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*"Where Questions Become Knowledge"*

## Pipeline Corrosion & Cathodic Protection

| Library                                     | Course Code | Course Name<br><i>*Spanish Version</i>        | Description and Length (in minutes)<br>3-18-24                                                                                                                                                                                                                                                                   |
|---------------------------------------------|-------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ASME B31Q &amp; API 1161 BASED TASKS</b> |             |                                               |                                                                                                                                                                                                                                                                                                                  |
| API-Based Covered Tasks                     | CT-1.1      | Measure Structure-to-Soil Potentials          | <i>Measure Structure-to-Soil Potentials</i> explains the knowledge required to perform cathodic protection tests, including cathodic protection systems, test equipment, and the procedure for measuring structure-to-soil potentials. Abnormal operating conditions (AOCs) are also discussed. (15 min)         |
| API-Based Covered Tasks                     | CT-1.2      | Conduct a Close Interval Survey               | <i>Conduct a Close Interval Survey</i> explains the knowledge required before conducting a close interval survey, the preparation required before the survey, and the steps to perform the survey. Abnormal operating conditions (AOCs) are also discussed. (20 min)                                             |
| API-Based Covered Tasks                     | CT-1.4      | Inspect and Perform Electrical Tests of Bonds | <i>Inspecting and performing electrical Tests of bonds</i> explains the purpose and types of electrical bonds, the knowledge required before inspecting and testing bonds, visual inspections, and electrical testing bonds. Abnormal operating conditions (AOCs) are also discussed. (15 min)                   |
| API-Based Covered Tasks                     | CT-1.5      | Inspect and Test Electrical Isolation         | <i>Inspect and Test Electrical Isolation</i> explains the use of insulating devices to electrically isolate two metal structures, the equipment needed, the steps taken for inspecting and testing electrical isolation, and any possible abnormal operating conditions (AOCs) that may be encountered. (15 min) |

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| API-Based Covered Tasks | CT-2.1 | Verify Test Lead Continuity                                                               | <i>Verify Test Lead Continuity</i> explains the purpose of test leads, indications of a damaged test lead, the steps for verifying test lead continuity, and abnormal operating conditions (AOCs) that may be encountered. (15 min)                                                                                                                      |
| API-Based Covered Tasks | CT-2.4 | Install Test Leads by Exothermic Welding Methods                                          | <i>Install Test Leads by Exothermic Welding Methods</i> explains the purpose of installing test leads, the knowledge required to perform exothermic welds, the steps for performing exothermic welds, and abnormal operating conditions (AOCs) that may be encountered while installing test leads. (20 min)                                             |
| API-Based Covered Tasks | CT-3.0 | Obtain a Voltage and Current Output Reading From a Rectifier to Verify Proper Performance | <i>Obtain a Voltage and Current Output Reading From a Rectifier to Verify Proper Performance</i> reviews the role of a rectifier in cathodic protection, explains the procedure for verifying the proper performance of the rectifier, and describes possible abnormal operating conditions (AOCs). (15 min)                                             |
| API-Based Covered Tasks | CT-4.1 | Troubleshoot Rectifier                                                                    | <i>Troubleshoot Rectifier</i> explains the purpose of a rectifier and its components in a cathodic protection system, the knowledge required before troubleshooting a rectifier, the steps of troubleshooting, and possible abnormal operating conditions (AOCs). (15 min)                                                                               |
| API-Based Covered Tasks | CT-4.2 | Repair or Replace Defective Rectifier Components                                          | <i>Repair or Replace Defective Rectifier Components</i> reviews the role of a rectifier in cathodic protection, identifies the knowledge and skills required for repairing a rectifier, explains the procedure for repairing a rectifier by replacing defective components, and describes possible abnormal operating conditions (AOCs). (20 min)        |
| API-Based Covered Tasks | CT-4.3 | Adjust Rectifier                                                                          | <i>Adjust Rectifier</i> reviews the role of a rectifier in cathodic protection, identifies the knowledge and skills required for making adjustments to a rectifier, explains the procedure for making adjustments to a rectifier based on cathodic protection system requirements, and describes possible abnormal operating conditions (AOCs). (20 min) |

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| API-Based Covered Tasks | CT-5.1 | Examine for Mechanical Damage on Buried or Submerged Pipe             | Examine for Mechanical Damage on Buried or Submerged Pipe explains the purpose of damage inspection, the skills and knowledge required, the procedure for examining the pipe for mechanical damage on buried or submerged pipelines, and abnormal operating conditions (AOCs) that may be encountered while performing the task. (15 min) |
| API-Based Covered Tasks | CT-5.2 | Examine for External Corrosion on Buried or Submerged Pipe            | <i>Examine for External Corrosion on Buried or Submerged Pipe</i> explains the purpose for inspection, the required knowledge, the procedure for examining the pipe for external corrosion on buried or submerged pipelines, and abnormal operating conditions (AOCs) that may occur while performing the task. (15 min)                  |
| API-Based Covered Tasks | CT-5.3 | Inspect the Condition of External Coating on Buried or Submerged Pipe | <i>Inspect the Condition of External Coating on Buried or Submerged Pipe</i> explains the purpose of external coatings and the procedure for inspecting external coatings. Abnormal operating conditions (AOCs) are also discussed. (15 min)                                                                                              |
| API-Based Covered Tasks | CT-7.1 | Perform Visual Inspection of Atmospheric Coatings                     | <i>Perform Visual Inspection of Atmospheric Coatings</i> explains the purpose of the atmospheric coatings inspections, the knowledge and skills required, the procedure for the inspection, and any abnormal operating conditions (AOCs) that may be encountered during the process. (15 min)                                             |
| API-Based Covered Tasks | CT-8.3 | Measure Corroded Area                                                 | <i>Measure Corroded Area</i> identifies the knowledge and skills required for measuring a corroded area on a steel pipe, explains the measuring procedure, and describes possible abnormal operating conditions (AOCs). (20 min)                                                                                                          |
| API-Based Covered Tasks | CT-9.5 | Repair Shorted Casings                                                | <i>Repair Shorted Casings</i> describes the basic components of casing systems and the types of shorts that may be encountered, explains the repair procedure, and describes possible abnormal operating conditions (AOCs) that may be encountered. (20 min)                                                                              |
| API-Based Covered Tasks | CT-9.6 | Install an Electrical Insulating Device                               | <i>Install Electrical Insulating Device</i> explains the purpose of installing insulating devices, the knowledge and skills required, the procedures for installing various insulating devices, and abnormal operating conditions (AOCs) that may be encountered during the process. (40 min)                                             |

