

---

## Gas Pressure Operator

### Program Duration: 2.5 Years (30 Months)

---

The following is an outline of the subjects to be covered in the supplementary classroom and home study training:

<u>Process</u>	<u>Hours</u>
<i>Leak Survey:</i>	
Leak Survey and Atmospheric Corrosion	1,200
Transmission Line	40
Emergency Assistance and Leak Investigation	260
<i>Total</i>	<i>1,500</i>
 <i>Equipment and Tools:</i>	
Leak Detection Equipment Calibration and Maintenance	20
Pressure Equipment Calibration, Maintenance, and Testing	45
Hand and Power Tools	25
<i>Total</i>	<i>90</i>
 <i>System Operations:</i>	
Load Forecasting and System Usage Determination	800
System Monitoring (SCADA Alarms, PI)	200
CP Survey	240
City Gate/Regulator Station Inspection, Maintenance, Spin Test	1,060
System Patrolling and Pipeline Marker Inspection	320
Operator Qualification	200
Odorant Testing and Injection	200
Valve Maintenance	50
<i>Total</i>	<i>3,070</i>
 Miscellaneous (Safety Meeting/Training)	200
Gas Operations Crew Ride Along	20
Gas Serviceman Ride Along	40
Gas Meter Shop	80
<i>Total</i>	<i>340</i>

Total OJT Hours Recommended 5,000

***First Six Months: Approximately 134.75 Hours***

- Identifying Procedures/Processes Basic to Producing, Transporting, and Distributing Natural Gas
- Identifying Basic Properties of Fuel Gases
- Controlling/Preventing Fires Fueled by Natural Gas
- Maintaining a Safe Working Environment
- Preventing Accidental Ignition
- Identifying the Fundamental Guidelines for Traffic Control in Work Zones
- Maintaining Records and Filing Reports of Compliance
- Performing Calculations Basic to Gas Distribution and Service
- Maintaining A Safe Working Environment While Excavating (Competent Person)
- Communicating Potential Hazards in the Workplace
- Detecting the Presence and Measuring the Percent of Gas in a Gas-in-Air Mixture

***Second Six Months: Approximately 142.5 Hours***

- Investigating Reported Gas Leaks and Odors In Buildings
- Investigating and Pinpointing Underground Natural Gas Leaks
- Performing Patrol and Leakage Surveys on Gas Pipeline Facilities
- Locating and Marking Underground Pipeline Facilities
- Monitoring Odorant Levels
- Establishing and Maintaining Proper Odorant Levels in Natural Gas Systems
- Identifying Principals and Practices Basic to Gas Measurement
- Identifying Techniques Common to Purging Natural Gas Distribution Pipelines
- Identifying Techniques Common to Purging Natural Gas Distribution Pipelines
- Regulating Gas Pressure in Piping Systems with Self-Operating Regulators
- Controlling Gas Pressure with Pilot Loaded Regulators
- Inspecting and Testing Pressure Limit Stations, Relief Devices and Pressure Regulating Stations

***Third Six Months: Approximately 137.5 Hours***

- Inspecting and Maintaining Pressure Relief Valve Installations
- Identifying Factors to Consider when Maintaining Overpressure Protection Using Pressure Relief Valves
- Changing and Interpreting Recording Charts
- Reading Multiple Range Pressure Recording Charts
- Maintaining Line Valves in Gas Transmission/Distribution Piping
- Maintaining Line Valves in Gas Transmission/Distribution Piping
- Investigating for Carbon Monoxide
- Identifying Safety Requirements for Working in Confined Spaces and Controlling Hazardous Energy
- Measuring and Regulating Natural Gas in a Distribution System
- Identifying Components and Operating Characteristics of Orifice Meter Settings
- Identifying Components and Operating Characteristics of Turbine Meter Settings

***Fourth Six Months: Approximately 100.5 Hours***

- Identifying Components and Operating Characteristics of Diaphragm Meter Settings
- Identifying Components and Operating Characteristics of Rotary Meter Settings
- Testing the Dew Point of Gas
- Proper Use and Maintenance of Differential Pressure Recorders to Ensure Accuracy
- Operating and Maintaining Pipeline Heaters
- Identifying Processes and Procedures Basic to Corrosion Control
- Installing Cathodic Protection Systems
- Monitoring/Testing Corrosion Control Systems
- Monitoring Corrosion Control Methods Used on Buried Metal Pipelines
- Operating and Maintaining Mercury Instruments, Gauges and Indexes

