
Customer Serviceman (Gas)

Program Duration: 2.5 Years (30 Months)

A. GENERAL

The following outline of training programs, courses and study requirements shall constitute an obligation on the part of the Company to provide job training, study materials and study courses as outlined, and to keep records thereon, for all apprentices assigned to the classification of Apprentice Customer Serviceman and shall constitute an obligation on the part of the employees so assigned to participate in the training programs and in the keeping of records of progress as herein outlined.

The Company will furnish a copy of the Supplementary Agreement for Administration of Apprenticeship Programs and this Schedule of Training Hours and Courses to all employees assigned to the classification of Apprentice Customer Serviceman subsequent to the date of this Supplementary Agreement. The Apprentice Customer Serviceman Training Program will consist of two basic parts.

- a. On-the-job training will be provided wherein the employee should learn the practical skills necessary for journeyman status.
- b. Supplementary classroom and home study training should provide the employee with basic knowledge of gas as well as a better understanding of the various types of equipment and procedures with which he/she will be working.

B. JOB TRAINING PROGRAM

Work Assignments: Journeymen are responsible for the on-the-job training and Supervision is responsible for the proper rotation of the apprentice's work assignments in order for him/her to get training in all phases of the craft. The responsibility for evaluating the work of the apprentice rests with the immediate Journeyman.

Each apprentice shall be assigned work that will provide him/her experience in all phases of Customer Serviceman field work and emergency response.

During all phases of the apprentice training programs, instruction of proper safety procedures and practices will be provided.

C. JOB STANDARDS

Minimum Requirements: In order to provide each apprentice with at least a minimum amount of experience on each of the various types of equipment, upon which the apprentice may be required to work as a Journeyman, he/she should be assigned work and given instructions in amounts meeting or exceeding those shown in the following tabulation:

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>
Meter Sets	1,150
Meter Exchanges	900
Gas Meter Turn-On	900
Leak Investigations	600
Carbon Monoxide Investigation	200
Read/Turn – Off Meter	100
Smart Meter Module Install/Inspection	250
Other Gas – Revenue Protection, Dial/Lens Replacement	214
Corrosion Control - Coating inspection/repair	100
Customer Hi/Low Pressure Problems	100
<i>Safety</i>	
Safety / Training	160
<i>Equipment and Tools</i>	
Meter Valve Change-Out Tool	24
Locators	30
Combustible Gas Indicator (CGI)	50
Grunsky Bag/Meter Bypass Tool	70
<i>Miscellaneous</i>	
Company Standards	40
Complete Operator Qualification Evaluations	32
Gas Meter Shop	32
Ride Along with Gas Pressure Operator/ Leak Surveyor	24
Gas Operations Crew Ride Along	24
Total OJT Hours Recommended	5,000

First 6 Months

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.

Properties of Gas

7.25 Hours

American Gas Association – Fundamentals of Gas Combustion – Chapters 1 & 2

COURSE DESCRIPTION:

These chapters deal with the history, use, and development of fuel gas, properties and general characteristics of gasses, chemical composition of fuel gasses, natural gasses, liquefied petroleum gasses, manufactured and mixed gasses, odorant added to gas, specific gravity, and heating value.

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.

Customer Service

7.25 Hours

American Gas Association Fundamentals of Customer Service

COURSE DESCRIPTION:

During this session the apprentice will be taught how to read a basic gas meter. Customer Service will be dealt with and the following topics discussed: preparing for a day's work; at the customer's premises; telephone contacts; customer visits to company offices and writing to customers.

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

NGT 1003

11.25 Hours

Adjusting Gas Burners for Proper Combustion of Natural Gas

COURSE DESCRIPTION:

This course presents the science of gas burner design and factors affecting the proper combustion of fuel gas. Techniques used to measure gas input rates, gas flow and pressure are presented. Practice in troubleshooting causes of improper combustion is required. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

Combustion of Gas

7.25 Hours

Fundamentals of Gas Combustion by American Gas Association- Chapter 3

COURSE DESCRIPTION:

This chapter covers the following subjects: the meaning of combustion, requirements for combustion, basic chemistry for combustion, controlled combustion, explosive combustion, limits of flammability, burning speed, complete combustion, incomplete combustion (causes and effects), carbon monoxide and testing for carbon monoxide.

