



PenEdu Learning & Consulting, LLC

"Where questions become knowledge"

Member - *Energy Learning Network* a Consortium of Energy Industry Learning Professionals

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"Where Questions Become Knowledge"

Gas & Liquid Operator Qualification

OPERATOR & CONTRACTOR PARTNER

OQ ONLINE LIBRARY (*Spanish Versions)

OQ Online Library: Gas/Liquid Pipeline & Gathering

Library	Course Code	Course Name	Description and Length (in minutes) 3-18-24
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. 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 the backfilling pipeline evacuations, including inspection, filling standards, soil conditions, environment considerations, and abnormal operating conditions. (20 min)
Pipeline Operator Qualification	100	Prevention of Accidental Ignition & Potential Ignition Sources	<i>Prevention of Accidental Ignition & 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)
Pipeline Operator Qualification	106	* OSHA/DOT - Excavation Safety	<i>OSHA/DOT - Excavation Safety</i> explains basic excavation safety, excavation requirements, soil classification and 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, the setup of safe work zones, and proper flagging procedures. (20 min)
Pipeline Operator Qualification	200	* Leak Survey & Leak Classification	<i>Leak Survey & 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
Pipeline Operator Qualification	201	* Population Density Change & Pipeline Patrol	<i>Population Density Change & 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 pipes, and more. (75
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
Pipeline Operator Qualification	206	* Leak & Pipeline Failure Investigation	<i>Leak & 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)

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
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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. Some of the main topics include the one-call system, locating underground facilities, 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	305	Dehydration of Natural Gas	<i>Dehydration of Natural Gas</i> addresses why water is controlled or removed from natural gas and extraction methods utilizing hydrate inhibition, glycol dehydration, and solid desiccants. (45 min)
Pipeline Operator Qualification	306	Dehydration With Triethylene Glycol	<i>Dehydration With Triethylene Glycol</i> addresses glycol dehydration fundamentals, process equipment maintenance, startup and shutdown steps, common operating problems, and analysis of the glycol solution. (65 min)
Pipeline Operator Qualification	400	* Valve Actuators	<i>Valve Actuators</i> explain the various styles and design features of actuators/operators and how they operate. Proper maintenance techniques and reconditioning of hydraulic actuators/operators are discussed in this course. (45 min)
Pipeline Operator Qualification	4010	* General Valve Maintenance	<i>General Valve Maintenance</i> explains the function of valves in a pipeline system and the importance of visual inspections and maintenance to ensure that they work properly. It also discusses the qualities of a proper lubricant/sealant, how and when they should be used, and the equipment

Pipeline Operator Qualification	4011	* Plug Valve Maintenance	<i>Plug Valve Maintenance</i> explains how a plug valve operates, along with many design features and their purpose. It also discusses proper cleaning, lubricating, and maintenance techniques unique to plug valve maintenance. (20 min)
Pipeline Operator Qualification	4012	* Ball Valve Maintenance	<i>Ball Valve Maintenance</i> explains how a ball valve operates, along with different design features and their purposes. It also discusses proper cleaning, lubricating, and maintenance techniques unique to ball valve maintenance. (25 min)
Pipeline Operator Qualification	4013	* Gate Valve Maintenance	<i>Gate Valve Maintenance</i> explains how a gate valve operates, along with many of the different design features and their purpose. It also discusses proper cleaning, lubricating, and maintenance techniques unique to gate valve maintenance. (20 min)
Pipeline Operator Qualification	4020	* Inspecting and Testing Pressure Limiting Devices	<i>Inspecting and Testing Pressure Limiting Devices</i> explains how a relief valve operates, along with different design features and their purpose. It also discusses the procedure for testing relief valves. (25 min)
Pipeline Operator Qualification	4021	* Inspecting and Testing Regulators	<i>Inspecting and Testing Regulators</i> explains how a regulator operates, along with different design features and their purpose. The differences between a pilot-operated and a spring-operated regulator are explained. The procedure for testing regulators is also discussed. (30 min)
Pipeline Operator Qualification	4022	* Inspecting and Testing Control Valves	<i>Inspecting and Testing Control Valves</i> explains the purpose of control valves in a pipeline system. The different parts of a control valve assembly and their functions are discussed. The process for inspecting a control valve is also explained. (15 min)
Pipeline Operator Qualification	4030	* Pressure Testing Steel Pipelines - Gas	<i>Pressure Testing Steel Pipelines – Gas</i> - explains the requirements for pressure testing steel pipelines. Some topics covered are water handling, pipe design, class locations, MAOP, SMYS, strength testing, test preparation, and the pressure testing procedure. (40 min)
Pipeline Operator Qualification	4031	* Pressure Testing Plastic Pipelines	<i>Pressure Testing Plastic Pipelines</i> explains the requirements for pressure testing steel pipelines. Some topics covered are water handling, pipe design, class locations, MAOP, SMYS, strength testing, test preparation, and the pressure testing procedure. (35 min)

