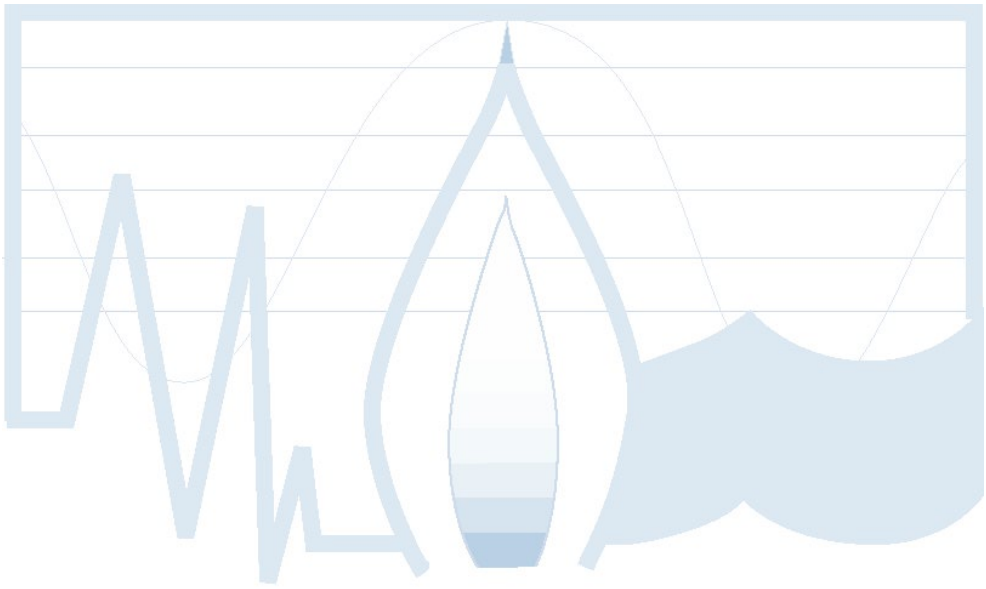


Gas Industry Training Package
UTG98
V2.00

Volume Index

Volume 1 - Parts A, B & C

Volume 2 - Units NGS001 – NGS609

National Qualifications Framework

Certificates

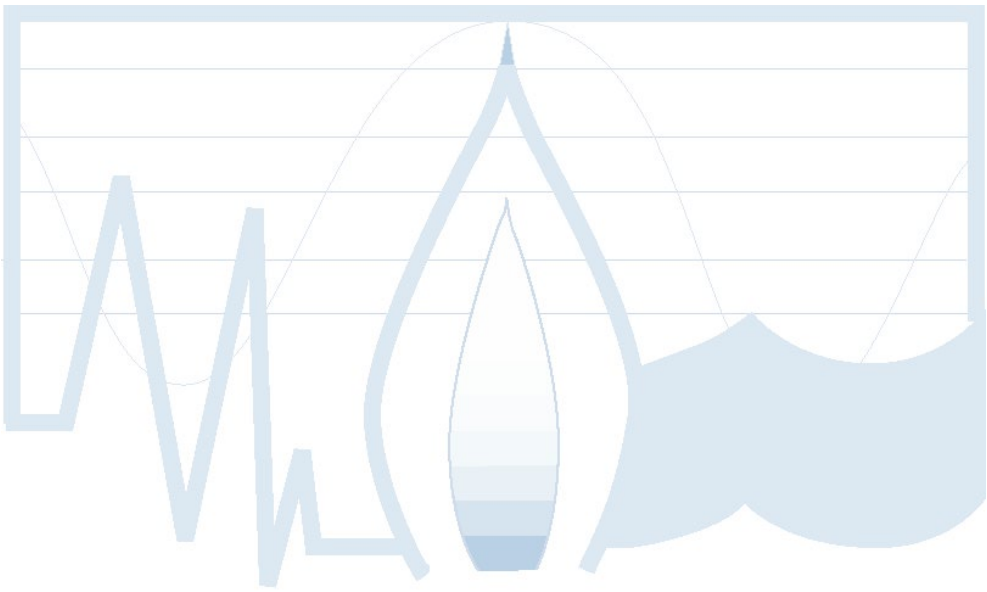
UTG 2 01 98	Certificate II-Gas Industry Operations
UTG 3 01 98	Certificate III-Gas Industry Operations
UTG 4 01 98	Certificate IV-Gas Industry Operations