Fundamentals of Gas Controls

7.25 Hours

American Gas Association – Chapter 1-4

COURSE DESCRIPTION:

These chapters cover the following subjects: controls and their functions, manual control of gas appliances, physical principles used in controls.

Fundamentals of Gas Controls

7.25 Hours

American Gas Association – Chapter 5 & 6

COURSE DESCRIPTION:

These chapters cover sensing devices and actuation of controls.

Fundamentals of Gas Controls

7.25 Hours

American Gas Association – Chapter 7 & 8

COURSE DESCRIPTION:

These chapters cover automatic controls, thermostats, automatic gas valves, limit controls, gas pressure regulators, combination controls, accessories, and miscellaneous controls and ignition systems, automatic pilots, oxygen-depletion sensing, pilot relight systems and intermittent ignition devices.

Fundamentals of Gas Controls

7.25 Hours

American Gas Association – Chapter 9 & 10

COURSE DESCRIPTION:

These chapters deal with the following topics: application to appliances; ranges, automatic water heaters, central heating systems, in-space heating appliances, clothes dryers, refrigerators, incinerators, air conditioners, and special considerations for

maintenance and repair of controls; preventative maintenance.

First Six Months Total Hours: 99.5

Second 6 Months

NGT 1601

18.75 Hours

Identifying Procedures to Consider When Establishing a Gas Service

COURSE DESCRIPTION:

This course presents the methods typically used when establishing a gas service. Topics include checking gas piping from the main to the customer's piping, checking gas piping inside buildings and checking gas operated equipment in service. Related skills performance is taught and documented by simulation or at a work site.

NGT 1701

11.25 Hours

Placing Gas Operated Appliances into Operation

COURSE DESCRIPTION:

This course presents procedures for checking natural gas appliance systems to ensure proper installation and safe operation. Procedures for appliance checks include water heaters, central heating, space heating, cooking appliances and clothes dryers. Pre-lighting and operation check on gas fired equipment after light-up is emphasized. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

Water Heating Appliances

7.25 Hours

Fundamentals of Gas Appliances – American Gas Association Chapter 3

COURSE DESCRIPTION:

This chapter covers the following topics: water heating appliances, storage heaters and instantaneous water heaters, and swimming pool heaters.

Introduction and Cooking Appliances

6.75 Hours

Fundamentals of Gas Appliances – American Gas Association Chapters 1 & 2

COURSE DESCRIPTION:

These chapters deal with the following topics: use of heat, use of gas, different kinds of fuel, appliance standards and cooking appliances, domestic cooking and commercial cooking appliances.

Space Heating

6.75 Hours

Fundamentals of Gas Appliances – American Gas Association Chapter 4

COURSE DESCRIPTION:

This chapter discusses the following topics dealing with space heating: room heaters, floor furnaces, wall furnaces, direct vent heaters, central heating equipment, conversion burners, unit heaters, duct heaters, direct-fired make-up air heaters, infrared heaters, construction heaters.

Clothes Dryers, Incinerators, Gas Air Conditioning, Misc. Appliances **6.75 Hours**

Fundamentals of Gas Appliances – American Gas Association Chapters 5 - 8

COURSE DESCRIPTION:

These chapters discuss and explain clothes dryers, incinerators, domestic incinerators,

commercial incinerators, and special purpose incinerators; gas air conditioning and refrigeration; the absorption cycle, gas refrigerators; miscellaneous appliances; outdoor gas grills, decorative appliances, gas lights, recreational vehicle and mobile home appliances, fuel cells.