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| API-Based Covered Tasks | CT-12.0 | Perform a Visual Inspection of the Internal Pipe Surface                  | <i>Perform a Visual Inspection of the Internal Pipe Surface</i> , describe the types of corrosion and/or damage that may be discovered while visually inspecting an internal pipe surface, explain the inspection procedure, and describe possible abnormal operating conditions (AOCs). (20 min) |
| API-Based Covered Tasks | CT-14.1 | Locate Line                                                               | <i>Locate Line</i> examines the procedure for locating pipelines, including using the One-Call Notification System, maps and drawings, visual assessments, location methods, equipment, and verification techniques. Abnormal operating conditions (AOCs) are also discussed. (35 min)            |
| API-Based Covered Tasks | CT-14.2 | Install, Inspect, and Maintain Permanent Marker                           | <i>Install, Inspect, and Maintain Permanent Marker</i> discusses the knowledge and skills necessary to install, inspect, and maintain permanent markers for underground pipelines. Abnormal operating conditions (AOCs) are also discussed. (25 min)                                              |
| API-Based Covered Tasks | CT-14.5 | Install, Inspect, and Maintain Temporary Marker                           | <i>Install, Inspect, and Maintain Temporary Marker</i> discusses the knowledge and skills necessary to install, inspect, and maintain temporary markers for underground pipelines. Abnormal operating conditions (AOCs) are also discussed. (25 min)                                              |
| API-Based Covered Tasks | CT-15.1 | Perform Visual Inspection of Surface Conditions of Right-of-Way           | <i>Perform Visual Inspection of Surface Conditions of Right-of-Way</i> discusses the steps necessary to visually inspect surface conditions of pipeline rights-of-way. Abnormal operating conditions (AOCs) are also discussed. (25 min)                                                          |
| API-Based Covered Tasks | CT-32.0 | Observation of Excavation Activities                                      | <i>Observation of Excavation Activities</i> examines the responsibilities of a qualified observer, excavation complexity, observation procedure, potential hazards, and abnormal operating conditions (AOCs) that may be encountered. (30 min)                                                    |
| API-Based Covered Tasks | CT-38.1 | Perform Visual Inspection of Pipe and Pipe Components Before Installation | <i>Perform Visual Inspection of Pipe and Pipe Components Before Installation</i> ; explain the importance of the inspection, possible defects on pipe and components, the procedure for the inspection, and abnormal operating conditions (AOCs) that may be encountered. (15 min)                |

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| API-Based Covered Tasks         | CT-39.0   | Backfilling a Trench Following Maintenance                        | <i>Backfilling a Trench Following Maintenance</i> describes how to prevent damage to a pipeline while backfilling a trench, explains the procedure for backfilling a trench, and describes abnormal operating conditions (AOCs) that may be encountered. (20 min)                                                                                              |
| <b>ASME-BASED COVERED TASKS</b> |           |                                                                   |                                                                                                                                                                                                                                                                                                                                                                |
| ASME-Based Covered Tasks        | ASME-0001 | Measure Structure-to-Electrolyte Potential                        | <i>Measure Structure-to-Electrolyte Potential</i> explains the knowledge required to perform cathodic protection tests, including an overview of cathodic protection systems and test equipment and the procedure for measuring structure-to-electrolyte potential. Abnormal operating conditions (AOCs) are also discussed. (15 min)                          |
| ASME-Based Covered Tasks        | ASME-0011 | Conduct a Close Interval Survey                                   | <i>Conduct a Close Interval Survey</i> explains the purpose of a close interval survey, the preparation work for the survey, the steps to perform the close interval survey, including how to take structure-to-soil potentials and log data. Abnormal operating conditions (AOCs) are also discussed. (20 min)                                                |
| ASME-Based Covered Tasks        | ASME-0021 | Measure Soil Resistivity                                          | <i>Measure Soil Resistivity</i> covers soil resistivity measurement methods, the appropriate measuring equipment and tools, proper testing locations, how to measure soil resistivity and record data, and abnormal operating conditions (AOCs) that may be encountered during this task. (25 min)                                                             |
| ASME-Based Covered Tasks        | ASME-0031 | Inspect and Monitor Galvanic Ground Beds/Anodes                   | <i>Inspect and Monitor Galvanic Ground Beds/Anodes</i> explains how to inspect and monitor galvanic ground beds and anodes by verifying their test location, taking structure-to-electrolyte potentials, analyzing the remaining life of the anodes, and documenting the results. Possible abnormal operating conditions (AOCs) are also discussed. (20 min)   |
| ASME-Based Covered Tasks        | ASME-0041 | Installation and Maintenance of Mechanical Electrical Connections | <i>Installation and Maintenance of Mechanical Electrical Connections</i> explains how to install mechanical electrical connections, verify the test equipment, perform maintenance on damaged test leads, and verify mechanical integrity and electrical continuity. Abnormal operating conditions (AOCs) that may be encountered are also discussed. (10 min) |

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| ASME-Based Covered Tasks | ASME-0051 | Installation of Exothermic Electrical Connections                | <i>Installation of Exothermic Electrical Connections</i> explains the purpose of installing electrical connections, discusses the knowledge required before performing the exothermic welds, describes the steps and equipment for performing exothermic welds, and lists possible abnormal operating conditions (AOCs) that may be encountered during the installation. (20 min)                          |
| ASME-Based Covered Tasks | ASME-0061 | Inspect or Test Cathodic Protection Bonds                        | <i>Inspect or Test Cathodic Protection Bonds</i> explains the purpose of cathodic protection bonds, the types of bonds, the use of shunts, the procedure for inspecting and testing, and how to recognize and react to any abnormal operating conditions (AOCs) that may occur during the inspection or testing. (15 min)                                                                                  |
| ASME-Based Covered Tasks | ASME-0071 | Inspect or Test Cathodic Protection Electrical Isolation Devices | <i>Inspect or Test Cathodic Protection Electrical Isolation Devices</i> explains the purpose of electrical isolation devices, the locations and types of isolating devices, the procedures for inspecting and testing isolation devices, and discusses abnormal operating conditions (AOCs) that may be encountered while inspecting or testing cathodic protection electrical isolation devices. (20 min) |
| ASME-Based Covered Tasks | ASME-0081 | Install Cathodic Protection Electrical Isolation Devices         | <i>Install Cathodic Protection Electrical Isolation Devices</i> explains the purpose of installing electrical isolating devices, the knowledge and skills required, the procedures for installing various electrical isolating devices, and potential abnormal operating conditions (AOCs) that may be encountered during the process. (25 min)                                                            |
| ASME-Based Covered Tasks | ASME-0091 | Troubleshoot Active Cathodic Protection System                   | <i>Troubleshoot Active Cathodic Protection System</i> explains the purpose of troubleshooting cathodic protection systems. It describes the equipment needed for troubleshooting, the procedures, and the abnormal operating conditions (AOCs) that may be encountered. (20 min)                                                                                                                           |
| ASME-Based Covered Tasks | ASME-0101 | Inspect the Rectifier and Obtain Readings                        | <i>Inspect Rectifier and Obtain Readings</i> reviews the role of a rectifier in cathodic protection, explains the procedures for inspecting a rectifier and obtaining electrical output readings to verify the proper performance of the rectifier, and describes possible abnormal operating conditions (AOCs). (15 min)                                                                                  |