Diploma

UTG 5 01 01	Diploma–Gas Industry Operations

Advanced Diploma

UTG 6 01 01	Advanced Diploma - Gas Systems



Gas Industry Training Package
UTG98
V2.00

Volume 1

Parts A, B and C

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Modification History

MODIFICATION HISTORY – ENDORSED MATERIALS			
Please refer to the National Training Information Service for the latest version of Units of Competency and Qualification information (http://www.ntis.gov.au).			
Gas Industry Training Package – UTG98			**Sheet: 1 of 1**
Version	**Date of Release**	**Authorisation:**	**Comments**
1.00	October 1998	NTFC	Primary release
2.00	October 2001	NTQC	• Inclusion of 2 new qualifications Diploma and Advanced Diploma. • Inclusion of new units - NGS319, NGS320, NGS321 and NGS601, NGS602, NGS603, NGS604, NGS605, NGS606, NGS607, NGS608, NGS609. • Units amended - NGS102, NGS206, NGS207, NGS208, NGS209, NGS210, NGS303, NGS306, NGS307, NGS308, NGS309, NGS310, NGS312, NGS313, NGS315, NGS316.

Forms control: All endorsed training packages will have a version number displayed on the imprint page of every volume constituting that training package. Every training package will display an up-to-date copy of this modification history form, to be placed immediately after the contents page of the first volume of the training package. Comments on changes will only show sufficient detail to enable a user to identify the nature and location of the change. Changes to training packages will generally be batched at quarterly intervals. This modification history form will be included within any displayed sample of that training package and will constitute all detail available to identify changes.

Important

Training Packages are living documents. Changes are periodically made to reflect the latest industry practices.

As a user of the Training Package, and before commencing any form of training or assessment, you must ensure delivery is from the **current version**.

Ensure you are complying with this requirement by:

- checking the version identifier code of the version you currently have (located on the imprint page, just below the copyright statement)
- accessing the Australian Training Products (ATP) website and comparing the version identifier. This information is displayed in the first few pages of the Training Package.

Where the ATP website shows a different version, the Modification History, again shown on the ATP website in the first few pages of the Training Package, will display the changes made in versions. ATP website for version comparison: http://www.atpl.net.au

The Modification History is also visible on the website of the developer of the Training Package: http://www.nueitab.com.au

Changes in units of competency and packaging of qualifications are reflected on the **National Training Information Service** which displays only current information: **http://www.ntis.gov.au**

TABLE OF CONTENTS

PREFACE

Background

The National Training Package for the Gas Sector of the Utilities Industry has been prepared by industry representatives from all States/Territories of Australia.

The endorsable components of the Package are comprised of the following of three parts:

- Part A - Competency Standards
- Part B - Assessment Guidelines
- Part C - Qualifications

The Package is to be used by all those involved in the delivery of Gas Industry competencies. This includes:

- State training and recognition authorities who will use the Package as (1) being the industry's advice to government and (2) the minimum requirements to be satisfied by potential and practising Registered Training Organisations in the delivery of services.
- State/Territory Industry Training bodies who will use the Package to underpin their relationship with and support of the State training and recognition authorities quality systems.
- Registered Training Organisations who will issue qualifications based on the requirements outlined in the Training Package.
- Individual candidates/trainees who will use the provisions of the Package to establish their responsibilities and to protect their prerogatives.

Responsibility for systems maintenance

The National Training Package for the Gas Industry is to be managed and maintained by the National Gas Industry Training Taskforce (NGITT).

The NGITT is a standing working group of the National Utilities and Electrotechnology Industry Training Advisory Body. The Taskforce is to be representative of the Gas Industry throughout Australia and be bipartite. The detailed composition will be determined by the National Utilities and Electrotechnology ITAB and membership may be varied by that body.

The initial composition of the NGITT is included at Attachment 1 to this preface.

The charter of the NGITT is to monitor, review and maintain the National Gas Industry Training Package. This Charter encompasses the following responsibilities:

Maintenance of Competency Standards - to initiate and respond to the need to review, vary, delete and to add Units of Competency, as part of the Gas Industry's standards inventory.

Maintenance of Competency Delivery Processes - to monitor the effectiveness of the delivery of competency and so initiate and respond to issues which may impact on those processes.

Maintenance of Assessment Guidelines - to monitor the effectiveness of the Assessment Guidelines and Supporting Systems, to initiate and respond to issues which impact, or are likely to impact, on the quality of the assessment systems and to promote quality improvements throughout the system.

Maintenance of the Qualifications and Recognition Systems - to monitor the effectiveness of the application of the Qualification and Recognition Systems contained in the Training Package and to review/revise the system as required.

Effectiveness of the valuation of Units of Competency for the purpose of their inclusion in the qualifications framework.