Pipeline Operator Qualification	407	* Joining Steel Pipe Other Than by Welding	<i>Joining Steel Pipe Other Than by Welding</i> discusses procedures and precautions for joining steel pipe other than by welding, nut and bolt selection, proper flange connections, reuse of a threaded fastener, calibration frequency and records, torque wrench use, and abnormal operating conditions (AOCs) that may be encountered. (35 min)
Pipeline Operator Qualification	408	Maintaining and Repairing Pressure Limiting Devices	<i>Maintaining and Repairing Pressure Limiting Devices</i> explains the basic steps for maintaining pressure-limiting devices, including relief valves, pressure switches, pressure transducers/transmitters, and monitor
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 the use of composites to 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)
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 the processes of purging with either air or
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)
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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)
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 during the application of protective coatings are included.
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)
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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> discusses structure-to-electrolyte survey equipment, readings, meters, close interval surveys, logging data, and related abnormal operating conditions (AOCs). (40 min)
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
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	5110	Rigging: Planning and Inspections	<i>Rigging: Planning and Inspections</i> explains the planning of a rigging operation, basic math needed for weight calculations, equipment used in rigging, and inspections for rigging equipment. (55 min)
Pipeline Operator Qualification	5111	Safe Rigging Practices	<i>Safe Rigging Practices</i> explains the proper use of equipment, hoists, and standard hand signals for rigging operations. (35 min)
Pipeline Operator Qualification	600	* Electric Arc Welding	<i>Electric Arc Welding</i> examines types of electric arc welding, types and uses of joints, weld defects and prevention, preheating a weld area, electrode selection and storage, welding sequence, pipe beveling and lineup, arc welding techniques, striking the arc, hot and cold welding and cutting, weld positions, field inspections of welds, and safety precautions during electric arc welding. (95 min)
Pipeline Operator Qualification	601	* Welder Qualification	<i>Welder Qualification</i> addresses butt, fillet, and 90-degree branch welds; safety precautions for welders; essential variables; single and multiple qualification tests; macro-section tests and face bend tests on branch and sleeve welds; and typical welder qualification tests. (130 min)

Pipeline Operator Qualification	602	* Weld Repairs and Welding Procedures	<i>Weld Repairs and Welding Procedures</i> examines the functions of a welding inspector; percentages of each day's butt weld to be tested, depending upon class location; when nondestructive testing is required; common welding defects and how to cure them; information needed on welding inspection reports; and essential variables. (60 min)
Pipeline Operator Qualification	604	* Oxygen/Acetylene Welding & Cutting	<i>Oxygen/Acetylene Welding & Cutting</i> addresses types of gas welding; identifying joints; equipment needed for oxy/acetylene and gas welding and cutting; neutral, carburizing, and oxidizing flames; purging hoses; field inspection of welds; weld positions; hot and cold welding and cutting; and safety precautions. (90 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) that may be encountered are identified, including possible reactions. (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> discusses 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)
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 min)