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| ASME-Based Covered Tasks | ASME-0111 | Maintain Rectifier                                           | <i>Maintain Rectifier</i> reviews the role of a rectifier in cathodic protection, identifies the knowledge and skills required for performing maintenance on a rectifier, explains the procedure for performing rectifier maintenance, and describes abnormal operating conditions (AOCs) that may be encountered. (35 min)                                    |
| ASME-Based Covered Tasks | ASME-0141 | Visual Inspection for Atmospheric Corrosion                  | <i>Visual Inspection for Atmospheric Corrosion</i> explains the purpose of visual inspections for atmospheric corrosion, illustrates the types of coating failures, explains the procedure for visual inspections, and lists abnormal operating conditions (AOCs) that may be encountered while performing an inspection. (15 min)                             |
| ASME-Based Covered Tasks | ASME-0151 | Visual Inspection of Buried Pipe and Components When Exposed | <i>Visual Inspection of Buried Pipe and Components When Exposed</i> explains the purpose of the inspection; defines the terms related to external corrosion, coatings, coating anomalies, and coating methods; explains the procedure for the inspection; and discusses abnormal operating conditions (AOCs) that may be encountered during the task. (20 min) |
| ASME-Based Covered Tasks | ASME-0161 | Visual Inspection for Internal Corrosion                     | <i>Visual Inspection for Internal Corrosion</i> describes the types of corrosion that may be discovered while visually inspecting the internal surfaces of a pipe or component, explains the inspection procedure, and describes possible abnormal operating conditions (AOCs) that may be encountered. (15 min)                                               |
| ASME-Based Covered Tasks | ASME-0171 | Measure External Corrosion                                   | <i>Measure External Corrosion</i> describes various types of corrosion that may be encountered while measuring external corrosion on steel pipe, explains how to measure external corrosion, and describes abnormal operating conditions (AOCs) that may be encountered. (25 min)                                                                              |
| ASME-Based Covered Tasks | ASME-0181 | Measure Internal Corrosion                                   | <i>Measure Internal Corrosion</i> describes various types of corrosion that may be encountered while measuring internal corrosion on steel pipe, explains the measuring and mapping procedure, and describes abnormal operating conditions (AOCs) that may be encountered. (30 min)                                                                            |

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| ASME-Based Covered Tasks | ASME-0191 | Measure Atmospheric Corrosion                                               | <i>Measure Atmospheric Corrosion</i> examines the characteristics of atmospheric corrosion on aboveground pipelines, surface preparations, equipment checks, measurement methods, and abnormal operations conditions (AOCs) that may be encountered when measuring atmospheric corrosion. (30 min)                                                       |
| ASME-Based Covered Tasks | ASME-0201 | Visual Inspection of Installed Pipe and Components for Mechanical Damage    | <i>Visual Inspection of Installed Pipe and Components for Mechanical Damage</i> explains the purpose of visually inspecting for mechanical damage, the terms related to mechanical damage, the procedure for visually inspecting for mechanical damage, and any abnormal operating conditions (AOCs) that may occur while doing the inspection. (15 min) |
| ASME-Based Covered Tasks | ASME-0211 | Measure and Characterize Mechanical Damage on Installed Pipe and Components | <i>Measure and Characterize Mechanical Damage on Installed Pipe and Components</i> explains the purpose and procedure for measuring and characterizing mechanical damage, defines terms regarding mechanical damage, and describes abnormal operating conditions (AOCs) that may be encountered during the inspection. (15 min)                          |
| ASME-Based Covered Tasks | ASME-0641 | Visually Inspect Pipe and Components Before Installation                    | Visually Inspect Pipe and Components Before Installation explains the importance of inspecting pipe and pipe components, possible defect terms, the procedure for the inspection, and possible abnormal operating conditions (AOCs) that could be encountered while performing the inspection. (15 min)                                                  |
| ASME-Based Covered Tasks | ASME-0721 | Joining of Pipe: Threaded Joints                                            | Joining of Pipe: Threaded Joints explore how to join pipe with a threaded fitting and inspect the completed joint. The course examines key concepts such as pipe wall thickness and grade, diameter, thread type, pressure rating, and material. Abnormal operating conditions (AOCs) are also discussed. (20 min)                                       |
| ASME-Based Covered Tasks | ASME-0731 | Joining of Pipe: Flange Assembly                                            | Joining of Pipe: Flange Assembly examines the steps necessary to assemble flanges, bolt them sequentially, and apply the proper torquing. The types of flanges and gaskets are discussed, as well as preparations for flange assembly and inspection of the completed assembly. Abnormal operating conditions (AOCs) are also discussed. (20 min)        |

