Apprenticeship and Industry Training

Gas Utility Operator

Competency Profile

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Alberta

Apprenticeship and Industry Training

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Gas utility operator : competency profile

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Gas Utility Operator

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Apprenticeship and Industry Training System

The Apprenticeship and Industry Training System provides for three different types of certification, compulsory certification in a designated trade, optional certification in a designated trade, and certification in a designated occupation. Certification in a designated occupation indicates an individual has met the standards for certification in an industry-developed program designated under the *Apprenticeship and Industry Training Act*.

The competencies required to meet the certification standard are developed by industry and approved by the Alberta Apprenticeship and Industry Training Board. Demonstration of competency may be achieved through on-the-job work experience or formal instruction received from a training provider, another training source or a combination of both.

The apprenticeship and industry training system is driven by industry. The Alberta Apprenticeship and Industry Training Board relies on a network of industry committees representing the interests of over 50 trades and occupations. An occupational committee, consisting of representatives from the gas utility operator occupation, develops standards for occupational certification.

The occupational committee develops the standards for certification as set out in this Competency Profile. A person who has completed the competency requirements and met industry standards for the gas utility operator training program, including 24 months and 3400 hours of level specific on the job training, can apply for certification at any Client Services office of Alberta Advanced Education, Apprenticeship and Industry Training. The candidate will have to successfully pass an industry examination administered by Alberta Advanced Education before obtaining certification.

Occupational Committees

The Board establishes an occupational committee for each designated occupation and based on occupational committee recommendation, appoints a Presiding Officer and members for terms up to three years. It is the responsibility of the occupational committee to make recommendations to the Board on any matter concerning standards and requirements for certification in their occupation; consult with industry on issues affecting the occupation; represent interests of employers and employees across the industry and regions; communicate issues and recommendations to the Board; communicate with industry at large on matters before the occupational committee; promote the apprenticeship and industry training system in Alberta.

Gas Utility Operator Occupation Committee Members

Mr. D. Scheideman	Stony Plain	Presiding Officer
Mr. T. Buckler	Evansburg	Employer
Mr. A. Dietz	Galahad	Employer
Mr. K. Olds	Raymond	Employer
Mr. R. Ross	Crossfield	Employer
Mr. S. Bagshaw	Castor	Employee
Mr. B. Benesch	Wildwood	Employee
Mr. G. Gardiner	Calgary	Employee
Mr. J. Martin	Onoway	Employee

The Alberta Apprenticeship and Industry Training Board (Board)

The 13 members of the Board appointed by the Minister are aware of the training and certification needs of trades and occupations. Many Board members have been members of the advisory network. The Board:

- responds to industry's needs
- sets training and certification standards in all trades
- approves the technical training to be delivered by training establishments
- encourages the development of alternate methods of technical training delivery
- makes recommendations to the Minister of Advanced Education about the designation of trades and occupations
- creates LACs, PACs, OCs, and appoints their members
- advises the Minister on the labour market's need for skilled and trained workers

Safety Education

Safe working procedures and conditions, accident prevention and the preservation of health are of primary importance in industry training programs in Alberta. These responsibilities are shared and require the joint efforts of employers and employees. Controlling the variables and behaviours that may contribute to or cause an accident or injury can create safe learning experiences and environments. It is generally recognized that a safe attitude contributes to an accident free environment. Everyone will benefit as a result of a healthy safe attitude towards prevention of accidents. Individuals in this occupation may be exposed to more hazards than others in the work force and should be familiar and comply with the Occupational Health and Safety Act and Regulations respecting personal safety and the safety in the work place.

Legal and Administrative Aspects of Safety

Accident prevention and the provisions of safe working conditions are the responsibilities of an employer and employee.

Employer's Responsibilities:

The employer is responsible for:

- providing and maintaining safety equipment, protective devices and clothing.
- enforcement of safe working procedures.
- safeguards for machinery, equipment and tools.
- observance of all accident prevention regulations.
- training of employees in safe use and operation of equipment.