Pipeline Operator Qualification	7000	Compressor Station Operations and Safety	<i>Compressor Station Operations and Safety</i> explores procedures and safety precautions of Compressor Station Operation, including components, written emergency plans, compressor station systems, emergency shutdown procedures, and electrical hazards. (35 min)
Pipeline Operator Qualification	7001	* Compressor Stations: Design and Emergency Planning	<i>Compressor Stations: Design and Emergency Planning</i> discusses the design and safety features required in a compressor station. The safety factors include boundaries, building design, ventilation, flammable materials storage, pressure limiting devices, gas detectors, fire sensors, emergency shutdown systems, and emergency planning. (45 min)
Pipeline Operator Qualification	701	* Reciprocating Compressor Units	<i>Reciprocating Compressor Units</i> address the operation of an internal combustion-reciprocating compressor, including startup, loading, unloading, and shutdown procedures; parts of a compressor; and compressor troubleshooting and maintenance. (85 min)
Pipeline Operator Qualification	703	* Compressor Operation: Turbine Units	<i>Compressor Operation: Turbine Units</i> examines the operational process of a turbine compressor unit; addresses theory of operation; major components; purposes of fuel gas, lubrication, and air systems; key components of wet and dry seal systems; startup, loading, unloading, and shutdown procedures; and maintenance disadvantages. (95 min)
Pipeline Operator Qualification	704	* Compressor Operation: Compressor Cylinders	<i>Compressor Operation: Compressor Cylinders</i> examines the major components of a compressor cylinder, compressor valve operation and classification of cylinders, troubleshooting and safely changing compressor cylinders, maximizing available horsepower for compressor efficiency, and piston rings and packing materials. (60 min)
Pipeline Operator Qualification	705	* Compressor Operation: Gas Path Integrity	<i>Compressor Operation: Gas Path Integrity</i> addresses gas path integrity and maintenance, horizontal and vertical rod runout, critical compressor clearances, leak testing methods and repair, run-time verification tests, and proper torquing of threaded fasteners. (70 min)
Pipeline Operator Qualification	706	* Compressor Operation: Power Cylinder Balancing	<i>Compressor Operation: Power Cylinder Balancing</i> addresses the importance of balanced engine power cylinders, correct procedures and methods for balancing power cylinders, and how engine performance-monitoring tools are used to balance power cylinders. (45 min)

Pipeline Operator Qualification	800	* Gas Control	<i>Gas Control</i> examines major gas control terminology, flow rate, and pressure, SCADA systems, compressor operation basics, emergency response, and overpressure protection for pipelines carrying high-pressure
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Pipeline Operator Qualification	900	Fundamentals of Electricity	<i>Fundamentals of Electricity</i> addresses basic properties of electricity, circuits, and safety device components; Ohm's law; measuring voltage, current, and resistance; types of switches and relays; common electrical symbols and their use in wiring and line diagrams; inductance and capacitance, waveform properties, and phase relationships; and
Pipeline Operator Qualification	901	* Basic Electronics: PLCs	<i>Basic Electronics: PLCs</i> address basic information and hardware components concerning PLCs; principles of operation; applications; installation, calibration and checkout, documentation, and troubleshooting; peripheral devices; waveform properties and phase relationships; and ladder logic and other skills associated with programming PLCs. (70 min)
Pipeline Operator Qualification	902	Basic Electronics: SCADA	<i>Basic Electronics: SCADA</i> addresses SCADA system history, office and field hardware components, communication protocols, installation, calibration, and troubleshooting. (105 min)
Pipeline Operator Qualification	1200	Underground Storage of Natural Gas and Liquids	<i>Underground Storage of Natural Gas and Liquids</i> addresses underground storage in the energy industry, the similarities and differences between gas and liquids products, basic storage functions and terms, different types of underground storage, and the purpose and function of underground storage equipment. (95 min)
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)

Hazardous Liquid Pipelines (*Spanish Versions)

Hazardous Liquid 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)
Hazardous Liquid 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)