The NGITT will meet at least twice annually to review and plan their management processes. The majority of the considerations by the Taskforce will require prompt response and therefore, business and decisions will normally be handled by electronic/mail means. Support for the NGITT will be provided by the National Utilities and Electrotechnology ITAB, who will act as secretariat.

Attachment 1

Current Membership of the National Gas Industry Training Taskforce

Name	Organisation
George Harris (Chair)	Allgas
Joe Calabrese	AGL
David Izatt	Boral
Jarkko Soininen	SA Gas Co
Lea Towler	ALINTA GAS
Alan Coulson	Elgas (ALPGA)
Ian Cole	AWU
Colin O'Malley	TWU

PART A

COMPETENCY STANDARD INDEX

Units of Competency are contained in Volume 2 of this Training Package

Part A – Competency Standards

Introduction

The National Utilities and Electrotechnology Industry Training Advisory Body (ITAB) Ltd in association with the Australian National Training Authority (ANTA) has coordinated the development of competency standards for Australian Qualification Framework Levels 2-4 in the Gas Industry of Australia.

The National Utilities and Electrotechnology ITAB Ltd in consultation with the Gas Industry Training Task Force established a National Steering Group for the National Competency Standards Project with membership drawn from around Australia and from all Industry sectors. The competency standards detailed in this paper describe one of the major outcomes of this project.

Industry definition - ANTA

Since distribution of the draft version of this report it has been recognised that the ANTA definition of the Gas Industry is given by the ANZIC classification category 3620 Gas Supply which gives as its Descriptor -

"The class consists of units mainly engaged in the manufacture of town gas from coal and/or petroleum or in the distribution of manufactured town gas, natural gas or liquefied petroleum gas through a system of mains, including pipelines operated on own account."

The availability of national competency standards for the Gas Industry will provide the catalyst for the development of structured accredited training arrangements that meet enterprise needs and are genuinely portable between industries and regions.

It was decided from the onset that the standards must meet three key requirements:

- must be fully involved in their development
- the outcomes must be forward looking - they must reflect not just the way work is organised and carried out in the present, but also take possible work in the future
- the standards must be broad and flexible enough to be relevant and applicable to enterprises large and small in all parts of the industry.

This Paper details 46 units of competency for selected functions of the Gas Industry. These competency standards represent the first stage of the National Training Package Development Project for the Industry. The Training Package comprises competency standards, assessment guidelines and alignment to the Australian Qualifications Framework (AQF).

Steering Committee

The Project's National Steering Committee (NSC) is a nationally representative committee formed to oversee the development of the training package. Members of the NSC were as follows:

Name	Position	Company	State
Mr Joe Calabrese	Team Leader, Technical Training	AGL Gas Company Ltd	NSW
Mr Ian Cole	Industrial Organiser	AWU - Gas Industry Branch	VIC
Mr Alan Coulson	National Safety and Development Manager	Elgas Ltd	NSW
Mr George Harris	Manager, Gas Supply and Projects (Chairman)	Allgas Energy Ltd	QLD
Mr David Izatt	Manager, Training	Boral Energy Ltd	QLD
Mr Paul O'Brien	Project Officer	NUEITAB	FED
Mr Alan Pollock	Superintendent Industry Services	Gas and Fuel	VIC
Mr Jarkko Soininen	Manager, Human Resource Development	South Australian Gas Company	SA
Ms Jeanette O'Keefe	Human Resource Manager	Alinta Gas	WA
Mr Colin O'Malley	Industrial Organiser	FGIEU	VIC
Project Consultant Mr Brendan Mulhall	Director	BMA	ACT

Regulators and licensing

The Gas Industry is regulated by State/Territory legislation; there is no Federal Act of Parliament covering the regulation of the Industry as a whole. Each State/Territory abides by a Gas Act commonly detailing specific gas regulations and Codes of Practice and Standards (safety in relation to the installation and supply of gas).

There is legislation covering all aspects of operations for the Gas Industry. Common components of the Gas Industry regulations for each State/Territory cover the following areas of operation:

- Occupational Health and Safety State requirements
- Australian Standards Codes of Practice
- Manufacturing specifications
- Environmental requirements
- Enterprise procedures.

These regulations have formed the crux of Industry operations and training.

Maintenance of competency standards

The Gas Competency Standards were developed by and are therefore owned by the industry.

The Competency Standards must be maintained so that they reflect the ongoing needs of the Sector and respond in a timely manner to changed technologies and circumstances.

Responsibility for the maintenance of the Competency Standards is shared by the parties who constitute the Sector:

- Competency Standards maintenance will be coordinated and managed by the National Gas Industry Training Taskforce (NGITF).
- Suggestions and proposals for changes from all parties are welcomed. These should be documented and submitted to the NGITF through the National Utilities and Electrotechnology ITAB.