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| ASME-Based Covered Tasks | ASME-0961 | Aboveground Supports and Anchors: Inspection, Preventive, and Corrective Maintenance | Aboveground Supports and Anchors: Inspection, Preventive, and Corrective Maintenance explains the purpose of inspecting and maintaining aboveground pipe supports and anchors and the procedure for inspecting and maintaining aboveground pipe supports and anchors. Abnormal operating conditions (AOCs) are also discussed. (15 min)                                          |
| ASME-Based Covered Tasks | ASME-0971 | Installation and Maintenance of Casing Spacers, Vents, and Seals                     | Installation and Maintenance of Casing Spacers, Vents, and Seals describes the basic components of casing systems, explains the procedures for installing and maintaining casing spacers, vents, and seals, and discusses possible abnormal operating conditions (AOCs) that may be encountered. (25 min)                                                                        |
| ASME-Based Covered Tasks | ASME-0981 | Backfilling                                                                          | Backfilling describes how to prevent damage to a pipeline while backfilling a trench after maintenance, explains the procedure for backfilling a trench, and describes abnormal operating conditions (AOCs) that may be encountered. (20 min)                                                                                                                                    |
| ASME-Based Covered Tasks | ASME-0991 | Coating Application and Repair: Brushed or Rolled                                    | Coating Application and Repair: Brushed or Rolled explains how to prepare and apply a protective coating to pipes, tanks, and other industrial surfaces using the brushed and rolled application techniques. It also discusses surface preparation, application techniques, and inspection points. Abnormal operating conditions (AOCs) are also discussed. (30 min)             |
| ASME-Based Covered Tasks | ASME-1001 | Coating Application and Repair: Sprayed                                              | Coating Application and Repair: Sprayed explains how to apply protective coating to pipes, tanks, and other industrial surfaces using the sprayed application technique. The course covers surface preparation, proper application technique, and visual inspection points. Abnormal operating conditions (AOCs) that may be encountered are also discussed. (25 min)            |
| ASME-Based Covered Tasks | ASME-1011 | External Coating Application and Repair: Wrapped                                     | External Coating Application and Repair: Wrapped explains how to apply a protective coating to pipes, tanks, and other industrial surfaces using the wrapped application technique. The course covers surface preparation, proper application technique, and visual inspection points. Abnormal operating conditions (AOCs) that may be encountered are also discussed. (25 min) |

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| ASME-Based Covered Tasks | ASME-1231 | Inside Gas Leak Investigation                                        | Inside Gas Leak Investigation explains the purpose of an inside gas leak investigation, test equipment verification, how to conduct the investigation, and the precautions that should be taken. Abnormal operating conditions (AOCs) that may be encountered during the task are also discussed. (10 min)                                                            |
| ASME-Based Covered Tasks | ASME-1241 | Outside Gas Leak Investigation                                       | Outside Gas Leak Investigation explains the purpose of an outside gas leak investigation, test equipment verification, how to conduct the investigation, and precautions to take. Abnormal operating conditions (AOCs) that may be encountered during the task are also discussed. (10 min)                                                                           |
| ASME-Based Covered Tasks | ASME-1251 | Hazardous Liquid Leak Investigation                                  | Hazardous Liquid Leak Investigation explains the purpose of the investigation and the initial information required. It also discusses how to assess the suspected leak area, what to do if it is discovered, how to make the area safe, and whom to notify. Abnormal operating conditions (AOCs) that may be encountered during the task are also discussed. (15 min) |
| ASME-Based Covered Tasks | ASME-1261 | Walking Gas Leakage Survey                                           | The walking Gas Leakage Survey explains the purpose of the survey, inspection of the test equipment, conduction of the survey, documentation for the survey, and abnormal operating conditions (AOCs) that may be encountered. (10 min)                                                                                                                               |
| ASME-Based Covered Tasks | ASME-1291 | Locate Underground Pipelines                                         | Locating Underground Pipelines examines the procedure for locating underground pipelines, including placing temporary markers. The One-Call System, locating methods, the APWA Universal Color Code, and abnormal operating conditions (AOCs) are also described. (25 min)                                                                                            |
| ASME-Based Covered Tasks | ASME-1301 | Install and Maintain Pipeline Markers                                | Install and Maintain Pipeline Markers discusses the location, placement, and maintenance of permanent pipeline markers. Abnormal operating conditions (AOCs) are also discussed. (25 min)                                                                                                                                                                             |
| ASME-Based Covered Tasks | ASME-1311 | Inspect Pipeline Surface Conditions: Patrol Right-of-Way or Easement | <i>Inspect Pipeline Surface Conditions: Patrol Right-of-Way or Easement</i> explores preparations, procedures, and follow-up actions to inspect pipeline right-of-ways. Abnormal operating conditions (AOCs) are also addressed. (20 min)                                                                                                                             |

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| ASME-Based Covered Tasks | ASME-1321 | Damage Prevention During Excavation Activities by or on behalf of the Operator                                            | <i>Damage Prevention During Excavation Activities, by or on behalf of the Operator</i> , damage prevention activities before and during excavation are examined. Abnormal operating conditions (AOCs) are also discussed. (20 min)                                                         |
| ASME-Based Covered Tasks | ASME-1331 | Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined Necessary by Operator | <i>Damage Prevention Inspection During Third-Party Excavation or Encroachment Activities as Determined Necessary by Operator</i> explores how to conduct damage prevention inspections, including recognizing and reacting to abnormal operating conditions (AOCs). (20 min)               |
| ASME-Based Covered Tasks | ASME-1341 | Provide or Ensure Adequate Pipeline Support During Initiated Excavation Activities                                        | <i>Provide or ensure adequate pipeline support during operator-initiated excavation activities</i> . Discuss supports for existing pipelines being excavated for maintenance or repair. Abnormal operating conditions (AOCs) are also discussed. (15 min)                                  |
| ASME-Based Covered Tasks | ASME-1351 | Vault Inspection and Maintenance                                                                                          | <i>Vault Inspection and Maintenance</i> discusses the requirements for inspecting and maintaining vaults that house pipeline system valves and other pressure-regulating or pressure-limiting equipment. Abnormal operating conditions (AOCs) are also discussed. (15 min)                 |
| ASME-Based Covered Tasks | ASME-1411 | Indirect Inspection Techniques                                                                                            | <i>Indirect Inspection Techniques</i> examines four methods of indirect inspection for pipelines, including alternating and direct current voltage gradient surveys, close interval surveys, and soil resistivity tests. Abnormal operating conditions (AOCs) are also discussed. (15 min) |
| ASME-Based Covered Tasks | ASME-1421 | Direct Examination Techniques                                                                                             | <i>Direct Examination Techniques</i> address techniques used to assess pipeline damage, including mechanical, coating, and corrosion damage. The course also discusses abnormal operating conditions (AOCs) that may be encountered. (15 min)                                              |
| ASME-Based Covered Tasks | ASME-1651 | Purge - Flammable or Inert Gas                                                                                            | <i>Purge - Flammable or Inert Gas</i> explains the purpose of purging pipelines with natural gas, air, and inert gas; lists preparations for purging a pipeline; describes how to perform the purge; and discusses abnormal operating conditions (AOCs) that may be encountered. (15 min)  |