Employee's Responsibilities:

The employee is responsible for:

- working in accordance with the safety regulations pertaining to job environment.
- working in such a way as not to endanger themselves or fellow employees.
- safe use of all equipment and supplies provided by the employer

Formal or Technical Training

Formal training for occupations falls outside the administrative scope of Alberta Apprenticeship and industry Training. Formal training may be available through colleges and training providers in Alberta or outside the province. Contact Alberta Advanced Education, Apprenticeship and Industry Training, Industry Programs and Standards for more information.

Technical Training in the Gas Utility Operator occupation is available at the Northern Alberta Institute of Technology.

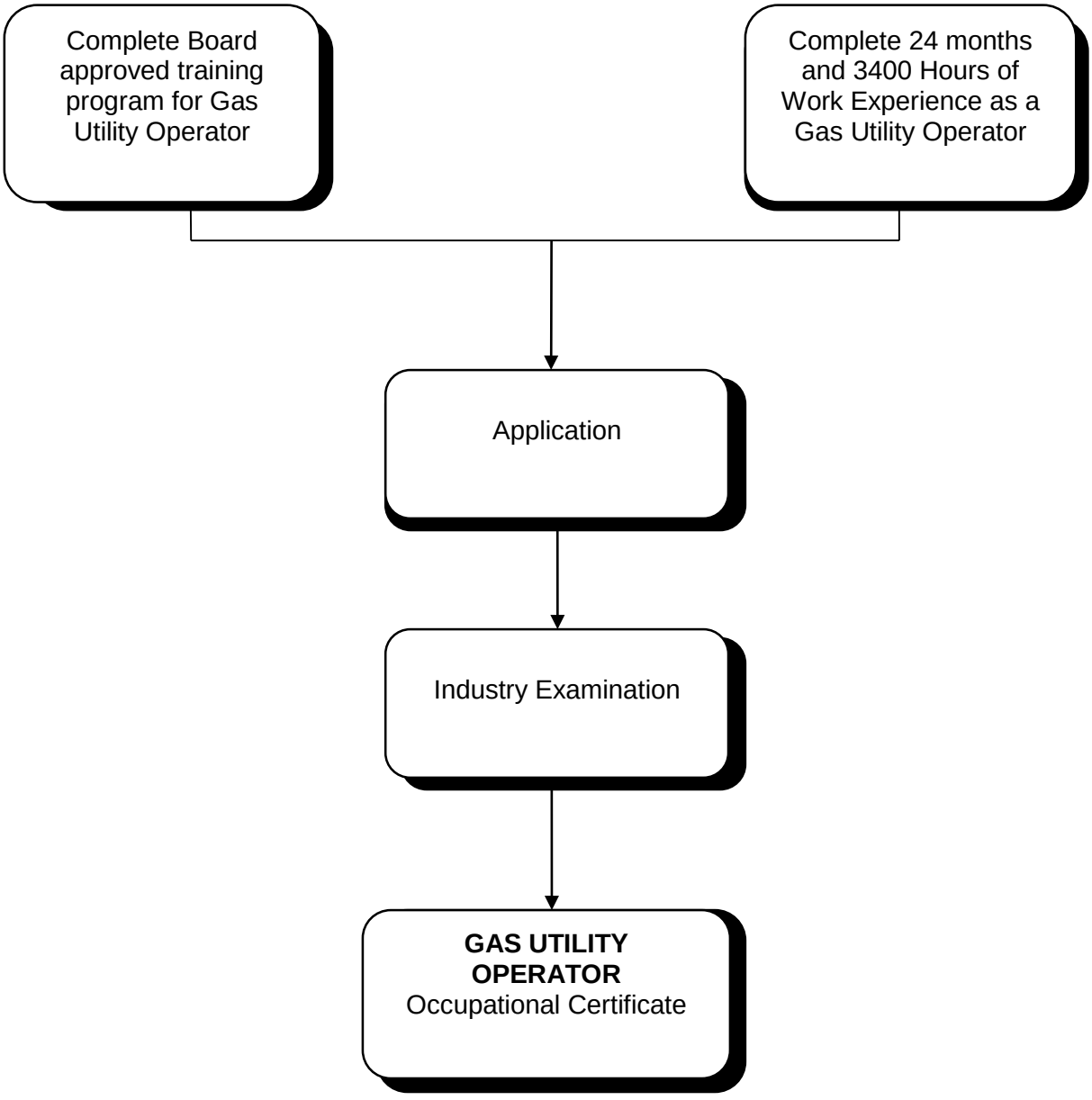
Procedures for Recommending Revisions to the Competency Profile

