's 192.5
- Define the frequency of surveys for transmission, jurisdictional gathering and distribution facilities
- Define the different types of natural gas facilities that are patrolled
- Describe the difference between leak surveys and pipeline patrols
- Describe the patrol procedure for transmission, jurisdictional gathering and distribution facilities
- Describe the requirements for installing pipeline marker signs
- Formulate a pipeline patrol plan
- Describe how to perform a house count using a "class location unit" map
- Describe natural gas detection instruments used during patrols
- Describe typical gas migration patterns
- Explain the importance of maintaining pipeline patrol records
- Describe four leak classes based on model industry procedures
- Procedures for handling exposed pipelines.

Web-Based Training Modules – DOT Pipeline Operator Qualification

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10. Title: Odorization - DOT 192.625
Course Number: 09OQODOR
Course Summary: Upon completion of the course the learner will understand the purpose of odorizing natural gas, usage of odorants, and their applications. Specific topic covered include:

- Understanding odorization regulation compliance:
    - Federal standard definition
    - Odorant distribution systems
    - Odorant class determination
- Understanding basic natural gas odorant usage:
    - Component selection
    - Odorizer equipment usage
- Understanding the testing of odorants
    - Types of testing
    - Record keeping of odorant usage
- Performing odorometer operation and maintenance
- Understanding safe handling and storage of odorants

11. Title: Pipeline Crossings - DOT 192.455. 192.461, 192.465, 192.479 and 192.481
Course Number: 09OQPCRS
Course Summary: Upon completion of this module the learner will be able to:

- Recognize construction procedures and conditions present at bridges, stream crossings, ravines, levees, highways and railroad crossings.
- Recognize special considerations at highway and railroad crossings including permits requirements, cased crossings, boring crossings, depth or cover, angle of crossings, pipe size, surface repairs and pre-tested pipe.
- Recognize considerations at creek and stream crossings, ravines and levee to prevent pipe movement.
- Understand DOT Pipeline Safety regulations regarding external corrosion control of buried or submerged pipelines.
- Understand how the use of electrical surveys, review of corrosion history and records of exposed pipe examinations can assist in locating corrosion areas on the pipeline.
- Recognize procedures to follow when exposed pipe is located including marking exposed pipe and scheduling exposed pipe maintenance.

12. Title: Leak Investigation - DOT 192.617
Course Number: 09OQPFAIL
Course Summary: Procedures for analyzing pipeline leaks, accidents and failures. A Hazard Tree Analysis exercise is included. The module content includes gathering facts; investigation of failed section of failed pipe or equipment for laboratory analysis; determining the cause for failures and minimizing the possibility for recurrence; documentation.

13. Title: Pipeline Failure Investigation DOT 192.613 & 192.617
Course Number: 09OQINV
Course Summary: Procedures for analyzing pipeline accidents and failures. Course content includes gathering facts; investigation of failed section of failed pipe or equipment for laboratory analysis; determining the cause for failures and minimizing the possibility for recurrence; cutting samples of pipe to be analyzed; packing and shipping pipe section to the lab and documentation. The module also reviews requirements for continuing surveillance of pipeline facilities.

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14. Title: Damage Prevention: Locating and Marking Pipeline Facilities - DOT 192.614 and 192.616
Course Number: 09OQDPRV
Prerequisite:
Course Summary: This course covers the requirements for a damage prevention. Specific topics covered in this module include:

- Development of a written program
- Excavator/contractor responsibilities
- One-call center responsibilities
- Pipeline Operator and facility owner responsibilities for damage prevention.
- Inductive and Conductive locating methods and the procedures for performing each type
- Color code for underground facilities marking and their associated utilities.
- The types of media used for public education of damage prevention.

15. Title: Valve Operator Maintenance - DOT 192.745 and 192.747
Course Number: 09OQVOPR
Course Summary: Introduction to valves operators and maintenance for Transmission and Distributions operations, and the requirements for their inspection and maintenance. Course content includes typical valve operators including rotary, linear, pneumatic and diaphragm types valve operator design and components, and documentation of maintenance.

- The learner will be able to demonstrate preventive maintenance for a valve operator
- The learner will be able to demonstrate basic operation of lubrication equipment

16. Title: Valve Maintenance - DOT 192.745 and 192.747
Course Number: 09OQVALV
Course Summary: Upon completion of this module, the learner will be able to:

- Demonstrate an understanding of valve operations, perform basic valve maintenance in accordance with the Department of Transportation regulation 49 CFR 192.745 and 192.747.
- Identify and explain the operation/application of the following types of valves: Gate, Ball, Plug.
- Demonstrate preventive maintenance for a valve operator.
- Demonstrate basic operation of lubrication equipment.

17. Title: Inspecting & Testing Regulators, Relief Valves and Control Valves - DOT 192.199, 192.201, 192.731, 192.739 & 192.743
Course Number: 09OQRVLV
Course Summary: Upon completion of this module:

- The learner will have an understanding of the background and necessity for the Operator Qualification training modules.
- The learner will have a basic understanding of pressure as it relates to natural gas.
- The learner will recognize the importance of safety devices and design criteria used in pressure regulating stations.
- The learner will be able to describe Spring-Operated and Pilot-Operated regulators and relief valves.
- The learner will be able to explain the advantages of a Monitor Regulator System.
- The learner will identify, recognize common defects in regulators and relief valves.
- The learner will know how to perform Regulator, Relief Valve and Control Valve inspections in accordance with Department of Transportation regulations 49 CFR 192.731, 192.739 & 192.743.

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18. Title: Pressure Testing Steel and Plastic Pipelines - DOT 192.503, 192.505, 192.507, 192.509, 192.511, 192.513, 192.515, 192.717, 192.725 and192.727
Course Number: 09OQPTST
Course Summary: Upon completion of this module the learner:

- Will understand MAOP.
- Will know the different DOT class locations.
- Will be able to explain SYMS.
- Will know how pipe diameter and other pipe data are used in the pipe design formula calculation.
- Will know types of permits needed when pressure testing pipelines.
- Will understand how to confirm or revise the MAOP.
- Will understand the general requirements for system pressure increases.
- Will be able to explain what an air lock when hydrostatically testing a pipeline.
- Will be able to describe the concerns while filling a pipeline with water prior to testing and discharging water following the pressure test.
- Will know how to calculate the minimum and maximum allowable gauge pressures.
- Will know the procedure for pressure testing distribution systems.
- Will understand testing requirements for reinstated service lines, temporarily disconnected and abandonment of distribution facilities.