## PIPELINE OPERATOR QUALIFICATION (OQ)

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| Pipeline Operator Qualification | 001  | Operator Qualification Summary                      | <i>Operator Qualification Summary</i> discusses the development of an operator qualification program required of each pipeline company. It summarizes the process for qualifying an individual to perform covered tasks. (15 min)                                                                                                                                                                   |
| Pipeline Operator Qualification | 002  | Introduction to the Natural Gas Industry            | <i>Introduction to the Natural Gas Industry</i> explains what natural gas is, why it is useful, and what it is used for. A brief description of the path of natural gas from the well to the customer is given, along with a list of agencies responsible for pipeline regulations and the responsibilities of each pipeline employee to maintain safety and good environmental practices. (25 min) |
| Pipeline Operator Qualification | 003  | Guidelines for Proctoring Tests and Evaluations     | <i>Guidelines for Proctoring Tests and Evaluations</i> discusses the importance of and offers recommended guidelines for quality control during operator qualification examinations. This course also discusses the responsibilities of the mentor, proctor, and evaluator and how to validate testing using ExxTend Learning™. (10 min)                                                            |
| Pipeline Operator Qualification | 004  | Documenting a Field Evaluation in ExxTend Learning™ | <i>Documenting a Field Evaluation in ExxTend Learning™</i> is a brief "how-to" course for administrators and field evaluators who must credit personnel with completion of a field evaluation, include documentation, and access user history and reports. (10 min)                                                                                                                                 |
| Pipeline Operator Qualification | 0361 | * Electric Valve Actuators                          | <i>Electric Valve Actuators</i> explain the basic design, design features, operation, and maintenance of electric valve actuators. Abnormal operating conditions (AOCs) associated with electric valve actuators are included. (40 min)                                                                                                                                                             |
| Pipeline Operator Qualification | 0981 | * Backfilling                                       | <i>Backfilling</i> discusses the basic requirements for backfilling pipeline evacuations, including inspection, filling standards, soil conditions, environmental considerations, and abnormal operating conditions. (20 min)                                                                                                                                                                       |

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| Pipeline Operator Qualification | 100  | Prevention of Accidental Ignition & Potential Ignition Sources | <i>Prevention of Accidental Ignition &amp; Potential Ignition Sources</i> examines the DOT rules governing accidental ignition sources of natural gas. Other topics include the fire triangle, common ignition sources for escaping natural gas, buildup and/or discharge of static electricity, hot and cold cutting and welding, and isolation of pipeline segments. (60 min)                                                                                         |
| Pipeline Operator Qualification | 1010 | Abnormal Operating Conditions: Recognize and React             | <i>Abnormal Operating Conditions: Recognize and React</i> covers the definition of abnormal operating conditions (AOCs), identifying AOCs, operator qualification, identification of covered tasks, recognition and reaction to AOCs, and rating hazards. This course assists in compliance with DOT regulations and references the B31Q standard. (40 min)                                                                                                             |
| Pipeline Operator Qualification | 1011 | Abnormal Operations and Safety-Related Conditions              | <i>Abnormal Operations and Safety-Related Conditions</i> explains the difference between abnormal and abnormal operating conditions, describes safety-related conditions, and how to recognize possible causes of abnormal operations, including appropriate responsive actions. Reporting requirements for safety-related conditions are also stated. References to DOT standards that apply to abnormal operations and safety-related conditions are listed. (15 min) |
| Pipeline Operator Qualification | 1012 | Abnormal Operations                                            | <i>Abnormal Operations</i> explores the difference between abnormal operations and abnormal operating conditions (AOCs). The course also examines responding to, reporting, and recording abnormal operations. (15 min)                                                                                                                                                                                                                                                 |
| Pipeline Operator Qualification | 103  | Characteristics and Properties of Natural Gas                  | <i>Characteristics and Properties of Natural Gas</i> explores the composition, properties, and explosive characteristics of natural gas; the history of natural gas use; gas leak and carbon monoxide monitoring; and natural gas safety. (55 min)                                                                                                                                                                                                                      |
| Pipeline Operator Qualification | 105  | * CGIs and Flame Ionization Units                              | <i>CGIs and Flame Ionization Units</i> examine categories of combustible gas instruments; characteristics and properties of natural gas; the fire triangle; LELs; UELs; OSHA safe working levels; carbon monoxide hazards and detection; and the use, operation, and inspection of combustible gas indicators and flame ionization units. (60 min)                                                                                                                      |

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| Pipeline Operator Qualification | 106 | * OSHA/DOT - Excavation Safety                | <i>OSHA/DOT - Excavation Safety</i> explains basic excavation safety, requirements, soil classification, testing, causes of cave-ins, excavation protection, and related abnormal operating conditions (AOCs). (60 min)                                                                                                                                                            |
| Pipeline Operator Qualification | 107 | * Pipeline Pigging                            | <i>Pipeline Pigging</i> explores the reasons for pigging, pig types and uses, common pigging techniques, safe launching and receiving practices, and smart pigging techniques. (90 min)                                                                                                                                                                                            |
| Pipeline Operator Qualification | 108 | Work Zone Safety                              | <i>Work Zone Safety</i> covers the types and usage of traffic control devices, setting up safe work zones, and proper flagging procedures. (20 min)                                                                                                                                                                                                                                |
| Pipeline Operator Qualification | 200 | * Leak Survey & Leak Classification           | <i>Leak Survey &amp; Leak Classification</i> examines house counts, class locations, use of a "sliding mile," leak surveys and classification, pipeline patrols, pipeline marker installation, natural gas detection instruments, bar hole testing, natural gas migration patterns, leak survey records, and more. (100 min)                                                       |
| Pipeline Operator Qualification | 201 | * Population Density Change & Pipeline Patrol | <i>Population Density Change &amp; Pipeline Patrol</i> examines surveys for transmission, jurisdictional gathering, and distribution facilities; leak surveys and pipeline patrols; pipeline marker installation; house counts; natural gas detection instruments; marking exposed pipe; and more. (75 min)                                                                        |
| Pipeline Operator Qualification | 205 | Pipeline Crossings                            | <i>Pipeline Crossings</i> addresses considerations involving natural gas pipelines at bridges, stream crossings, ravines, levees, highways, and railroad crossings. External corrosion, control of buried or submerged pipelines, protective measures, use of electrical surveys, corrosion history reviews, and records of exposed pipe examinations are also discussed. (65 min) |
| Pipeline Operator Qualification | 206 | * Leak & Pipeline Failure Investigation       | <i>Leak &amp; Pipeline Failure Investigation</i> addresses the importance of controlling pipeline leakage and the proper steps of leak investigation necessary for the safe operation of any natural gas pipeline system. Applicable regulations, leaks in progress, special leak precautions, leak detection, and leak surveys are also examined. (65 min)                        |