The occupational committee for the gas utility operator occupation has developed this competency profile and it was approved on February 1, 2013 under the authority of the Alberta Apprenticeship and Industry Training Board on a recommendation from the occupational committee. Valuable input is acknowledged from industry and the training providers. Any concerned citizen or group in the Province of Alberta may make recommendations for change by writing to:

Apprenticeship and Industry Training
Industry Programs and Standards
10th floor, Commerce Place
10155 - 102 Street
Edmonton, AB T5J 4L5

It is requested that recommendations for change refer to specific areas and state references used. Recommendations received will be placed before regular meetings of the occupational committee.

GAS UTILITY OPERATOR – ROUTE TO CERTIFICATION



Gas Utility Operator Competency Profile
Formal Competency
(3400 Hours over 24 Months)

		A	B	C
SECTION ONE	**GENERAL SAFETY AND EMERGENCY RESPONSE**	General Safety	Emergency Response Procedure	
SECTION TWO	**REGULATORY AGENCIES AND CODE**	Regulatory Agencies	Codes	
SECTION THREE	**MATH AND SCIENCE**	Properties of Gases	Math	
SECTION FOUR	**RMO AND PRESSURE CONTROL**	Introduction to Regulating, Measuring & Odourizing (RMO)	Pressure Control	
SECTION FIVE	**OPERATION AND MAINTENANCE**	Operation and Maintenance		
SECTION SIX	**INSTALLATION OF GAS UTILITY SYSTEMS**	Survey and Mapping	Gas Distribution Systems	Pipeline Construction
SECTION SEVEN	**RMO OPERATION**	RMO Operation and Maintenance		
SECTION EIGHT	**INDUSTRY RELATED SKILLS**	Plastic Fusion	Cathodic Protection	Leak Detection

COMPETENCY PROFILE
GAS UTILITY OPERATOR CERTIFICATE PROGRAM

SECTION ONE .....GENERAL SAFETY AND EMERGENCY RESPONSE.....

A. General Safety

Competency: Comply with the safety regulations governing the gas utility industry.

1. List the applicable requirements for the safety provisions applicable to work performed by gas utility operators.
2. Describe PPE as required for various applications within the gas utility industry.
3. Demonstrate use of supplied air and self contained breathing apparatus, with respect to confined spaces and H_2S.
4. Use hand held fire extinguishers for controlling fire with various fuels.
5. List the requirements for transportation of dangerous goods.

B. Emergency Response Procedure

Competency: Describe emergency response procedures required for the gas utility industry.

1. Identify emergency situations from the industry guidelines.
2. Choose the appropriate emergency plan permitting the safe and efficient resolution of an identified emergency.
3. Identify the Regulations, Codes and Standards that govern emergency response planning in the industry.

SECTION TWO .....REGULATORY AGENCIES AND CODE.....

A. Regulatory Agencies

Competency: Locate sections of the acts that apply to situations and activities encountered by the gas utility operator.

1. Identify the regulatory agencies and their respective scope of responsibilities.

B. Codes

Competency: Describe codes that apply to situations and activities encountered by the gas utility operator.

1. Identify codes that apply to the gas utility industry.

SECTION THREE..... MATH AND SCIENCE .....

A. Properties of Gases

Competency: Apply knowledge of the chemical and physical properties of natural gas and other related hydrocarbons, air and water to function effectively in the working environment.

1. Describe the general properties of the states of matter.
2. List the chemical formulae and physical characteristics for: water, air, methane, propane, butane, and the products of combustion for the flammable gases.
3. Describe the flame and combustion characteristics of methane, propane and butane.
4. Describe the causes and effects of carbon monoxide poisoning.

B. Math

Competency: Apply mathematical problem solving skills related to the gas utility industry.