***Fifth Six Months: Approximately 181 Hours***

- Maintaining Compliance with 49 Code of Federal Regulations (CFR), Part 192
- Operations and Maintenance Manual Sections A-M excluding K
- Operator Qualification Evaluations

**Approximate Total Program Hours 696.25**

***First Six Months***

***Training Titles and Descriptions:***

**NGT 1001**

**3.75 Hours**

Identifying Procedures/Processes Basic to Producing, Transporting, and Distributing Natural Gas

**COURSE DESCRIPTION:**

This course presents the major components of a natural gas system from well head to burner. The action that each component has on the gas stream is presented in the context of the total system. Key terms and definitions are reviewed and applied to conditions common to the utilization of natural gas.

**NGT 1002**

**3.75 Hours**

Identifying Basic Properties of Fuel Gases

**COURSE DESCRIPTION:**

This course relates to the chemical and physical properties of fuel gases basic to their unique characteristics. The physical properties of natural gas are discussed in relation to how it reacts to pressure and/or temperature changes and the condition under which fuel gas is measured to the customer. The chemical properties are discussed in relation to their value as a source of heat. Units of measurement for natural gas are defined.

**NGT 1101**

**33.75 Hours**

Controlling/Preventing Fires Fueled by Natural Gas

**COURSE DESCRIPTION:**

Factors are identified relating to extinguishing fires fueled by natural gas. Emphasis is placed on ways to prevent natural gas fires by eliminating ignition sources. Various classifications of fire extinguishing agents and their intended use are presented. Techniques used to extinguish natural gas fires are demonstrated on a fire ground and

practiced by the participants in the course. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1102**

**18.75 Hours**

Maintaining a Safe Working Environment

**COURSE DESCRIPTION:**

This course is an overview of safety practices that prevent personal injury as well as property damage at the worksite. Proper use of major equipment is stressed. Hazards resulting from escaping gas are emphasized. Also, the basis for the drug testing and alcohol misuse program is explained. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1103 (OQ M-7)**

**15 Hours**

Prevent Accidental Ignition

**COURSE DESCRIPTION:**

This course presents safety practices and procedures used to prevent accidental ignition of natural gas. Areas of emphasis are electrical arcing, welding, cutting, and other hot work, isolating pipeline segments, and isolating gas-handling facilities.

**NGT 1104**

**11.25 Hours**

Identifying the Fundamental Guidelines for Traffic Control in Work Zones

**COURSE DESCRIPTION:**

This course presents the basic standard for traffic control as described in the manual on Uniform Traffic Control Devices, Part VI According to the U.S. Department of Transportation.

**NGT 1006**

**11.25 Hours**

Maintaining Records and Filing Reports of Compliance

**COURSE DESCRIPTION:**

This course focuses on accuracy and complete information on field reports which document company wide summary reports. Practice in company map reading, sketching of piping installations and above ground piping facilities is emphasized. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1005**

**7.5 Hours**

Performing Calculations Basic to Gas Distribution and Service

**COURSE DESCRIPTION:**

This course begins with instruction on the use of a calculator when working with dimensions given in decimal fractions. Basic calculations are performed for area and volume measurements. Practice problems include calculating the relationship between gas and heating measurements, calculating gas flow using meter index, and free air space. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1401**

**11.25 Hours**

Maintaining a Safe Working Environment While Excavating (Competent Person)

**COURSE DESCRIPTION:**

The content of this course focuses on the requirements for earth excavation and

protection system according to OSHA 29 CFR Part 1026. The use of tables and specifications to design shoring protective systems is applied to typical excavations.

**NGT 1404**

**11.25 Hours**

Communicating Potential Hazards in the Workplace

**COURSE DESCRIPTION:**

A study of health related and explosive hazards associated with the natural gas industry are examined. The use of material safety data sheets (MSDS) is emphasized to protect persons against toxic chemical and hazardous materials.