19. Title: Plastic Pipe Fusion – DOT 192.281, 192.283, 192.285 and 192.287
Course Number: 09OQPPFS (also available in Spanish)
Course Summary: This course covers the basics of plastic pipe fusion. Upon completion of this module: The learner will have a general understanding of the background and necessity for the Operator Qualification training modules. The learner will have a basic understanding of the different kinds of plastic pipe used in the heat fusion process. The learner will understand the basic principles of heat fusion. The learner will be able to perform the steps involved in the heat fusion process. The learner will be familiar with the qualification procedures used to inspect and test the fused joints. The learner will be familiar with the common safety precautions to take when handling polyethylene pipe. The learner will understand the hazards of static electricity, as well as steps to take to prevent sparks.

20. Title: Plastic Pipe Fusion: Spanish Version - DOT 192.281, 192.283, 192.285 and 192.287
Course Number: 09OQPPFSS
Course Summary: This is the Spanish version of 404 Plastic Pipe Fusion. The course covers the basics of plastic pipe fusion. Upon completion of this module: The learner will have a general understanding of the background and necessity for the Operator Qualification training modules. The learner will have a basic understanding of the different kinds of plastic pipe used in the heat fusion process. The learner will understand the basic principles of heat fusion. The learner will be able to perform the steps involved in the heat fusion process. The learner will be familiar with the qualification procedures used to inspect and test the fused joints. The learner will be familiar with the common safety precautions to take when handling polyethylene pipe. The learner will understand the hazards of static electricity, as well as steps to take to prevent sparks.

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21. Title: Electrofusion - DOT 192.281, 192.283, 192.285 and 192.287
Course Number: 09OQELFS
Course Summary: This course discusses the basic principles of electrofusion of plastic pipes. Upon completion of this module:

- The learner will have an understanding of the necessity for Operator Qualification.
- The learner will have a basic understanding of the different kinds of plastic pipe used in the electrofusion process.
- The learner will understand the basic principles of electrofusion.
- The learner will be able to perform the steps involved in the electrofusion process.
- The learner will be familiar with the qualification procedures used to inspect and test the fused joints.
- The learner will be familiar with the common safety precautions to take when handling polyethylene pipe.
- The learner will understand the hazards of static electricity, as well as steps to take to prevent sparks.

22. Title: Mechanical Fittings - DOT 192.281, 192.283, 192.285, 192.287
192.753 and 192.755
Course Number: 09OQMECH
Course Summary: This course covers the benefits of Lycofit® fittings and how an operators employee can become qualified in joining plastic pipe with mechanical fittings, and the procedures for installing various types of couplings.
Upon completion of this module:

- The learner will be able to list the benefits of Lycofit® fittings.
- The learner will be able to state how an employee can become qualified in joining plastic pipe with mechanical fittings.
- The learner will be able to state the procedures for installing various types of couplings.

23. Title: Pipeline Leak Repair - DOT 192.711, 192.713, 192.715, 192.717 and 192.719
Course Number: 09OQPLKR
Course Summary: Procedures for making temporary repairs on transmission pipelines. Upon completion of this module the learner:

- Will know the DOT requirements for repairs on existing pipelines.
- Will understand the special requirements for repairing Dresser coupled pipelines.
- Will know the basic steps involved in reinforcement and repair of pipes using Clock Springs® and Armor Plate®.
- Will understand special considerations for repairs on new pipelines.
- Will understand the precautions to be followed during hot and cold cutting and welding.

24. Title: Pipeline Purging - DOT 192.629
Course Number: 09OQPURG
Course Summary: Upon completion of this module:

- The learner will understand the mechanical nature of purging though displacement or dilution.
- The learner will understand the use of valves, blanks, and physical disconnects for isolating equipment.
- The learner will understand the process of purging a pipeline with air.
- The learner will understand the process of purging a pipeline with natural gas.
- The learner will understand safety precautions to be considered when purging a pipeline.

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25. Title: Hot Tapping and Stopping - DOT 192.627
Course Number: 09OQHOTT
Course Summary: Procedures for installing taps and stopping gas flow on in-service pipelines. Course contents include operation of Blackhawk, TD Williamson and Mueller tapping and stopping equipment; Weld on fittings for steel pipelines; branch connections, tees and tie-ins; documentation.

26. Title: Up-rating Pipeline Systems DOT Subpart K 192.551, 192.553, 192.555 and 192.557
Course Number: 09OQUPRT
Course Summary: Upon completion of this module the learner will be able:

- To determine present system and facilities condition.
- Review the proposed up-rate pressure.
- Understand the up-rate plan elements.
- Write an up-rate plan.
- Determine system conditions before pressure increases.
- Maintain the required up-rate records.
- Procedures for increasing pipeline system operating pressure.
- Understand required documentation for up-rating.

27. Title: Abandonment of Facilities - DOT 192.727
Course Number: 09OQABAN
Course Summary: Upon completion of this module the learner:

- Will understand the procedures for deactivation of natural gas facilities.
- Will be able to explain the rational for deactivation of natural gas facilities.
- Will be able to perform the correct procedures for deactivating natural gas mains.
- Will be able to perform the correct procedures for deactivating natural gas service lines.
- Will be able to correctly document the deactivation of natural gas mains and services.

28. Title: Installation of Anodes - DOT 192.475[b], 192.477, 192.605[b][10][ii]
Course Number: 09OQANOD
Course Summary: Upon completion of this module:

- The user will be able to define terms needed for installing anodes and for leak repair.
- The user will understand the basic concept of the Galvanic Anode Theory.
- The user will know the different types of anodes and their uses.
- The user will understand the basic concept of installing anodes.
- The user will know the steps needed for using the Cable Bonding Technique and for exothermic welding.
- The user will have and understanding of soldering and the steps used for a soldering procedure.