1. Convert units of distance, area, volume, temperature, pressure and energy from metric to imperial and imperial to metric.
2. Calculate the theoretical amount of primary and secondary air required for complete combustion.
3. Apply Boyle's, Charles', and the Ideal gas law to solve practical problems.
4. Apply a pressure factor to correct the volume read on a meter for a change in conditions.

SECTION FOUR.....RMO AND PRESSURE CONTROL.....

A. Introduction to Regulating, Measuring and Odourizing (RMO)

Competency: Describe the operation of the regulating, measuring and odourization (RMO) systems to industry standards.

1. List the requirements for location of RMO stations.
2. Describe the devices used for measuring natural gas to include the various functions, types, and their differences.
3. Describe the system of automatic meter reading used at the consumer end.
4. Describe various types of odourizers.

B. Pressure Control

Competency: Identify the operation of pressure control devices.

1. Describe the devices used for pressure regulation of natural gas.
2. Describe the operation of various pressure control devices.
3. Describe the types of pressure control devices and operational differences.
4. Describe the devices used for pressure relief to include the function, type, and differences.

SECTION FIVE..... OPERATION AND MAINTENANCE.....

A. Operation and Maintenance

Competency: Describe the general process to bring gas from the well head to the customer and the requirements & equipment for operating, maintaining and inspecting gas systems.

1. Describe the process of removing oil and gas from the well to the delivery of gas to the end user.
2. List the precautions and requirements for operating and repairing gas systems.
3. List the repair tools and equipment required for maintaining gas systems.
4. Describe the process and list the requirements for inspecting and surveying gas systems.

SECTION SIX ..... INSTALLATION OF GAS UTILITY SYSTEMS .....

A. Survey and Mapping

Competency: Interpret drawings as they pertain to the gas utility industry.

1. Describe the use of topographical maps.
2. Describe the Western Canada Land Survey System.
3. Describe the use of global positioning systems (GPS) technology.
4. Record differences between original and actual piping installations.
5. Describe as-built drawings.
6. Sketch as-built drawings.

B. Gas Distribution Systems

Competency: Identify the key aspects of safety, design, construction, and operation of gas distribution systems.

1. Describe a gas distribution system including design and operation.
2. Describe a gas transmission pipeline as it pertains to a gas distribution system.
3. Describe building piping.
4. Describe environmental regulation requirements.

C. Pipeline Construction

Competency: Describe pipeline construction and inspection.

1. Demonstrate the use of tools and materials (material testing).
2. List design factors for piping material selection.
3. List design factors for pipe sizing.
4. List design factors for regulating stations.
5. Identify testing procedures including flaring and purging.

SECTION SEVEN..... RMO OPERATION .....

A. RMO Operation and Maintenance

Competency: Operate an RMO station within specified parameters.

1. Demonstrate safe station entry procedures.
2. Use applicable sections of the operations and maintenance (O & M) manual.
3. Troubleshoot devices within the RMO station.
4. Verify operation of an RMO station upon completion of maintenance procedures including required record keeping.

SECTION EIGHT..... INDUSTRY RELATED SKILLS .....

A. Plastic Fusion

Competency: Apply plastic fusion techniques for use on gas distribution piping.

1. Describe the types of plastic pipes and where they may be used.
2. Describe the design factors regarding the use of plastic pipe and tracer wire.
3. Describe the plastic fusion methods and processes.
4. Describe destructive and non-destructive testing for plastic fusion joints.
5. Demonstrate plastic fusion methods and process as assigned.
6. Demonstrate testing procedures on plastic fusion joints as assigned.

B. Cathodic Protection

Competency: Apply knowledge of the origin, effects and prevention of corrosion to the monitoring and maintaining of corrosion protection systems.

1. Describe the causes of galvanic corrosion.
2. Describe the operation of the two main types of cathodic protection systems.
3. Describe the monitoring and trouble-shooting techniques used to control corrosion.
4. Demonstrate the use and care for the instruments used to monitor and maintain cathodic protection systems.

C. Leak Detection

Competency: Apply the process and equipment required to detect leakage from a gas distribution system.

1. Describe the problems and effects caused by leakage.
2. Describe leak location techniques.
3. List the factors affecting leak location.
4. Demonstrate the use of leak detection instruments.

Apprenticeship and Industry Training

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