**NGT 1501**

**7.25 Hours**

Detecting the Presence and Measuring the Percent of Gas in a Gas-in-Air Mixture

**COURSE DESCRIPTION:**

This course focuses on the principles of operations and application of combustible gas indicators. Covered is the application of CGIs equipped with catalytic and thermal conductor sensors, semi-conductor sensors and flame ionization sensors.

First Six Month Total Hours: 134.75

***Second Six Months***

**NGT 1502**

**11.25 Hours**

Investigating Reported Gas Leaks and Odors In Buildings

**COURSE DESCRIPTION:**

This course provides information and practice on the techniques of gas pipeline patrolling and leakage survey. The proper use of gas detectors and line locators are emphasized and practiced in the field. Accepted methods of leak survey are presented with emphasis on field practices. Hazards and symptoms of the presence of gas in the atmosphere are identified and safety precautions emphasized. Field practice doing patrol and leakage surveys is required.

**NGT 1504**

**11.25 Hours**

Investigating and Pinpointing Underground Natural Gas Leaks

**COURSE DESCRIPTION:**

This course presents the theory and practice for using proper techniques and procedures when investigating and pinpointing natural gas leaks.

**NGT 1505 (OQ M-1)**

**15 Hours**

Perform Patrol and Leakage Surveys on Gas Pipeline Facilities

**COURSE DESCRIPTION:**

This course provides information and practice on the techniques of gas pipeline patrolling and leakage survey. The proper use of gas detectors and line locators are emphasized and practiced in the field. Accepted methods of leak survey are presented with emphasis on field practices. Hazards and symptoms of the presence of gas in the atmosphere are identified and safety precautions emphasized. Field practice doing patrol and leakage surveys is required.

**NGT 1503 (OQ M-2)****11.25 Hours**

Locating and Marking Underground Pipeline Facilities

**COURSE DESCRIPTION:**

This course presents techniques and procedures basic to locating and marking pipeline facilities. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1602****4.75 Hours**

Monitoring Odorant Levels

**COURSE DESCRIPTION:**

This course presents the federal standards for proper odorant levels. Operating instruction for an odorometer and odorator are discussed. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2204****11 Hours**

Establishing and Maintaining Proper Odorant Levels in Natural Gas Systems

**COURSE DESCRIPTION:**

This course presents the industry standards and devices used to introduce odorants into a natural gas system. Emphasis is placed on testing for odorant levels and the proper handling of odorant.

**NGT 2201****7.5 Hours**

Identifying Principals and Practices Basic to Gas Measurement

**COURSE DESCRIPTION:**

This course presents concepts and principals basic to gas measurement. The effect of gas pressure and temperature on gas measurement is demonstrated using mathematical calculations based on gas laws. An overview of the operating principals of diaphragm, rotary and turbine meters used to measure gas is presented.

**NGT 1604****18.75 Hours**

Identifying Techniques Common to Purging Natural Gas Distribution Pipelines

**COURSE DESCRIPTION:**

This course presents the factors affecting the mechanical nature of displacing one gas with another gas by purging. Principles concerning the formation, analysis and control of gas mixtures is emphasized. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2003****18.75 Hours**

Identifying Techniques Common to Purging Natural Gas Distribution Pipelines

**COURSE DESCRIPTION:**

This course presents the factors affecting the mechanical nature of displacing one gas with another gas by purging. Principles concerning the formation, analysis and control of gas mixtures is emphasized. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2305****11 Hours**

Regulating Gas Pressure in Piping Systems with Self-Operating Regulators

**COURSE DESCRIPTION:**

This course presents concepts and principals basic to the operation of pressure

regulator installations. The content focuses on the operating characteristics of self-operating pressure regulator installations. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2402**

**11 Hours**

Controlling Gas Pressure with Pilot Loaded Regulators

**COURSE DESCRIPTION:**

This course presents concepts and principals basic to the operation of pressure regulator installations. The content focuses on the operating characteristics of pilot loaded regulators. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2403**

**11 Hours**

Inspect and Test Pressure Limit Stations, Relief Devices and Pressure Regulating Stations

**COURSE DESCRIPTION:**

This course presents concepts and principals basic to operating pressure limiting and regulating stations. Procedures for inspecting and testing above ground structures are reviewed. Relief valve testing is demonstrated. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