29. Title: Pipeline Shutdown and Startup Planing – DOT 192.605
Course Number: 09OQSHUT
Course Summary: Upon completion of this module:

- The learner will know the steps involved and factors to be considered during a planned shutdown.
- The learner will know the steps involved in returning a shutdown section to operation and in starting up a new line.
- The learner will know the basic procedures involved in planning for an emergency shutdown.
- The learner will know how to prevent accidental ignition during startup and shutdown.

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30. Title: Installation of Plastic Mains and Services I - DOT 192.161, 192.273, 192.275, 192.277, 192.303, 192.307, 192.309, 192.311, 192.313, 192.315, 192.317, 192.319, 192.321, 192.323, 192.325, 192.327, 192.381 and 192.383
Course Number: 09OQPLS1
Course Summary: Upon completion of this module, the learner will be able to:

- Understand the precautions and practices to follow when handling and storing plastic pipe.
- Understand the basic procedure for installing plastic pipe used for natural gas main and service line applications.
- Understand how to locate main and service line valves and verify feed to mains.
- Understand the basic procedure for installing transition fittings and Excess Flow Valves.
- Understand the basic procedure for abandoning and reinstating mains and services.
- Determine the correct procedure to be used and adhere to the procedure for installing tracer wire.

31. Title: Installation of Plastic Mains and Services II - DOT 192.161, 192.273, 192.275, 192.277, 192.303, 192.307, 192.309, 192.311, 192.313, 192.315, 192.317, 192.319, 192.321, 192.323, 192.325 and 192.327
Course Number: 09OQPLS2
Course Summary: Upon completion of this module, the learner will:

- Be familiar with the methods used for the direct burial of plastic pipe.
- Be familiar with the procedures used in direct burial of plastic pipe.
- Understand the recommended procedures for tie-ins and tapping service punch tees.
- Be able to determine when squeezing plastic pipe is desirable, as well as be able to follow the squeeze-off procedure to complete the operation.
- Determine when it is desirable to insert plastic pipe in an existing line, as well as be able to follow the plastic pipe insertion procedure.
- Explain the procedure for pressure testing mains and services.
- Understand and be able to perform the procedure for purging mains.
- Understand the procedures involved in repairing PVC pipe.

32. Title: Natural Gas Operations & Maintenance Safety - DOT 192.605
Course Number: 09OQSAFT
Course Summary: Upon completion of this module, the learner will:

- OSHA Competent Person Excavation safety requirements.
- Trenching and Boring safety
- Work Area Protection fundamentals.
- Use of Combustible Gas Indicator (CGI).

33. Title: Installation of Steel Mains and Services - DOT 192.361, 192.363, 192.365, 192.367and 192.371
Course Number: 09OQSTLM
Course Summary: Upon completion of this module, the learner will be able to:

- Understand the basic procedure for installing steel pipe used for natural gas main and service line applications.
- Understand how to locate main and service line valves and verify feed to mains.
- Understand the basic procedure for abandoning and reinstating mains and services.
- Determine the correct procedure to be used and adhere to the procedure for installing tracer wire.

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34. Title: Atmospheric Corrosion DOT 192.479, 192.481, 192.485, 192.461,192.483, 192.487, 192.489 and 192,491
Course Number: 09OQATMC
Course Summary: Atmospheric corrosion is a possible cause of pipeline leaks or failures. Course content includes definitions, types, and causes of atmospheric corrosion, application of protective coatings and inspections, prevention of damage to coatings, remedial measures, surveys and corrective actions. The purpose of this course is to understand the requirements for atmospheric corrosion control.
To comply with DOT standards on this subject you must:

1. Understand the basics of the corrosion process.
2. Know the basic methods of preparing a surface to be treated for protection against corrosion.
3. Understand specific attributes of and risk factors for atmospheric corrosion.
4. Know the protective measures and methods used to control atmospheric corrosion.

35. Title: Cathodic Protection Troubleshooting - DOT 192.463 & 192.465
Course Number: 09OQCTHP
Course Summary: Upon completion of this module, the learner:

- Will gain a basic understanding of the equipment needed to locate and repair rectifier failures.
- Will learn precautions that should be followed while troubleshooting rectifiers.
- Will understand and explain common problems causing rectifier failures.
- Will learn troubleshooting tips.
- Will apply the guidelines for troubleshooting.
- Will apply basic troubleshooting techniques used when locating contacts.

36. Title: Cathodic Protection – Rectifier Inspection - DOT 192.463 & 192.465
Course Number: 09OQRECT
Course Summary: The module describes bi-monthly inspection of rectifier units. Course content includes Ohm's Law, AC/DC voltage, and safety procedures; testing intervals, inspection of rectifiers and other impressed current power sources; reverse switch current switch, diode, and interface; remedial actions to correct deficiencies, unprotected pipeline evaluations, documentation. Upon completion of this module, the learner will be able to:

- Identify corrosion cells on a pipeline – The learner will learn what corrosion is, different types of corrosion, and what conditions must be met for it to exist.
- Describe corrosion control methods – In this lesson the learner will study the three main methods used for controlling corrosion on pipelines.
- Describe Principals of Cathodic Protection – The main principals of cathodic protection and how is works.
- Explain the use of Galvanic Anodes – The learner will learn about galvanic anodes and what their role is in cathodic protection of a pipeline.
- Explain Impressed Current Systems – Impressed current systems as a way of cathodically protecting a pipeline.
- Describe various rectifier types – The learner will learn about two types of rectifiers and the different function or each.
- Rectifier Inspections and Efficiency – The learner will learn about the inspection guidelines and efficiency in Lesson
- Bi-monthly Inspection procedures – the learner will be able to perform the steps to inspect a rectifier.