Assessment Guidelines

The National Gas Industry have developed guidelines for the assessment of these standards, the Guidelines and example Assessment instruments are in the Assessment Guidelines of the National Gas Industry Training Package. The Guidelines are at Part B of this Training Package.

National Qualifications

The National Gas Industry has identified three (3) qualifications which are linked to these standards these are:

AQF Level	Qualification Title
2	Certificate II – Gas Industry Operations
3	Certificate III – Gas Industry Operations
4	Certificate IV – Gas Industry Operations
5	Diploma – Gas Industry Operations
6	Advanced Diploma – Gas Systems

Details of these qualifications including the framework, rules for structuring and flexibility arrangements are included at Part C of this Training Package.

Acknowledgments

The National Utilities and Electrotechnology ITAB wishes to acknowledge the important development roles played by enterprises, employee representatives and individuals. Without the level of commitment and support received, this Training Package would not exist. The Industry's endorsement of the developed Competency Standards is welcomed, as are those from the industry who gave up their time to provide valuable technical contribution to their development and now form a standing committee for the National Utilities and Electrotechnology ITAB.

The National Utilities and Electrotechnology ITAB acknowledges and thanks the following members of the National Gas Industry Training Taskforce:

George Harris (Chair)	Allgas
Joe Calabrese	AGL
David Izatt	Boral
Jarkko Soininen	SA Gas Co
Lea Towler	ALINTA GAS
Alan Coulson	Elgas (ALPGA)
Ian Cole	AWU
Colin O'Malley	TWU

Conclusion

The standards have been developed, reviewed and validated through extensive industry consultation. They reflect the views of the wide cross section of the sector throughout Australia. They have been used as the basis for the National Gas Industry Training Package and will also be used for subsequent competency systems development.

2. Project Methodology

The inaugural National Steering Committee Workshop held in March 1996 developed a framework for the Australian Gas Industry by analysis of existing information and the application of the Workshop participants' Industry knowledge. The National Steering Committee took a broad view of the Gas Industry in order to develop a comprehensive framework which covers all Industry and Industry-related activities at the conceptual level. The framework included four basic elements:

- Exploration and Processing: Handling and Distribution
- Sourcing: Customer Supply

The Steering Committee agreed to focus competency development on selected functions in the "Handling and Distribution" and the "Customer Supply" areas.

The data for these Gas Industry Standards was collected through the use of Group Focus workshops that carried out *Functional Analyses* of the selected functions within the Gas Industry. The workshops were held in July and August 1996 and comprised of a group of "experts" from the selected areas outlined below.

State	Stream	Field
NSW	Storage	Maintenance; Operations
Victoria	Billing	Meter Reading; Processing; Collections; Customer Enquires
Victoria	Processing	Maintenance; Operations
Queensland	Transport (LPG)	Maintenance; Operations
Western Australia	Pipelines (Transmission)	Construction; Maintenance; Operations
South Australia	Pipelines (Distribution)	Construction; Maintenance; Operations

The information obtained from these workshops formed the basis for the development of a comprehensive listing of the competency standards for functions performed in the Gas Industry. The format of the standards is in keeping with the Policy & Guidelines set down by the Standards and Curriculum Council (SCC) in National Competency Standards: Policy & Guidelines (Second Edition).

The draft standards were verified through invited comment from various Industry representatives and additional workshops held in Sydney and Perth in late 1996 and January 1997.

In August 1998, the National Utilities and Electrotechnology Industry Training Advisory Body (ITAB) Ltd in association with ANTA commenced the development of an AQF Diploma qualification for the Australian Gas Industry. An Industry Reference Group of national representation was formed to oversee the development of Competency Standards for the Diploma qualification. Three new Units of Competency were developed and aligned with Australian Qualification Framework (AQF) Diploma.

National Industry Reference Group

On the advice of the Australian Gas Association (AGA) and the relevant unions, a National Industry Reference Group of was formed to oversee the development of the Gas Industry Diploma.