NGT 1702

11.25 Hours

Inspecting and Servicing Gas Operated Equipment to Ensure Proper Venting and Ventilation Air

COURSE DESCRIPTION:

This course presents the theory and operation of natural draft venting and ventilation air systems. Focus is placed on the standards that are listed in the National Fuel Gas Code ANSI 223 (NFPA #54). Inspection of gas operated equipment to ensure proper ventilation is emphasized. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

Fundamentals of Gas Appliance Venting and Ventilation

6.75 Hours

American Gas Association

COURSE DESCRIPTION:

This section covers the history of venting and ventilation, the purpose of gas appliance venting and ventilation, basic theory of venting system operation, types of gas vents, venting systems, code requirements for venting, vent sizing and design, air for combustion and ventilation, installation of vents, venting high efficiency gas appliances and troubleshooting.

NGT 1703

18.75 Hours

Venting High Efficiency Gas Operated Equipment Proper Venting and Ventilation Air

COURSE DESCRIPTION:

Venting requirements for Categories I through IV gas operated appliances are presented based on their unique designs. The features and benefits of high efficiency gas operated equipment are identified. Practice in the sizing of vents for fan assisted appliances is provided. Practice in inspecting venting systems is required. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

NGT 1006

11.25 Hours

Maintaining Records and Filing Reports of Compliance

COURSE DESCRIPTION:

This course focuses on accuracy and complete information in field reports which document company-wide summary reports. Practice on 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 1603

6.75 Hours

Installing and Maintaining Domestic Gas Meters and Regulator Sets and Service Lines

COURSE DESCRIPTION:

This course presents U.S. Department of Transportation (D.O.T.) standards and industry recognized procedures for installing domestic gas service lines, and meter and regulator sets. Related skill performance is verified and documented by laboratory

simulation exercises and/or on the job training.

Second Six Months Total Hours: 112.25

Third 6 Months

NGT 1101 6.75 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 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 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 CGIs equipped with catalytic and thermal conductor sensors, semiconductor sensors and flame ionization sensors.

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 1251

15 Hours

Maintaining Compliance with the National Fuel Gas Code NFPA 54

COURSE DESCRIPTION:

This course presents information contained in the National Fuel Gas Code ANSI Z223.1. This code is a safety code that applies to the installation of fuel gas piping systems. The interpretation and application of this code in situations common to the natural gas industry is emphasized. Exercises involving the application of code references are a major part of the course.

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. 192 identifying general provisions of the regulations. Identifying selected requirement basis to the operations of natural gas distribution systems.

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 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.

Third Six Months Total Hours: 126.5

Fourth 6 Months

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 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 2003

3.75 Hours

Identifying Techniques Common to Purging Natural Gas Distribution Pipelines

COURSE DESCRIPTION:

This course presents the theory and techniques common to purging natural gas lines. Topics include the isolation of equipment during the purging operation and procedures for purging air or gas from a section of pipeline. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

NGT 1704

3.75 Hours

Identifying Electrical Concepts Basic to Appliance Service

COURSE DESCRIPTION:

This course presents the basics for troubleshooting electrical control circuits in gas operated appliances. Circuit components and their function in an electrical circuit are identified. The reading of electrical circuit diagram (ladder diagram) is practiced and their physical arrangements in the appliance are identified. Troubleshooting techniques are emphasized. Related skill performance is verified and documented by laboratory simulation exercises and/or on the job training.

Historical Background of Electricity

3.75 Hours

Fundamentals of Electricity – American Gas Association Chapters 1 - 3

COURSE DESCRIPTION:

This class will provide the apprentice with a basic historical background about the discovery of electricity and how it is used to improve everyday life.