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37. Title: Protective Coatings – DOT 192.461
Course Number: 09OQCOAT
Course Summary: The purpose of this course is aid learners in understanding requirements for corrosion control of below-ground piping. To comply with DOT standards on this subject you must:

- Understand the basics of the corrosion process.
- The Learner will review the DOT regulations regarding external corrosion and remedial actions to be taken in cases of external corrosion on both Transmission and Distribution pipeline systems.
- Know the basic methods of preparing a pipe surface to be treated for protection against corrosion.
- Know specific methods for coating below-ground pipe sections and field joints.
- Know methods for inspecting, repairing, and handling coated pipe.

38. Title: Installation of Test Stations - DOT 192.463, 192.469 and 192.471
Course Number: 09OQITST
Course Summary: Introduction to corrosion prevention on various types of metals by cathodic protection. Course content includes fundamentals of corrosion focusing on the installation of test stations and test leads. The Course also describes the methods for bonding test leads to the pipe by exothermic (thermite) welding and bond cable selection. Upon completion of this course the learner:

- Will learn terms needed to discuss exothermic welding and its procedures.
- Will understand Test Stations and their functions.
- Will understand the different types of Test Stations used for Pipe To Soil Surveys.
- Will learn about Test Station Installation Methods.
- Will become familiar with Cable Bonding Technique and exothermic welding methods used in the installation of test stations.
- W ill become familiar with Soldering methods used in the installation of test stations.
- Will have an understanding of materials, spacing and location that is important to the installation of test stations.

39. Title: Cathodic Protection Criteria - DOT 192.463, Appendix D
Course Number: 09OQRIT
Course Summary: Course describes the –850 and 100 millivolt Criteria commonly used in cathodic protection. Course content includes explanation of the Criteria in DOT Appendix D, applications of the Criteria, and using a voltmeter collecting Criteria readings. This couse covers the application of protective criteria to cathodic protection. Upon completion of this module:

- The learner will know the meaning of “criteria” in relation to cathodic protection.
- The learner will understand the specific cathodic protection criteria for different piping applications.
- The learner will know the different cathodic protection surveys that are conducted to assure the criteria are being met.
- The learner will understand the importance of the evaluation and reporting of data gathered on cathodic protection surveys.

40. Title: Electrical Insulator Inspection & Testing Casings - DOT 192.467
Course Number: 09OQINSL
Course Summary: Course describes the use and installation of electrical isolating insulators on pipeline facilities. The materials include testing electrical insulators and repair and replacement of damaged insulators. The course also describes concerns regarding the casings at various types of road crossings (rail, creek, and road) and includes steps for testing for shorted casings and remedial steps to be taken when shorted casings are discovered. Upon completion of this module, the learner will be able to:

- State the purpose of pipe casings.
- List the three categories of casings.
- State the functions of protective coatings for casings.
- Determine if a reading is indicative of a shorted casing.

41. Title: Internal Corrosion Monitoring - DOT 192.475, 192.477, 192.605[b][10][ii]
Course Number: 09OQINTC
Course Summary: Course describes the internal inspection of pipelines for corrosion. Course content includes inspection the internal surface of a pipeline when opened, for corrosion and capturing liquid and gas samples from in-service pipelines and sample analysis for indications of internal corrosion, insertion, removal and weighting of coupons to monitor internal corrosion, and injection of corrosion inhibitors. Upon completion of this module the learner will be able to:

- Demonstrate knowledge and understanding of causes of internal corrosion control.
- Demonstrate knowledge and understanding of methods of controlling internal corrosion.
- Describe the types of internal corrosion and the major agents involved.
- Describe the internal surface inspection requirements for pipelines and the requirements when internal corrosion is found.
- Describe the importance of pipeline cleanliness and application methods of chemical inhibition of pipeline corrosion.
- Install and maintain internal corrosion monitoring equipment.
- Install and maintain chemical inhibitor injection equipment.
- Perform gas quality tests for hydrogen, carbon dioxide, water, nitrogen, hydrocarbons, oxygen and temperature.
- Perform an internal pipe inspection on pipe removed from the pipeline system.

42. Title: Interference (A/C and D/C) - DOT 192.467 and 192.473
Course Number: 09OQACDC
Course Summary: Course describes fault and stray currents that adversely affect cathodic protection systems. Course content includes recognition of possible fault interference problems and mitigation techniques; install, evaluate and adjusting critical bonds. Upon completion of this module:

- The learner will be able to define foreign interference.
- The learner will be able to list the three types/categories of stray current.
- The learner will be able to describe static, dynamic, and AC induced stray current.
- The learner will be able to calculate the total circuit resistance of a given bond.
- The learner will be able to list the methods to eliminate stray current interference.

43. Title: Pipe-to-Soil Surveys – DOT 192.465
Course Number: 09OQPSSR
Course Summary: Recognizing potential problems with survey results and proposing mitigation techniques. Course content includes correctly hook-up multi-meter and take readings. Review possible steps to be taken when readings do not meet DOT Criteria. Upon completion of this course the learner:

- Will have a general understanding of corrosion, the different types of corrosion, and what conditions must be met for it to exist.
- Will understand bacterial corrosion is and how it can cause corrosion on metals.
- Will learn how different factors cause corrosion to occur at different rates.
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- Will become familiar with Rectifier Troubleshooting and the most common problems identified with rectifiers.
- Will become familiar with pipe-to-soil surveys and the maintenance and equipment needed to conduct the surveys.
- Will learn how electrode placement is an important issue when conducting pipe-to-soil surveys.
- Will understand the use of meters when used to read potentials while conducting pipe-to soil surveys.
- Will understand the procedures used to administer a Close Interval Survey.
- Will have a general understanding of the use of a data logger system and its advantages.
- Will be able to locate and bond dresser couplings.

44. Title: **Electric Arc Welding** - DOT 192.231, 192.333, 192.235, 192.241[a][b][c], 192.243, 192.245[a][b]
Course Number: 09OQWELD
Course Summary: Course describes welding and gas Oxy/Acet cutting activities. Overviews of the several welding types are described including Oxy/Acet Gas Welding, Shield Metal Arc Welding, MIG and TIG welding. Course contents includes recognition of hazardous atmospheres and precautions, minimum welding and cutting distances, surface preparation, miter joints, protection the welder from weather, non-destructive testing, weld reports, weld inspections and removal and repair of unacceptable welds.