Members of this Industry Reference Group were as follows:

Name	**Position**	**Company**	**State**
Mr Dave Arrowsmith	Operations Supervisor	Alinta Gas	WA
Mr Ian Cole	Vice President - Gas	Australian Workers Union	VIC
Mr Nick Cvetkovski	Manager, Human Resources	Stratus Networks	VIC
Ms Mary Lyras	Manager, Employee Development	AGL	NSW
Mr Ron North	Executive Officer	State Training Authority	QLD
Mr Paul O'Brien	Industry Executive Officer	NUEITAB	NSW
Mr Noel Ryan	Manager	Queensland Utilities and Services Industry Training Advisory Board	QLD
Mr Jarkko Soininen	Manager, Human Resource Development	Boral Energy	SA
Ms Jenny Thompson	Pipeline Systems Coordinator	AGL Pipelines	QLD
Project Officer			
Mr Doug Wells	Principal Teacher – Plumbing, Brisbane Institute of TAFE	Seconded to the Queensland Utilities and Services ITAB	QLD

The development of the Diploma Qualification represents the second stage of the NUEITAB Training Package development for the Australian Gas Industry, the first being the development of the Training Package for the Gas Industry to the Certificate IV level.

Regulators and Licensing

The Gas Industry is regulated by State/Territory legislation; there is no Federal Act of Parliament covering the regulation of the Industry as a whole. Each State/Territory abides by a Gas Act commonly detailing specific gas regulations and Codes of Practice and Standards (safety in relation to the installation and supply of gas).

There is legislation covering all aspects of operations for the Gas Industry. Common components of the Gas Industry regulations for each State/Territory cover the following areas of operation:

- Occupational Health and Safety State requirements
- Australian Standards Codes of Practice
- Manufacturing specifications
- Environmental requirements
- Enterprise procedures.

In September 1999 work commenced on the development of an Advanced Diploma level qualification to provide a career path to level VI of the AQF. The Project team, following consultations with industry representatives and Steering Committee Members, determined that two complementary qualifications were required to complete the pathway from AQF II to VI. They are:

- An Advanced Diploma in Utilities Assets Management (working title), and
- An Advanced Diploma in Gas Systems Design Specifications.

The Steering Committee determined that priority should be given to the development of the latter course as the former has impact on other utilities sectors.

The name of the Qualification was changed to Advanced Diploma in Gas Systems at the Steering Group Meeting of 16 June 2000.

The Advanced Diploma in Gas Systems has been developed to meet the needs of upper middle management and technical personnel in providing a vital link between gas operations personnel and professional gas engineers. In developing the qualification, consideration has been given to:

- the competencies of persons working at the AQF Level VI in the gas industry
- pathways from the existing Gas Industry Training Package
- pathways from related qualifications in engineering and science
- recognition of prior learning/recognition of current competency.

In recognition of the complexity and changing nature of work, allowance has been made for the importation into the qualification of a Unit of Competency from a related Training Package at a similar level, subject to approval by the NUEITAB. In this manner, it is hoped that the qualification provides sufficient

flexibility to cater to the needs of the majority of gas industry employees at AQF level VI.

3. What are competency standards?

The broad concept of competency is related to realistic work practices, expressed as an outcome and understandable to all people in the workplace. It is important that the meaning of the standards be interpreted and understood in the same way by different users, and in different situations.

The Australian National Training Authority's definition of competency encompasses several features: - "The concept of competency focuses on what is expected of an employee in the workplace rather than the learning process, and embodies the ability to transfer and apply skills and knowledge to new situations and environments."

Units of competency should encompass all four components of competency, which are:

- performing individual tasks
- managing a number of different tasks within a job
- responding to problems, breakdowns and changes in routine
- dealing with the responsibilities and expectations of the workplace.

The Australian National Training Authority requires competency standards to conform to a format. A competency standard is made up of a number of Units, comprising Elements, Performance Criteria, Range of Variables (or Range Indicators) and an Evidence Guide**.**

Units of Competency - What you do in the workplace

The unit is a summary of an area work. It describes a function or purpose of a job/occupation.

Elements of Competency - Parts which make up a unit

Elements are parts of units. They detail the broader functions or purposes covered by the unit. Generally, a unit is quite broad, whereas the element focuses on the actual activities or responsibilities that make up the competency.

Performance Criteria - Required standard of performance for each element

Elements describe what the unit means but they do not provide information about the level of performance that is required. The level or standard that you expect to achieve is indicated by the performance criteria.

Range of Variables - Sets the Context for the particular unit

The range of variables describes the variety of circumstances that the unit of competency might be used in and distinguishes between different workforce and qualification levels. The complexity of the range indicators varies according to the different levels.

Evidence Guide - Its purpose is to guide assessment of the unit

The Evidence Guide gives further information about the quality and level of performance. Its purpose is to guide assessment of the unit of competency in the workplace and/or a training program. The evidence will relate directly to the performance criteria and range of variables.

The Evidence Guide will include the following:

Context - It will define the environment where assessment can take place.

- Specialised Resources required for Training and Assessment - Defines the resources that will be required to conduct assessment.