Electrical Relationships

3.75 Hours

Fundamentals of Electricity – American Gas Association Chapters 4 - 6

COURSE DESCRIPTION:

This class will provide the apprentice with a basic background about Ohm's Law, Watt's Law and various circuits

Electrical Relationships**3.75 Hours**

Fundamentals of Electricity – American Gas Association Chapters 7 - 10

COURSE DESCRIPTION:

This class will provide the apprentice with a basic background about Circuit Diagrams and Test Equipment

Gas Burners, Design, and Operation**3.75 Hours**

Fundamentals of Gas Combustion by American Gas Association – Chapter 4

COURSE DESCRIPTION:

This chapter deals with luminous or yellow flame burners, blue flame burners, primary air, secondary air, excess air, flame appearance and stability, lifting burner flames, flashback, yellow tipping of flames, effects of combustion air flow rates on appliance efficiency, control of combustion air flow, calculation of excess air percentage, impingement of burner flames on cool surfaces, typical appliance burners, gas orifice, air shutter, venturi throat mixing, tube, burner head, burner ports, operations of burners, atmospheric burners, power burners, force and induced draft burners, premixing and pressure power burners, appliance burner designs, drilled port burners, slotted port burners, ribbon port burners, single port or monoport burners, infrared radiant burners, jet burners, impingement target burners, pilot burners, primary aerated pilot burners, non-primary aerated pilot burners.

Burner Orifices**3.75 Hours**

Fundamentals of Gas Combustion by American Gas Association – Chapter 5

COURSE DESCRIPTION:

This chapter illustrates the types of orifices; fixed, adjustable, universal, office discharge; coefficient, measuring gas input rates, measuring gas flow, measuring gas pressure, sizing for orifices for desired gas flow rates, sizing inputs by flame spread method and compensation for altitude on setting inputs.

Burner Problems**3.75 Hours**

Fundamentals of Gas Combustion – American Gas Association Chapter 7

COURSE DESCRIPTION:

This chapter discusses burner problems, lifting flames, flashback, extinction pop, yellow tipping, fluctuating flames, unstable or wavering flames, floating flames, flame rollout, gas odor at primary air openings and corrosion of appliances.

*Fourth Six Months Hours: 46****Fifth 6 Months*****High Efficiency Appliances****6.75 Hours**

Fundamentals of Gas Appliances – American Gas Association Chapter 9

COURSE DESCRIPTION:

This chapter deals with high efficiency appliances categorization, vent materials, and condensate disposal.

Customer Serviceman Procedures Manual Chapters 1-6**3.75 Hours****COURSE DESCRIPTION:**

This class will utilize the customer serviceman procedures manual and will discuss the subjects in chapters 1 – 6.

Customer Serviceman Procedures Manual Chapters 7-12

3.75 Hours

COURSE DESCRIPTION:

This class will utilize the customer serviceman procedures manual and will discuss the subjects in chapters 7 – 12.

Customer Serviceman Procedures Manual Chapters 13-21

3.75 Hours

COURSE DESCRIPTION:

This class will utilize the customer serviceman procedures manual and will discuss the subjects in chapters 13 – 21.

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

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 2305

11.25 Hours

Regulating Gas Pressure in Piping Systems with Self Operating Regulators

COURSE DESCRIPTION:

This course presents the 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

11.25 Hours

Controlling Gas Pressure with Pilot Loaded Regulators

COURSE DESCRIPTION:

This course presents the concepts and principals basic to the operation of pressure regulator installations. The content focuses on the operating characteristics of pilot loaded regulators.

NGT 2403

11.25 Hours

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

COURSE DESCRIPTION:

This course presents the 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.

Standards Volume 15, Section 6 (NV Energy)

4 Hours

COURSE DESCRIPTION:

This class will discuss and review NV Energy's' Volume 15, Section 6. Areas that will be discussed are gas-metering guidelines, gas metering locations, gas meter capacity table, gas service capacity table, gas meter guard post detail, and mobile home service requirements.

**Operations and Maintenance Manual
Sections A-M (excluding K) (NV Energy)**

16 Hours

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.

Fifth Six Months Total Hours: 94.25

Approximate Total Program Hours: 478.5

Note: The Lab Hours for the above Modules will be accomplished as the Process OJT hours are completed and through Classroom training.

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

Wages

Wage Schedule for Apprentice Customer Serviceman – 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