45. Title: Welder Qualifications - DOT 192.255[a], 192.227, 192.229
Course Number: 09OQWQUL
Prerequisites: 600 Welding
Course Summary: Course describes methods of qualification welders. Course content includes maintenance of welding and cutting equipment, methods of test weld specimens, overview of API 1104, DOT Appendix “C” and ASME IX standards.

46. Title: Weld Repairs and Welding Procedures DOT 192.241, 192.245
Course Number: 09OQWRPR
Prerequisites:
Course Summary: Course describes the required welding procedures and specifications for a girth weld. Course content includes minimum length of repairs per weld, limits on the number of repairs allowed, defect identifiable by non-destructive testing (x-ray), cracks that are non-repairable, pre-heating pipe and circumstances when cleaning tips is permitted. Course describes the required welding procedures and specification. Course content includes a review of the design and test wielding specification and qualifications, an overview of API 1104 and ASME IX standards.

47. Title: **Oxygen/Acetylene Welding and Cutting** - DOT 192.231, 192.333, 192.235, 192.241[a][b][c], 192.243, 192.245[a][b]
Course Number: 09OQOAWL
Course Summary: Course describes Oxy/Acet gas welding and gas Oxy/Acet cutting activities. Overviews of the gas welding and cutting process are described. Course contents includes recognition of hazardous atmospheres and precautions, minimum welding and cutting distances, surface preparation, miter joints, protection the welder from weather, weld reports, weld inspections and removal and repair of unacceptable welds.

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48. Title: Compressor Station Operations & Safety - DOT 192.605
Course Number: 09OQCSOS
Course Summary: The course focus is Compressor Station operations. Major areas of a typical compressor station are reviewed and there purpose explained. Areas reviewed include Main Compressor building (reciprocating and turbine) fuel meters, dehydration, tank farms, gas coolers, pigging facilities, tank farm, telecommunications, control building, auxiliary building and starting air facilities. Course content included storing and using flammable liquids; installation of heat and gas detectors, inspection of gas and heat sensors, exterior warning light or system. Specifically covered are ESD and testing ESD on both the unit and station; inspecting and testing pressure limiting devices; building design criteria: doors and venting, and documenting required DOT testing.

49. Title: Reciprocating Compressors Units – DOT 192.605[b][6][7][8]
Course Number: 09OQRCIP
Course Summary: The course describes the steps required to Load the compressor cylinders and maintain the operations of a compressor unit after it has been started. Course content includes loading compressor cylinder in sequence for various OEM compressor units, using Operating load curves, monitor pressures, volume of gas compressed, temperatures, panel alarms and flags, and recording and scheduling preventative maintenance.

50. Title: Compressor Station Operations - Turbine Units – DOT 192.605[b][6][7][8]
Course Number: 09OQTRBU
Course Summary: The course describes the steps required to unload the compressor cylinders and shut down the operations of a compressor unit. Course content includes unloading compressor cylinders in sequence for various OEM compressor units; adjusting speed, minimum speed and maximum speed for a compressor unit, length of the required cool down period. Also included are requirement s for post lube on engine and turbocharger, monitor pressures, temperatures, set unit valves, performing walk around inspection, and recording and scheduling preventative maintenance.

51. Title: Compressor Station Operations - Compressor Cylinders – DOT 192.605[b][6][7][8]
Course Number: 09OQCCYL
Course Summary: The course describes the typical Compressor cylinder repairs required to maintain the operations of a compressor unit. Course content includes removing, inspecting and replacing compressor valves, packing, compressor rod inspection, seals and operations of the cylinder in the transmission of natural gas.

52. Title: Compressor Operations - Gas Path Integrity – 192.605[b][6][7][8]
Course Number: 09OQGSPI
Course Summary: The course describes the typical Compressor cylinder repairs and components to ensure safe operations as natural gas is transported through the unit. Compressor “gas path” maintenance the operations of a compressor unit without gas leakage is stressed. Course content includes removing, inspecting and replacing compressor valves, packing, compressor rod inspection, movement of major components, seals and operations of the cylinder in the transmission of natural gas.

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53. Title: Compressor Station Operations – Power Cylinder Balancing – 192.605[b][6][7][8]
Course Number: 09OQENBL
Course Summary: The course describes the typical power cylinder balancing using commercial available instruments – Beta Trap. Compressor "gas path" maintenance the unit is stressed. Adjustments to power cylinder components are shown that ensure safe operations and increased fuel efficiency.

54. Title: Gas Control - DOT 192.605
Course Number: 09OQGCNT
Course Summary: The course focus is on Gas Control operations. This program focuses on Gas Control personnel ability to perform remote operations including remotely start, load and shut down a compressor unit. Operations relating to the operations of remote pressures and monitoring devices and responding to and Investigating abnormal operating conditions The course also includes monitoring pressures, volume of gas throughput, temperatures and panel alarms and flags.

55. Title: Fundamentals of Electricity - DOT 192.605
Course Number: 09OQELCF
Course Summary: This course covers basic properties of electricity and simple electrical equipment. Upon completion of this module:

- The learner will understand basic properties of electricity, circuits, and safety device components.
- The learner will understand Ohm's Law and how to apply its principles to resistive circuits.
- The learner will understand the processes used to measure voltage, current, and resistance.
- The learner will understand different types of switches and relays.
- The learner will recognize the common electrical symbols and how they are incorporated into wiring and line diagrams.
- The learner will understand the principles of inductance and capacitance.
- The learner will understand waveform properties and phase relationships.
- The learner will understand the properties and uses of transformers.

56. Title: Basic Electronics: Programmable Logic Controllers (PLC) –DOT 192.605
Course Number: 09OQPLCS
Course Summary: Upon completion of this module, the learner will:

- Understand basic information about PLCs, including their history.
- Understand the basic hardware components associated with PLCs.
- Understand principles of PLC operation.
- Understand applications of PLCs in the natural gas industry.
- Understand installation, calibration and checkout, documentation, and troubleshooting PLCs.
- Understand peripheral devices used with PLCs.
- Gain a basic understanding of ladder logic and other skills associated with programming PLCs.