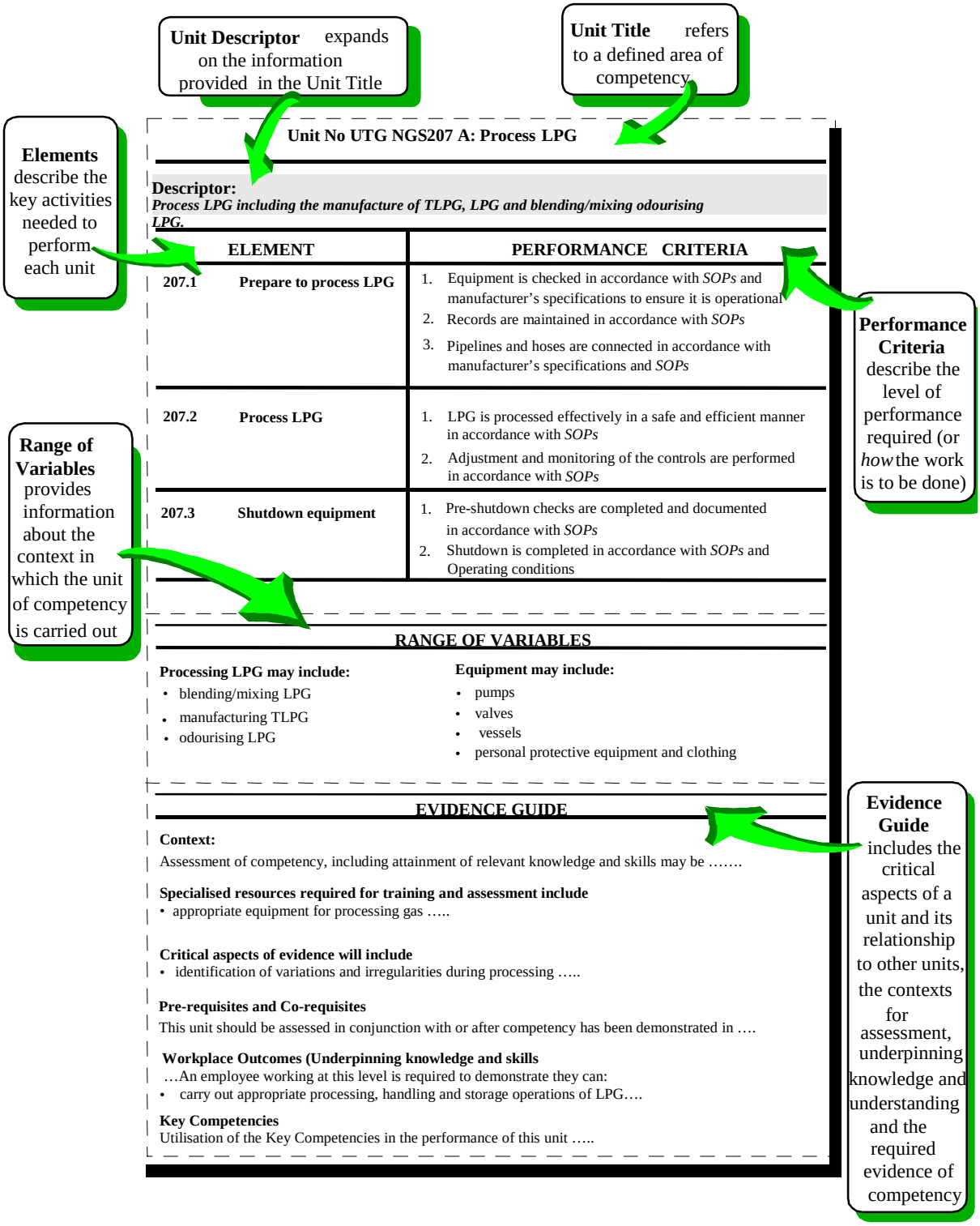
Critical aspects of evidence - The aspects that relate to some particular knowledge or skill that is essential to performance.

- Pre-requisites and Co-requisites - Defines the assessment relationships between different units.
- Workplace Outcomes (Underpinning knowledge and skills) - Essential knowledge and skills that a person needs to perform work to the required standard.

Key Competencies - These Standards incorporate the seven Key Competencies defined by the Mayer Committee. These competencies are:

- Collecting, analysing and organising information.
- Communicating ideas and information.
- Planning and organising activities.
- Working with others in teams.
- Using mathematical ideas and techniques.
- Solving problems.
- Using technology.
- The Key Competencies within the units reside in the Context of the skills described and at various levels of performance.

Format of Competency Standards



Unit No UTG NGS207 A: Process LPG

Descriptor:
Process LPG including the manufacture of TLPG, LPG and blending/mixing odourising LPG.