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| Pipeline Operator Qualification | 207  | * Investigating Pipeline Failure                   | <i>Investigating Pipeline Failure</i> explores the control of natural gas pipeline leakage and necessary leak investigation steps. DOT regulations for continuing surveillance and investigation of failure have also been reviewed. (15 min)                                                                                                              |
| Pipeline Operator Qualification | 244  | * Current Interrupters                             | <i>Current Interrupters</i> defines current interrupters and their basic uses, configurations, features, and installation instructions for close-interval surveys. Abnormal operating conditions (AOCs) associated with current interrupters are included. (20 min)                                                                                        |
| Pipeline Operator Qualification | 3000 | * Damage Prevention                                | <i>Damage Prevention</i> explains the requirements for locating and marking underground facilities before excavation work can take place. The main topics include the one-call system, underground facility locating, marking methods, public and contractor education, and abnormal operating conditions. (AOCs). (35 min)                                |
| Pipeline Operator Qualification | 3001 | * Locating and Marking Buried Pipelines            | <i>Locating and Marking Buried Pipelines</i> explains the requirements for locating and marking underground facilities before excavation work may take place. Common abnormal operating conditions (AOCs) that may be encountered while excavating are identified, including possible responses. (30 min)                                                  |
| Pipeline Operator Qualification | 301  | * Vault Inspection and Confined Space Entry        | <i>Vault Inspection and Confined Space Entry</i> address key vault maintenance and inspection regulations. Topics include vault inspection, hazardous atmospheres, vault entry, OSHA requirements for permit-required confined space entry, confined space hazards, entry planning and pre-entry training, and prevention of accidental ignition. (75 min) |
| Pipeline Operator Qualification | 4090 | * Pipeline Repair: Grinding, Welding, and Sleeving | <i>Pipeline Leak Repair: Grinding, Welding, and Sleeving</i> explains the various types of pipeline leaks and the methods to repair them. The definitions and procedures for "hot" and "cold" cutting and welding are included. (35 min)                                                                                                                   |
| Pipeline Operator Qualification | 4091 | * Pipeline Repair: Composites                      | <i>Pipeline Repair: Composites</i> explains how composites repair imperfections and damage on pipelines. (25 min)                                                                                                                                                                                                                                          |
| Pipeline Operator Qualification | 4095 | * Pipeline Repair: Sleeving Including Helical Pipe | <i>Pipeline Repair: Sleeving Including Helical Pipe</i> discusses various methods for pipeline repair with an emphasis on weld-type sleeves. Abnormal operating conditions (AOCs) are included. (40 min)                                                                                                                                                   |

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| Pipeline Operator Qualification | 410  | * Cast Iron Joints                     | <i>Cast Iron Joints</i> discusses the common problems associated with cast iron pipe, such as graphitization, and explains the methods for cast iron pipe joint repair, including joint clamps and encapsulation. Abnormal operating conditions (AOCs) are also discussed. (15 min)                                                  |
| Pipeline Operator Qualification | 411  | * Pipeline Purging With Air and Gas    | <i>Pipeline Purging With Air and Gas</i> explains the mechanical nature of purging, isolation methods, and purging processes with either air or gas. (40 min)                                                                                                                                                                        |
| Pipeline Operator Qualification | 4120 | * Hot Tapping                          | <i>Hot Tapping</i> addresses the mechanical procedures, safety precautions, and limitations of pressurized pipeline tapping; procedures and precautions for preparing a pipeline for a hot tap operation; and mechanical procedures and precautions for pressurized pipeline stopping. (35 min)                                      |
| Pipeline Operator Qualification | 4121 | * Line Stopping                        | <i>Line Stopping</i> defines line stopping and the regulatory requirements for performing a line stop. Other key topics include locating and identifying the proper line, preparation considerations, and the steps of the line stopping process. (50 min)                                                                           |
| Pipeline Operator Qualification | 414  | Abandonment of Facilities              | <i>Abandonment of Facilities</i> examines the deactivation and abandonment of steel and plastic pipeline facilities, including mains, services, regulators, meters, and odorizers; it also examines the importance of documenting deactivated and abandoned facilities. (45 min)                                                     |
| Pipeline Operator Qualification | 415  | * Installation of Anodes               | <i>Installation of Anodes</i> explains the anode theory, the different types of anodes, a general outline for installing anodes, and a procedure for exothermic welding. (25 min)                                                                                                                                                    |
| Pipeline Operator Qualification | 416  | Pipeline Shutdown and Startup Planning | <i>Pipeline Shutdown and Startup Planning</i> addresses steps to be taken during a planned shutdown, steps for returning a shutdown section to operation and starting up a new line, basic procedures for emergency shutdown, and how to prevent accidental ignition during shutdown and startup. (45 min)                           |
| Pipeline Operator Qualification | 501  | * Cathodic Protection Troubleshooting  | <i>Cathodic Protection Troubleshooting</i> explains cathodic protection systems, equipment needed for troubleshooting, safety precautions, and troubleshooting procedures for locating rectifier faults, cable breaks, insulators, and contacts. Abnormal operating conditions (AOCs) that may be encountered are included. (50 min) |

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| Pipeline Operator Qualification | 502  | * Cathodic Protection - Rectifier Inspections          | <i>Cathodic Protection - Rectifier Inspections</i> explain cathodic protection systems, rectifier types, rectifier inspections, and calculating rectifier efficiency. Abnormal operating conditions (AOCs) that may be encountered while inspecting and testing rectifiers are included. (35 min) |
| Pipeline Operator Qualification | 503  | * Protective Coatings                                  | <i>Protective Coatings</i> explains basic corrosion, protective measures, corrosion regulations, surface preparation, and coating application. Abnormal operating conditions (AOCs) that may be encountered while inspecting and applying protective coatings are included. (45 min)              |
| Pipeline Operator Qualification | 504  | * Installation of Test Stations                        | <i>Installation of Test Stations</i> addresses exothermic welding procedures, test station function, test stations used for pipe-to-soil surveys, test station installation methods, cable bonding techniques, soldering methods, materials, spacing, and location. (50 min)                      |
| Pipeline Operator Qualification | 505  | Cathodic Protection Criteria                           | <i>Cathodic Protection Criteria</i> addresses cathodic protection criteria and piping applications, cathodic protection surveys, and survey data evaluation and reporting. (50 min)                                                                                                               |
| Pipeline Operator Qualification | 506  | * Electrical Insulator Inspections and Testing Casings | <i>Electrical Insulator Inspections and Testing Casings</i> explain the purpose and requirements for pipeline casings, types of casing, coatings, testing casing, electrical insulating devices, and insulating devices. (40 min)                                                                 |
| Pipeline Operator Qualification | 507  | * Internal Corrosion                                   | <i>Internal Corrosion</i> explains the requirements and acceptable methods for pipe inspections. The different causes of internal pipe corrosion, monitoring, and corrosion control methods are also described. Industry standards for acceptable gas quality are included. (45 min)              |
| Pipeline Operator Qualification | 508  | * Interference: AC and DC                              | <i>Interference: AC and DC</i> discuss foreign interference concepts, cathodic protection, gradient areas, DC transit systems, AC-induced current, interference testing, corrective actions, and related AOCs. (45 min)                                                                           |
| Pipeline Operator Qualification | 5090 | * Structure-to-Electrolyte Surveys                     | <i>Structure-to-electrolyte surveys</i> discuss structure-to-electrolyte survey equipment, readings, meters, close interval surveys, logging data, and related abnormal operating conditions (AOCs). (40 min)                                                                                     |