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57. Title: Basic Electronics: SCADA –DOT 192.605
Course Number: 09OQSCDA
Course Summary: This module focuses on the fundamentals of Supervisory Control and Data Acquisition (SCADA) systems. Upon completion of this module:

- The learner will know the history of SCADA systems.
- The learner will be aware of the basic office hardware components of a SCADA system.
- The learner will understand the basic field hardware components of a SCADA system.
- The learner will understand the protocols the parts of a SCADA system use to communicate with each other.
- The learner will know the basics of installing, calibrating, and troubleshooting a SCADA system.

58. Title: Fundamentals of Electricity - DOT 192.605
Course Code: 09OQELCF
Course Summary: This course covers basic properties of electricity and simple electrical equipment. Upon completion of this module:

- The learner will understand basic properties of electricity, circuits, and safety device components.
- The learner will understand Ohm's Law and how to apply its principles to resistive circuits.
- The learner will understand the processes used to measure voltage, current, and resistance.
- The learner will understand different types of switches and relays.
- The learner will recognize the common electrical symbols and how they are incorporated into wiring and line diagrams.
- The learner will understand the principles of inductance and capacitance.
- The learner will understand waveform properties and phase relationships.
- The learner will understand the properties and uses of transformers.

59. Title: Basic Electronics: Programmable Logic Controllers (PLC) –DOT 192.605
Course Code: 09OQPLCS
Course Summary: Upon completion of this module, the learner will:

- Understand basic information about PLCs, including their history.
- Understand the basic hardware components associated with PLCs.
- Understand principles of PLC operation.
- Understand applications of PLCs in the natural gas industry.
- Understand installation, calibration and checkout, documentation, and troubleshooting PLCs.
- Understand peripheral devices used with PLCs.
- Gain a basic understanding of ladder logic and other skills associated with programming PLCs.

60. Title: Basic Electronics: SCADA –DOT 192.605
Course Code: 09OQSCDA
Course Summary: This module focuses on the fundamentals of Supervisory Control and Data Acquisition (SCADA) systems. Upon completion of this module:

- The learner will know the history of SCADA systems.
- The learner will be aware of the basic office hardware components of a SCADA system.
- The learner will understand the basic field hardware components of a SCADA system.
- The learner will understand the protocols the parts of a SCADA system use to communicate with each other.
- The learner will know the basics of installing, calibrating, and troubleshooting a SCADA system.

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61. Title: HR: Human Performance Systems
Course Code: 09OQHRPS
Course Summary: Upon completion of this course, the learner will be able to:

- Describe the trends and economic forces that are driving change in the pipeline industry.
- Define the terms competence, performance, and productivity.
- Explain the Human Performance Model.
- Describe five human resource processes that make up the human performance system.
- Describe some common interventions used to improve human performance.

62. HR: The Mentoring Process
Course Code: 09OQHRMP
Course Summary: Upon completion of this course, the learner will be able to:

- Define mentoring and counseling.
- Describe the similarities and differences between mentoring and counseling.
- Describe the assumptions necessary for an effective mentoring system.
- Describe some of the common barriers to an effective mentoring system.
- Determine whether mentoring or counseling is necessary.
- List and describe the basic systems for effective mentoring.
- Describe the role and responsibilities of a mentor.
- Describe proper ethical behaviors for a mentor.
- Describe the four needs of adult learners.
- Define values and describe the relationship between values and behaviors.
- Explain how your own values and behavior style affect you as a mentor.
- Define trust and rapport.
- Describe the stages in building trust.
- Apply basic communication techniques and facilitative listening to mentoring situations.
- Clarify expectations and provide feedback.
- Describe several different conflict resolution styles.

63. Title: HR: Job Performance Evaluations
Course Code: 09OQHRJE
Course Summary: Upon completion of this course, the learner will be able to:

- Describe the differences between mentoring and job performance evaluations.
- Explain the evaluator's role in helping to meet the needs of the learner.
- Describe how to develop an employee evaluation plan.
- Define the elements of a competency profile.
- Discuss methods for assessing knowledge, skills, attributes, and common barriers to accurate observation.
- Describe how to teach job task knowledge.
- Describe how to teach job skills.
- Describe how to give and receive feedback.

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64. Title: LQ: Below Ground Pipe Coatings & Exposed Pipe
Course Code: 09OQLQBP
Course Summary: Upon completion of this module operating personnel will be able to:

- Describe the Department of Transportation (DOT) Office of Pipeline Safety regulations regarding belowground pipe coating for both Gas Transmission (49 CFR 192.461) and Hazardous Liquids pipelines (195.238[a] and 195.242.)
- Describe "Remedial Actions" to be taken by the operator when exposed pipe is located (49 CFR 192.485) including remaining strength (RSTRENG or other methods).
- Describe the process of removal of pipe coating in areas of defective coating.
- Describe the Pipeline Operator's responsibilities when exposed pipe is located (49 CFR 192.459 and 195.416[e]).
- Identify methods to mark exposed pipeline sections when located.
- Identify and discuss two basic types of belowground corrosion.
- Identify and discuss pipe surface preparation methods for pipe and appurtenance.
- Describe methods for applying coating to properly prepared pipe sections, welded pipe joints and risers.
- Describe how to prepare coating materials to be applied.
- Describe the methods for inspecting, repairing, and handling coated pipe.
- Describe methods of cleaning and preparing a pipe surface to accept a coating repair.
- Explain the importance of "jeeping" a coated pipeline and the range of jeep settings.
- Identify Abnormal Operating Conditions and reactions to these events for protective coatings and exposed pipe.

65. Title: LQ: Pipeline Patrol
Course Code: 09OQLQPP
Course Summary: Upon completion of this course, operating personnel will be able to:

- Explain the DOT Office of Pipeline Safety Regulations 195.248, 195.410, 195.412, 195.413, 195.416(e)(c), 195.432, and 195.434.
- State the recommended frequency of pipeline patrols.
- Describe population changes and encroachments on or near pipeline facilities.
- Explain the DOT Regulation 195.413 regarding the underwater inspection and reburial of pipelines in the Gulf of Mexico and its inlets.
- State the procedure for exposed pipeline inspection and maintenance.
- State the procedure for inspecting and replacing right-of-way marker signs.
- Determine the loss of cover exposing the pipeline.
- State the procedure for inspecting in-service breakout tanks and list the required signs.
- State how to perform bi-monthly rectifier inspections.