*Second Six Month Total Hours: 142.5*

***Third Six Months***

**NGT 2401**

**11 Hours**

Inspecting and Maintaining Pressure Relief Valve Installations

**COURSE DESCRIPTION:**

This course presents the purpose and operating characteristics of pressure relief valves. Content focuses on inspecting, testing and maintenance of relief valve installations. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1902**

**7.5 Hours**

Identifying Factors to Consider when Maintaining Overpressure Protection Using Pressure Relief Valves

**COURSE DESCRIPTION:**

This course presents the components and operating characteristics of typical pressure relief valve installations. The focus of the discussions is primarily on spring operated and pilot operated pressure relief valves. Emphasis is placed on factors to consider when installing pressure relief valves. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2306**

**11 Hours**

Changing and Interpreting Recording Charts

**COURSE DESCRIPTION:**

This course presents the basic technology used to transfer information to a recording chart. Emphasis is on: accurately reading and interpreting an index, change an orifice

chart, change a meter driven chart, change a clock driven chart and interpret pressure charts. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2406**

**11 Hours**

Reading Multiple Range Pressure Recording Charts

**COURSE DESCRIPTION:**

This course presents concepts and principals basic to reading multiple range pressure recording charts. Emphasis is placed on the correct reading of pressure charts and recording pertinent information.

**NGT 1901 (OQ M-5)**

**7.5 Hours**

Maintaining Line Valves in Gas Transmission/Distribution Piping

**COURSE DESCRIPTION:**

This course presents the basic design characteristics and maintenance procedures for pipeline valves. The valve types included are plug, ball and gate. The proper use and care of high-pressure grease guns is explained. This course meets operator qualification as required by D.O.T. 49 CFR Part 192.745. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2202**

**22.5 Hours**

Maintain Line Valves in Gas Transmission/Distribution Piping

**COURSE DESCRIPTION:**

This course presents the basic operating principles and maintenance schedules of gas control flow valves. The proper use and handling of high pressure grease guns is demonstrated. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 1506**

**3.75 Hours**

Investigating for Carbon Monoxide

**COURSE DESCRIPTION:**

This course provides information and practice on the techniques of gas pipeline patrolling and leakage survey. The proper use of gas detectors and line locators are emphasized and practiced in the field. Accepted methods of leak survey are presented with emphasis on field practices. Hazards and symptoms of the presence of gas in the atmosphere are identified and safety precautions emphasized. Field practice doing patrol and leakage surveys is required.

**NGT 1403**

**18.75 Hours**

Identifying Safety Requirements for Working in Confined Spaces and Controlling Hazardous Energy

**COURSE DESCRIPTION:**

Confined spaces are defined and classified. Atmospheric monitoring and entry procedures into confined spaces are included in the course. Controlling hazardous energy with the lock-out/tag-out method is emphasized.

**NGT 1004**

**22.5 Hours**

Measuring and Regulating Natural Gas in a Distribution System

**COURSE DESCRIPTION:**



This course reviews the principles of operation for direct volume measurement meters and rate-of-flow (inferential) type meters. The operating principles of service regulators are outlined and discussed. Emphasis is placed on the correct reading of dial type meter faces. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2301**

**11 Hours**

Identifying Components and Operating Characteristics of Orifice Meter Settings

**COURSE DESCRIPTION:**

This course presents the operating principals of orifice meters. Emphasis is placed on the identification of the meter components and their function in the measurement process.

**NGT 2302**

**11 Hours**

Identifying Components and Operating Characteristics of Turbine Meter Settings

**COURSE DESCRIPTION:**

This course presents the operating principals of turbine type meters. Emphasis is placed on the identification of the meter components and their function in the measurement process.

*Third Six Months Hours: 137.5*

***Fourth Six Months***

**NGT 2303**

**11 Hours**

Identifying Components and Operating Characteristics of Diaphragm Meter Settings

**COURSE DESCRIPTION:**

This course presents the operating principals of diaphragm type meters. Emphasis is placed on the identification of the meter components and their function in the measurement process.

**NGT 2304**

**11 Hours**

Identifying Components and Operating Characteristics of Rotary Meter Settings

**COURSE DESCRIPTION:**

This course presents the operating principals of rotary type meters. Emphasis is placed on the identification of the meter components and their function in the measurement process.