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| Pipeline Operator Qualification | 5091 | Basic Corrosion                                         | <i>Basic Corrosion</i> explains basic corrosion, the causes and types of corrosion, bacterial corrosion, and factors such as pH and temperature that affect corrosion rates. (25 min)                                                                                                                                                                                  |
| Pipeline Operator Qualification | 5093 | * Close Interval Surveys                                | <i>Close Interval Surveys</i> discuss the purpose and requirements of a close interval survey, required equipment, steps of a survey, survey impediments and solutions, data loggers, and documentation. Abnormal operating conditions (AOCs) that may occur during a close-interval survey are included. (35 min)                                                     |
| Pipeline Operator Qualification | 510  | * Atmospheric Corrosion - Pipeline Operations           | <i>Atmospheric Corrosion - Pipeline Operations</i> addresses requirements for atmospheric corrosion control, the corrosion process, attributes of and risk factors for atmospheric corrosion, and protective measures for atmosphere corrosion control. (30 min)                                                                                                       |
| Pipeline Operator Qualification | 606  | * NDT: Magnetic Particle Inspection                     | <i>NDT: Magnetic particle inspection (MPI)</i> explains the use of magnetic particle inspection (MPI) to detect cracks, anomalies, and stress corrosion cracking (SCC). It also explains the wet or dry magnetic particle inspection procedure. Common abnormal operating conditions (AOCs) may be encountered, including possible reactions, are identified. (35 min) |
| Pipeline Operator Qualification | 607  | * NDT: Liquid Dye Penetrant Inspection                  | <i>NDT: Liquid Dye Penetrant Inspection</i> examines the liquid dye penetrant inspection process, including weld preparation, application of liquid penetrant cleaner and developer, weld post-cleaning, documentation requirements, and abnormal operating conditions (AOCs). (35 min)                                                                                |
| Pipeline Operator Qualification | 608  | Pipeline Integrity: High Consequence Area Field Surveys | <i>Pipeline Integrity: High Consequence Area Field Surveys</i> discuss the description of class location units, class locations, DOT requirements, high consequence areas, and abnormal operating conditions (AOCs) that may be encountered. (30 min)                                                                                                                  |
| Pipeline Operator Qualification | 609  | * Dresser Coupled Pipelines                             | <i>Dresser Coupled Pipelines</i> explains how Dresser couplings work, bonding couplings, locating unbonded couplings, types of repairs, repair procedures, and related abnormal operating conditions (AOCs). (25 min)                                                                                                                                                  |

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| Pipeline Operator Qualification | 610  | * Ultrasonic Thickness Testing | <i>Ultrasonic Thickness Testing</i> examines the purpose and applicability of ultrasonic thickness testing. The steps for conducting an ultrasonic thickness test are explained, such as pipe or metal surface preparation and the use of couplant gel. (35 |
| Pipeline Operator Qualification | 1312 | * Aerial Patrol                | <i>Aerial Patrol</i> discusses aerial pipeline patrol, reportable conditions, patrol frequency, required documentation, emergency observations, and abnormal operating conditions (AOCs). (30 min)                                                          |

## LIQUIDS PIPELINE

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| Pipeline Operator Qualification | LQ100 | LQ: Subpart H - Corrosion Control                 | <i>LQ: Subpart H - Corrosion Control</i> examines corrosion control regulations; pipeline patrols; population changes and encroachments; underwater inspection and reburial of pipelines; and inspection of exposed pipelines, right-of-way markers, in-service breakout tanks, and rectifiers. (30 min)                                                                            |
| Pipeline Operator Qualification | LQ201 | * LQ: Pipeline Patrol                             | <i>LQ: Pipeline Patrol</i> explains the methods of pipeline patrols, required inspections and intervals, visual inspections, electrical inspections, and right-of-way maintenance. (50 min)                                                                                                                                                                                         |
| Pipeline Operator Qualification | LQ202 | * LQ: Pressure Testing Steel Pipelines            | <i>LQ: Pressure Testing Steel Pipelines</i> explains the requirements for pressure testing steel pipelines, pipe design, MOP and pressure testing, pre-test considerations, pressure test procedures, and abnormal operating conditions during pressure testing. (35 min)                                                                                                           |
| Pipeline Operator Qualification | LQ300 | * LQ: Marking Pipelines - Temporary and Permanent | <i>LQ: Marking Pipelines - Temporary and Permanent</i> addresses corrosion inspection for uncovered pipelines, continuing education, damage prevention programs, one-call systems, facility locations, temporary pipeline marking, symbols, required qualifications, excavation near pressurized pipelines, safety buffer zones, and abnormal operating conditions (AOCs). (65 min) |