66. Title: LQ: Installation of Anodes
Course Code: 09OQLQIA
Course Summary: Upon completion of this course, operating personnel will be able to:

- Describe DOT regulations 195.244 and 195.416 regarding cathodic protection and test lead installation on liquid pipeline systems.
- Define the terms needed for installing galvanic anodes.
- Describe the basic concept of the galvanic anode theory -- anodic versus cathodic areas of a pipeline.
- List different types of anodes and state their uses.
- Calculate the current output of a sacrificial anode and the expected life of the anode.

- State the basic concept of installing anodes, including backfilling requirements, in accordance with 192.252.
- List the steps needed for using the cable bonding technique and for exothermic welding.
- State common abnormal operating conditions and the reactions required.

67. Title: LQ: Conduct Annual Surveys
Course Code: 09OQLQAS
Course Summary: Upon completion of this course, operating personnel will be able to:

- Describe DOT regulation 192.465[a][c] regarding frequency of testing cathodically protected pipeline facilities including testing bonds.
- Describe DOT regulation 195.416[a] regarding the frequency of testing of cathodically protected buried or submerged pipeline facilities.
- Explain DOT 195.416[j] and 195.414[c] regarding measurement of tank bottom-to-soil potentials.
- Identify the Abnormal Operating Conditions typically associated with the conducting of annual surveys and give examples of each.
- Describe measurement of pipe-to-soil, tank bottom-to-soil and casing-to-soil potentials.
- Discuss how to correctly take potentials readings at pipeline facilities and the electrical criteria used to determine adequate protection.
- Describe and perform electrode (half-cell) maintenance.
- Describe and perform placement of an electrode (half-cell) and use of a multi-meter while taking potential readings on a pipeline facility.
- Define three types of foreign electrical interference: static stray current, dynamic stray current and AC induced current.
- Describe and perform foreign line interference testing to detect interference and/or ensure electrical isolation from foreign structures in accordance with 192.473 and 192.467[f].

68. Title: LQ: Rectifier Inspections
Course Code: 09OQLQRI
Course Summary: Upon completion of this course, operating personnel will be able to:

- Describe the four conditions that must exist before a corrosion cell can function.
- State the five types of corrosion cells found on pipelines.
- Describe the requirements of DOT regulations 195.242, 195.244, 195.414, and 195.416 regarding cathodic protection on liquid pipeline systems.
- State the three main methods of controlling corrosion on pipelines and aboveground storage tanks.
- Perform cathodic protection testing, at the appropriate intervals, using the electrical criteria and frequency.
- State the DOT requirements for installation of test leads in a cathodic protection system.
- State the DOT requirements for installation of anodes in a cathodic protection system.
- Perform the bi-monthly inspection of a cathodic protection rectifier.
- Recognize and react to abnormal operating conditions related to performing rectifier inspections.

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69. Title: LQ: Interference (AC and DC)
Course Code: 09OQLQAC
Course Summary: Upon completion of this course, operating personnel will be able to:

- Define foreign interference.
- Describe Department of Transportation regulations relating to foreign pipeline interference including 192.465, 192.473, and 195.250.
- List the three types or categories of stray current.
- Describe static, dynamic, and AC-induced stray current.
- Calculate the total circuit resistance of a given bond.
- List the methods used to eliminate stray current interference.

70. Title: LQ: Introduction to Compressor and Pump Operations
Course Code: 09OQLQPO
Course Summary: Upon completion of this course, operating personnel will be able to:

- State the purpose, types, and basic functions of natural gas compressors.
- State the starting, stopping, loading, and unloading procedures for a natural gas compressor.
- State the purpose, types, and basic functions of pipeline pumps.
- State the starting and stopping procedures for a products pump.
- Describe the functions of the devices used to prevent pipeline overpressure, including relief valves, monitor regulators, regulators, pressure switches, and pressure transmitters.
- Describe the requirements of Department of Transportation Regulations 192.195, 192.605, 192.619, 192.743, 195.402, 195.406, and 195.428.

71. Title: LQ: Pipeline System Control
Course Code: 09OQLQSC
Course Summary: Upon completion of this course, operating personnel will be able to:

- State the basic definitions of a liquid pipeline system.
- State the duties and responsibilities of a pipeline controller.
- Define the types of pipeline control and their regulations.
- Perform calculations on safe and timely product delivery.
- Describe and define SCADA and SCADA monitoring systems.
- State the procedure and follow-up actions for Emergency Response.

72. Title: LQ: Programmable Logic Controllers
Course Code: 09OQLQLC
Course Summary: Upon completion of this course, operating personnel will be able to:

- Specify the type of equipment the PLC replaces and some of the areas in which it might be used.
- Discuss the history of why and when the PLC was developed.
- Identify and discuss the basic function of the individual hardware components of a PLC.
- Identify and discuss the different modes of operation of a PLC.
- Discuss the function of the various types of PLC memory.
- Install a PLC in various types of environments.
- Calibrate and check out the analog loops in a PLC (make zero and span adjustments).
- Verify proper operation of discrete I/O in a PLC.
- Document the calibration and check out of a PLC.
- Perform basic troubleshooting of a PLC.

- Discuss PLC ladder logic concepts.
- Discuss timers and counters and their function in a PLC.
- Adjust pressure set points onsite in a PLC.
- Make timer and counter changes onsite in a PLC.
- Perform onsite changes to PLC logic.
- Implement a new or revised PLC program onsite.
- Properly document PLC program changes.
- Discuss the Federal Regulation requirements for the use of PLCs in the pipeline industry.