ELEMENT		PERFORMANCE CRITERIA
207.1	**Prepare to process LPG**	1. Equipment is checked in accordance with *SOPs* and manufacturer's specifications to ensure it is operational 2. Records are maintained in accordance with *SOPs* 3. Pipelines and hoses are connected in accordance with manufacturer's specifications and *SOPs*
207.2	**Process LPG**	1. LPG is processed effectively in a safe and efficient manner in accordance with *SOPs* 2. Adjustment and monitoring of the controls are performed in accordance with *SOPs*
207.3	**Shutdown equipment**	1. Pre-shutdown checks are completed and documented in accordance with *SOPs* 2. Shutdown is completed in accordance with *SOPs* and Operating conditions

RANGE OF VARIABLES

Processing LPG may include:
- blending/mixing LPG
- manufacturing TLPG
- odourising LPG

Equipment may include:
- pumps
- valves
- vessels
- personal protective equipment and clothing

EVIDENCE GUIDE

Context:
Assessment of competency, including attainment of relevant knowledge and skills may be …….

Specialised resources required for training and assessment include
- appropriate equipment for processing gas …..

Critical aspects of evidence will include
- identification of variations and irregularities during processing …..

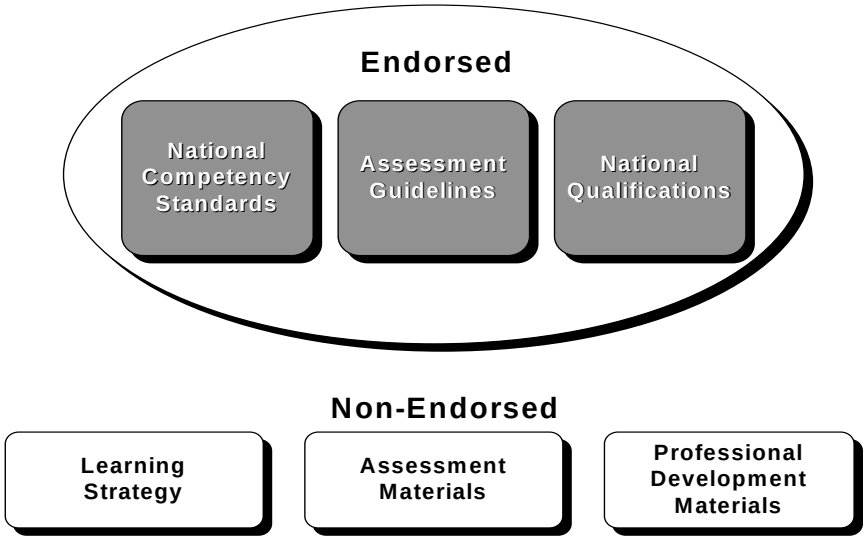
Pre-requisites and Co-requisites
This unit should be assessed in conjunction with or after competency has been demonstrated in ….

Workplace Outcomes (Underpinning knowledge and skills
…An employee working at this level is required to demonstrate they can:
- carry out appropriate processing, handling and storage operations of LPG….

Key Competencies
Utilisation of the Key Competencies in the performance of this unit …..

Training Packages - "The Context to competency standards"

A 'Training Package' has three parts that are endorsable. The competency standards, the assessment guidelines and alignment to a national qualification. Flowing from the endorsable part of the package is a Learning Strategy, Assessment Materials and Professional Development Materials. (See diagram below)



This new approach to national training has been developed in response to the need for flexibility for nationally recognised training systems based on endorsed Industry competency standards.

The training package allows for a variety of training approaches and methods to be developed by training providers based on the endorsed national standards. The assessment guidelines promote consistency and quality control in assessment nationally. They may consist of assistance in designing instruments for the assessment of competency, and may include examples of assessment instruments.

This part of the package, while endorsed is not a *direction* to Industry, but a framework to be used, changed and fleshed out as appropriate in different enterprises and environments.

The Learning Strategy could include curriculum or another less structured training format, and will provide guidance on organising the training activities within the workplace and/or institution.

The Assessment Materials can be provided for direct use by training providers, or be used as examples, to be adapted as needed in different Contexts.

The Professional Development Materials are to assist training providers to understand the basis for the new approach to training and to assist in the development of the training itself.

It will be necessary to "package" the verified Gas Industry competency standards for the purposes of determining qualifications aligned to the Australian Qualifications Framework (AQF). This is required for the Training Package to be nationally endorsed.

It is recommended that the Gas Industry competency standards are initially aligned against three levels of the AQF. This represents the first step in the "packaging" process. These three levels range from Certificate II to Certificate IV. The major distinguishing features of the learning outcomes between the levels are detailed below.