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| Pipeline Operator Qualification | LQ400 | * LQ: Below Ground Pipe Coatings & Exposed Pipe | <i>LQ: Below Ground Pipe Coatings &amp; Exposed Pipe</i> addresses remedial actions when an exposed pipeline is located, pipe coating removal, pipeline operator responsibilities, marking exposed pipeline, pipe surface preparation, coating material preparation and application, jeeeping, and abnormal operating conditions. (85 min)                                                      |
| Pipeline Operator Qualification | LQ415 | * LQ: Installation of Anodes                    | <i>LQ: Installation of Anodes</i> addresses cathodic protection and test lead installation on liquid pipeline systems, the galvanic anode theory, types of anodes and their uses, calculations for sacrificial anode output and expected life, anode installation, cable bonding and exothermic welding techniques, and abnormal operating conditions (AOCs). (50 min)                          |
| Pipeline Operator Qualification | LQ416 | * LQ: Conduct Annual Surveys                    | <i>LQ: Conduct Annual Surveys</i> to examine the testing frequency of cathodically protected pipelines; measurement of tank bottom-to-soil, pipe-to-soil, and casing-to-soil potentials; electrical criteria; placement and maintenance of an electrode (half-cell); use of a multimeter; interference and interference testing; and handling abnormal operating conditions (AOCs). (110 min)   |
| Pipeline Operator Qualification | LQ501 | * LQ: Cathodic Protection Troubleshooting       | <i>LQ: Cathodic Protection Troubleshooting</i> examines cathodic protection rectifiers, including instruments used to troubleshoot rectifiers and cathodic protection systems; common operational problems; rectifier repair; basic troubleshooting techniques; and abnormal operating conditions (AOCs). (70 min)                                                                              |
| Pipeline Operator Qualification | LQ502 | * LQ: Rectifier Inspections                     | <i>LQ: Rectifier Inspections</i> examine conditions for corrosion cell function, types of corrosion cells, requirements for liquid pipeline systems, controlling corrosion, cathodic protection testing, installation of test leads, cathodic protection rectifier inspections, and recognizing and reacting to abnormal operating conditions (AOCs). (80 min)                                  |
| Pipeline Operator Qualification | LQ504 | * LQ: Installation of Test Stations             | <i>LQ: Installation of Test Stations</i> addresses terms associated with exothermic welding procedures; test stations and cathodic protection regulations; test stations used for pipe-to-soil surveys; test station installation methods; performing pull tests; test station materials, spacing, and location; and recognizing and reacting to abnormal operating conditions (AOCs). (50 min) |

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| Pipeline Operator Qualification | LQ508  | * LQ: Interference (AC and DC)                        | <i>LQ: Interference (AC and DC)</i> addresses foreign interference; static, dynamic, and AC-induced stray currents; calculating circuit resistance of a bond; and eliminating stray current interference. (60 min)                                                                                                                                                                                                                                |
| Pipeline Operator Qualification | LQ0293 | * LQ: Flushing and Purging Pipeline Systems           | <i>LQ: Flushing and Purging Pipeline Systems</i> explains general guidelines for flushing and purging pipeline systems using several methods, including low-point drains and pig displacement. Safety precautions and abnormal operating conditions (AOCs) for flushing and purging are also discussed. (40 min)                                                                                                                                  |
| Pipeline Operator Qualification | LQ1012 | LQ: Abnormal Operations                               | <i>LQ: Abnormal Operations</i> explores the difference between abnormal operations and abnormal operating conditions (AOCs) for liquid pipelines. This course also examines responding to, reporting, and recording abnormal operations. (15 min)                                                                                                                                                                                                 |
| Pipeline Operator Qualification | LQ1100 | * LQ: Cathodic Protection - Aboveground Storage Tanks | <i>LQ: Cathodic Protection - Aboveground Storage Tanks</i> address corrosion on metal structures, anodic and cathodic area functions and roles, stray (interference) currents and direct current (DC), types of corrosion cells, galvanic anodes, and impressed current systems, testing intervals, protective coatings, anode operation, tank potential readings, and abnormal operating conditions (AOCs) about rectifier inspections. (70 min) |
| Pipeline Operator Qualification | LQ1102 | * LQ: Inspection - Aboveground Storage Tanks          | <i>LQ: Inspection - Aboveground Storage Tanks</i> addresses tank shell inspections, corrosion cell function, anodic and cathodic area functions and roles, stray currents and direct current (DC), general and pitting corrosion, types of corrosion cells, cathodic protection, galvanic anodes and impressed current systems, testing intervals, and abnormal operating conditions (AOCs) about rectifier inspections. (60 min)                 |
| Pipeline Operator Qualification | LQ1641 | * LQ: Pigging: Launching and Receiving                | <i>LQ: Pigging: Launching and Receiving</i> introduces pipeline pigging and pigging safety. This course also explores operational considerations when pigging, launching, and receiving a pig and abnormal operating conditions (AOCs) associated with pigging. (55 min)                                                                                                                                                                          |

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| Pipeline Operator Qualification     | LQ2350 | * LQ: Aboveground Storage Tank Overfill Protection | <i>LQ: Aboveground Storage Tank Overfill Protection</i> addresses the aboveground storage tank overfill protection program, requirements, and procedures; covers state regulatory agency impact; Class I liquids; product transfer written procedures; tank alarm levels and equipment; and abnormal operating conditions (AOCs). (70 min) |
| <b>INSTRUMENT USE AND CARE</b>      |        |                                                    |                                                                                                                                                                                                                                                                                                                                            |
| Pipeline Operator Qualification - I | 905    | Using the Heath Gasurveyor® 3-500                  | <i>Using the Health Gasurveyor® 3-500</i> , examine the components, range of operation, and key functions of this combustible gas indicator and explain how to operate the instrument. (30 min)                                                                                                                                            |
| Pipeline Operator Qualification - I | 907    | * Using the Radiodetection Pipe Locator            | <i>Using the Radiodetection Pipe Locator</i> teaches techniques for locating buried pipelines and cables using the radiodetection pipe locator. The course also explains how to operate the radiodetection receiver and transmitter. Tips for using the radiodetection locator are also provided. (75 min)                                 |
| Pipeline Operator Qualification - I | 908    | * Using the Metrotech Pipe Locator                 | <i>The Metrotech Pipe Locator</i> explains how to use this pipe-locating instrument, including the three primary locating methods: direct connection, inductive coupling, and the inductive method. Instrument checkout procedures, tracing techniques, and maintenance requirements are also examined. (60 min)                           |
| Pipeline Operator Qualification - I | 909    | * Ditch Witch® Pipe Locators                       | <i>Ditch Witch® Pipe Locators</i> discusses the control features and functions of the Ditch Witch® Pipe Locator receiver and transmitter, the specific operation and line locating methods, and the abnormal operating conditions (AOCs) that may be encountered while performing a line location. (40 min)                                |
| Pipeline Operator Qualification - I | 910    | Using a Digital Multimeter                         | <i>Using a Digital Multimeter</i> is an introduction to the metric system, the concepts of electricity, and how to use a multimeter to measure resistance, voltage, and amperage. (45 min)                                                                                                                                                 |