73. Title: LQ: Pressure Switches
Course Code: 09OQLQPS
Course Summary: Upon completion of this course, operating personnel will be able to:
- Define the functions of a pressure switch.
- Define absolute and gauge pressure.
- Discuss primary and secondary calibration standards.
- Inspect, operationally test, and calibrate a pressure switch.
- Document pressure switch calibration results.
- Discuss the federal regulations that apply to the calibration and operational testing of pressure switches.
- Define and recognize abnormal operating conditions in pressure switches.

74. Title: LQ: Pressure Transmitters
Course Code: 09OQLQPT
Course Summary: Upon completion of this course, operating personnel will be able to:
- Define the functions of a pressure transmitter.
- Define absolute and gauge pressure.
- Discuss primary and secondary calibration standards.
- Inspect, operationally test, and calibrate a pressure transmitter (both smart and non-smart).
- Document pressure transmitter calibration results.
- Discuss the federal regulations that apply to the calibration and operational testing of pressure transmitters.
- Define and recognize abnormal operating conditions in pressure transmitters.

75. Title: LQ: Cathodic Protection – Aboveground Storage Tanks
Course Code: 09OQLQCP
Course Summary: Upon completion of this course, operating personnel will be able to:
- Identify DOT regulations 195.416, 195.432, 195.242, and 195.244 regarding cathodic protection on liquid pipeline systems.
- List the four conditions that must be met before a corrosion cell can function.
- Describe why and where corrosion on metal structures occurs.
- State the function of the anodic and cathodic areas and their roles in protecting aboveground steel tanks from metal loss.
- Describe stray (interference) currents and direct current (DC).
- Identify general corrosion, pitting corrosion, and various types of corrosion cells on steel storage tanks.
- Describe the following two methods used to apply cathodic protection - galvanic (sacrificial) anodes and impressed current systems.

- State the external corrosion control testing intervals for cathodic protection systems and breakout tank inspections.
- Explain the role insulated (electrical isolation) joints and protective coatings play in cathodic protection efforts.
- Describe the theory of anode operation and the procedure for anode installation.
- Take measurements for tank bottom-to-soil potential readings while considering the IR drop.
- Take measurements for tank bottom-to-soil potential readings at the center of the tank bottom.
- Recognize abnormal operating conditions (AOC) related to the performance of rectifier inspections.
- React to these abnormal operating conditions.

76. Title: LQ: Inspection - Aboveground Storage Tanks
Course Code: 09OQLQST
Course Summary: Upon completion of this course, operating personnel will be able to:

- Identify DOT regulations 195.432, 195.434, 195.416, 195.242, and 195.244 regarding cathodic protection on liquid pipeline systems.
- Perform tank shell inspections in accordance with API-575 Inspection of Atmospheric and Low-Pressure Storage Tanks.
- List the four conditions that must be met before a corrosion cell can function.
- State how corrosion occurs where electrical current leaves or flows from a metal structure.
- State the function of the anodic and cathodic areas and their roles in protecting aboveground steel tanks from metal loss.
- Describe stray (interference) currents and direct current (DC).
- Identify general corrosion, pitting corrosion, and various types of corrosion cells on steel storage tanks.
- List two methods used to apply cathodic protection; galvanic (sacrificial) anodes and impressed current systems.
- State the external corrosion control testing intervals for cathodic protection systems, exposed pipe, and breakout tank inspection.
- Recognize abnormal operating conditions related to the performance of rectifier inspections and state the reactions to these abnormal operating conditions.

77. Title: LQ: Marking Pipelines – Temporary and Permanent
Course Code: 09OQLQMP
Course Summary: Upon completion of this course, operating personnel will be able to:

- Describe and perform DOT Regulation 195.252 excavation backfilling requirements for liquid pipeline operations.
- Describe and perform DOT Regulation 195.410 requiring liquid pipeline operators to locate, install, and maintain permanent pipeline marker signs.
- Describe DOT Regulation 195.416 (e) that requires liquid pipeline operators to perform a pipe inspection for evidence of external corrosion any time a pipeline is uncovered.
- Describe and perform DOT Regulation 195.440 that requires that liquid pipeline operators establish a continuing education program.
- Describe DOT Regulation 195.442 that requires liquid pipeline operators to have a written damage prevention program.
- Describe how one-call systems operate and state the responsibilities of the pipeline operator, excavator/contractor, and one-call center for successful facility locates.

- Describe and perform temporary pipeline marking using flags and marking paints, including timing and expiration of temporary markings.
- Describe symbols typically used to temporarily mark pipelines and typical pipeline location methods.
- State the qualifications required to successfully and safely perform pipeline location and marking, including required skills and knowledge.
- Describe the process used to safely excavate near a pressurized pipeline, including an explanation of the proper "safety buffer" zone around the pipeline.
- Describe the Abnormal Operating Conditions, recognition, and reactions associated with temporarily and permanently marking pipelines.

78. Title: LQ: Cathodic Protection Troubleshooting
Course Code: 09OQLQCT
Course Summary: Upon completion of this course, operating personnel will be able to:

- Describe DOT regulations regarding cathodic protection rectifiers, including 195.242 and 195.416.
- Identify the types of instruments required to troubleshoot rectifiers and cathodic protection systems.
- List safety precautions that should be followed while troubleshooting rectifiers.
- Identify typical abnormal operating conditions and reactions to each.
- Identify common operational problems that lead to rectifier failures.
- State the rectifier repair techniques.
- State the procedure guidelines for troubleshooting.
- Explain basic troubleshooting techniques used when locating contacts.

79. Title: LQ: Installation of Test Stations
Course Code: 09OQLQTS
Course Summary: Upon completion of this course, operating personnel will be able to:

- Define the terms needed to discuss exothermic welding and its procedures.
- State the purpose and function of test stations.
- Explain the Department of Transportation regulations 195.244 and 195.416 regarding cathodic protection and test stations.
- List the different types of test stations used for pipe-to-soil surveys.
- State the test station installation methods.
- Eplain the cable bonding techniques and exothermic welding methods used in the installation of test stations.
- State how to perform the pull test to ensure the test lead is securely connected to the pipeline.
- Identify the materials, spacing, and locations that are important to the installation of test stations.
- State how to recognize common abnormal operating conditions and the reactions required.