Hazardous Liquid 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)
Hazardous Liquid 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)
Hazardous Liquid Pipeline Operator Qualification	LQ400	* LQ: Below Ground Pipe Coatings & Exposed Pipe	<i>LQ: Below Ground Pipe Coatings & Exposed Pipe</i> address 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)
Hazardous Liquid 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)
Hazardous Liquid 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)
Hazardous Liquid 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)

Hazardous Liquid Pipeline Operator Qualification	LQ502	* LQ: Rectifier Inspections	LQ: Rectifier Inspections 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)
Hazardous Liquid Pipeline Operator Qualification	LQ504	* LQ: Installation of Test Stations	LQ: Installation of Test Stations 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)
Hazardous Liquid Pipeline Operator Qualification	LQ508	* LQ: Interference (AC and DC)	LQ: <i>Interference (AC and DC)</i> addresses foreign interference, static, dynamic, and AC-induced stray currents, calculates the circuit resistance of a bond, and eliminates stray current interference. (60 min)
Hazardous Liquid Pipeline Operator Qualification	LQ707	* LQ: Introduction to Compressor and Pump Operations	LQ: <i>Introduction to Compressor and Pump Operations</i> explores the purpose, types, and basic functions of natural gas compressors and pipeline pumps; pump starting and stopping procedures; and the functions of the devices used to prevent pipeline overpressure, including relief valves, monitor regulators, regulators, pressure switches, and pressure transmitters. (85 min)
Hazardous Liquid Pipeline Operator Qualification	LQ800	* LQ: Pipeline System Control	LQ: <i>Pipeline System Control</i> explores the basic definitions of a liquid pipeline system, duties and responsibilities of a pipeline controller, types of pipeline control and their regulations, calculations on safe and timely product delivery, SCADA and SCADA monitoring systems, and procedure and follow-up actions for emergency response. (65 min)
Hazardous Liquid Pipeline Operator Qualification	LQ901	* LQ: Programmable Logic Controllers	LQ: <i>Programmable Logic Controllers</i> address equipment the PLC replaces; the application; hardware functions; operation modes; memory function; installation; calibration and checkout of analog loops; operation of discrete I/O; troubleshooting; timers and counters; documentation; and regulatory requirements. (125 min)
Hazardous Liquid Pipeline Operator Qualification	LQ902	* LQ: Pressure Switches	LQ: <i>Pressure Switches</i> examines the functions of a pressure switch, including absolute and gauge pressure, primary and secondary calibration standards, pressure switch inspection, operational testing and calibration, federal regulations, and abnormal operating conditions (AOCs). (50 min)

Hazardous Liquid Pipeline Operator Qualification	LQ903	* LQ: Pressure Transmitters	<i>LQ: Pressure Transmitters</i> examines pressure transmitter functions; absolute and gauge pressure; primary and secondary calibration standards; pressure transmitter inspection, operational testing, and calibration; documenting calibration results; applicable federal regulations; and abnormal operating conditions (AOCs). (60 min)
Hazardous Liquid Pipeline Operator Qualification	LQ0271	* LQ: Meter Maintenance and Proving	<i>LQ: Meter Maintenance and Proving</i> discuss meter proving, maintenance, and methods used in leak detection. Abnormal operating conditions (AOCs) relevant to meter proving are included. (35 min)
Hazardous Liquid 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)
Hazardous Liquid Pipeline Operator Qualification	LQ0401	* LQ: Inspecting and Testing Control Valves	<i>LQ: Inspecting and Testing Control Valves</i> explains the operation and design of control valves, the process for inspecting a control valve, and abnormal operating conditions (AOCs) that may be encountered during inspection and testing. (25 min)
Hazardous Liquid 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)
Hazardous Liquid Pipeline Operator Qualification	LQ1100	* LQ: Cathodic Protection - Aboveground Storage Tanks	<i>LQ: Cathodic Protection - Aboveground Storage Tanks</i> addresses 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) pertaining to rectifier inspections. (70 min)
Hazardous Liquid 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) pertaining to rectifier inspections. (60 min)
Hazardous Liquid 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)
Hazardous Liquid 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)