**NGT 2205**

**11 Hours**

Testing the Dew Point of Gas

**COURSE DESCRIPTION:**

This course covers the theory and practice used to test the dew point of a gas. Methods used to test moisture in gas are discussed. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2404**

**7.5 Hours**

Proper Use and Maintenance of Differential Pressure Recorders to Ensure Accuracy

**COURSE DESCRIPTION:**

This course presents information and procedures for maintaining and calibrating

differential pressure recorders. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2203**

**7.5 Hours**

Operating and Maintaining Pipeline Heaters

**COURSE DESCRIPTION:**

This course presents the design features and operation characteristics of catalytic type indirect and water bath type pipeline heaters. The operation, maintenance and troubleshooting procedures for pipeline heaters are explained.

**NGT 2051**

**11.25 Hours**

Identifying Processes and Procedures Basic to Corrosion Control

**COURSE DESCRIPTION:**

This course presents the electrochemical process that causes corrosion on buried metals, and the conditions that support this process. Methods used to control the corrosion process are described and illustrated. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2052**

**11.25 Hours**

Installing Cathodic Protection Systems

**COURSE DESCRIPTION:**

This course presents construction procedures associated with pipeline corrosion control. Installation procedures for test pints, cased installation, insulated joints, galvanic anodes and rectifiers. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2053**

**11.25 Hours**

Monitoring/Testing Corrosion Control Systems

**COURSE DESCRIPTION:**

This course presents factors basic to monitoring/testing cathodically protected pipelines, testing procedures for pipe-to-soil surveys, testing for shorted insulating joints, shorted casings, and evidence of atmospheric corrosion. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2054 (OQ I-1)**

**11.25 Hours**

Monitoring Corrosion Control Methods Used on Buried Metal Pipelines

**COURSE DESCRIPTION:**

This course presents information and techniques for monitoring corrosion control methods. The focus is on the application of techniques used to monitor corrosion control methods in the field. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

**NGT 2405**

**7.5 Hours**

Operating and Maintaining Mercury Instruments, Gauges and Indexes

**COURSE DESCRIPTION:**

This course presents the fundamental operating and maintenance procedures for Mercury instruments, gauges and indexes. Training is focused on maintaining Mercury gauges and volume recorders. Related skill performance is verified and documented by

laboratory simulation exercises and/or on the job training.

*Fourth Six Months Total Hours: 100.5*

### ***Fifth Six Months***

#### **NGT 1301**

**15 Hours**

Maintaining Compliance with 49 Code of Federal Regulations (CFR), Part 192

##### **COURSE DESCRIPTION:**

This course is a survey of the criteria for the installation, maintenance and inspection of gas pipelines up to the outlet of the customer's meter. Key terms and definitions are reviewed and applied to issues common to the installation, maintenance and inspection of gas transportation pipelines. Emphasis is given to the identification of content contained in each subpart of 49 CFR. Identifying general provisions of the regulations. Identifying selected requirement basis to the operations of natural gas distribution systems.

#### **Operations and Maintenance Manual**

**16 Hours**

##### **Sections A-M (excluding K) (NV Energy)**

##### **COURSE DESCRIPTION:**

This class will discuss and review NV Energy's Gas Operations and Maintenance Manual, sections A-M (excluding K). Areas that will be discussed include reporting safety related conditions, petroleum gas systems, conversion to service, material and manufacturing requirements, pipe design, pipeline component design, welding steel pipelines, joining non-steel pipelines, general construction, meter and service facilities, corrosion control, test requirements, operations and maintenance

#### **Operator Qualification CBT Evaluation Completion (NV Energy)**

**150 Hours**

##### **COURSE DESCRIPTION:**

Complete approximately 28 Written and 7 Performance evaluations for "Operator Qualification Covered Tasks" associated with the Gas Pressure Operator Job to fulfill the requirements of 49 CFR 192 Subpart "N".

*Fifth Six Months Total Hours: 181*

**Approximate Total Program Hours 696.25**

Subsequent edition/volume changes of textbooks are approved for use through the discretion of the program.

## **Wages**

Wage Schedule for Apprentice Gas Pressure Operator – See Collective Bargaining Agreement, but should be reflected of prorated portions of the Journeyman Wage. The current wage scale (on the check) outlined in the Collective Bargaining Agreement.