AQF	Distinguishing Features of Learning Outcomes
Certificate II	• demonstrate basic operational knowledge in a moderate range of areas • apply a defined range of skills • apply known solutions to a limited range of predictable problems • perform a range of tasks where choice between a limited range of options is required • assess and record information from varied sources • take limited responsibility for own outputs in work and learning
Certificate III	• demonstrate some relevant theoretical knowledge • apply a range of well developed skills • apply known solutions to a variety of predictable problems • perform processes that require a range of well developed skills where some discretion and judgement is required • interpret available information, using discretion and judgement • take responsibility for own outputs in work and learning • take limited responsibility for the outputs of others
Certificate IV	• demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • apply solutions to defined range of unpredictable problems • identify and apply skill and knowledge areas to a wide variety of Contexts with depth in some areas • identify and analyse and evaluate information from a variety of sources • take responsibility for own outputs in relation to specified quality standards • take limited responsibility for the quantity and quality of the output of others
Diploma	• demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • analyse and plan approaches to technical problems or management requirements • transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • evaluate information using it to forecast for planning or research purposes • take responsibility for own outputs in relation to broad quantity and quality parameters • take limited responsibility for the achievement of group outcomes

AQF	Distinguishing Features of Learning Outcomes
Advanced Diploma	• demonstrate understanding of specialised knowledge with depth in some areas • analyse, diagnose, design and execute judgements across a broad range of technical or management functions • demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • generate ideas through the analysis of information and concepts at an abstract level • demonstrate accountability for personal outputs within a broad parameters • demonstrate accountability for group outcomes within a broad parameters

It is recommended that when aligning and packaging the Gas Industry competency standards, account is taken of already existing "cross industry competency standards". The standards represent competencies for functions or activities that are common across a number of industries such as clerical and administrative functions.

The advantage of using these competencies is that they are already fully developed and endorsed and they can simply be included in the Industry's packaging arrangements. It also means that the resources available for Training

Package development can be focused on Units of Competency that are unique to the Gas Industry functions.

The diagram on page 14 details an overview of the grouping of the 34 units of competency unique to the selected function of the Gas Industry. It also includes the recommendations for the utilisation of cross industry Training Packages/ competency standards including the sets outlined below.

Frontline Management Competency Standards

ANTA has developed and endorsed 11 units of competency that represent generic management competency standards for frontline managers.

The competency standards can be adapted to the needs of Gas Industry functions.

The competencies are aligned to AQF levels III, IV and Diploma (the diploma level is not relevant to these competencies).

While competency units, elements and performance criteria are constant across levels, the range indicators and Evidence Guides vary between levels and describe the competencies of workers who are also responsible for supervision/management of teams.

The competencies reflect modern management principles and practices and focus on the future.

The National Clerical-Administrative Competency Standards

The National Clerical-Administrative Competency Standards contained within the Administration Training Package describe clerical administrative competencies common across industries. The Administration Training Package was endorsed on 23 September 1997.

These competencies cover five levels of the AQF and are divided into seven streams that range form "Information Handling" to "Business Financial".

It is recommended that only Levels II and III are used in the packaging process for the Meter Reading and Billing Areas.

Road Transport Industry Competency Standards

The Road Transport Industry Competency Standards are contained within the Transport and Distribution Training Package which was endorsed on 23 September 1997 provide coverage to the competency required for the operation of trucks or heavy vehicles and forklifts.

The loading and distribution of LPG in tanker and cylinders will require the use of the relevant competency standards covering the driving of heavy rigid and heavy combination vehicles and/or forklifts. Metal and Engineering Industry National Competency Standards

Metals and Engineering Industry Competency Standards

The Metal and Engineering Industry National Competency Standards are contained within the Metals and Engineering Training Package which was endorsed on 21 October 1998. The standards are divided into a number of streams. The most relevant to the Gas Industry is the Mechanical steam.

The repair of gas meters will require the use of relevant Metal and Engineering Industry National Competency Standards associated with this Gas Industry Unit of Competence.

National Electrotechnology Industry Competency Standards

The National Electrotechnology Industry Competency Standards contained within the Electrotechnology Training Package which is expected to be endorsed in the first half of 1999.

The selected competencies of the National Electrotechnology Industry are directly relevant to the Gas Industry Unit of Competence for the installation of Cathodic Protection Systems.

Competency Standard Index

Core	
UTG NGS001 A	Apply Procedures in the Workplace
UTG NGS002 A	Work with Others
UTG NGS003 A	Plan and Organise Work Activities
Meter Reading and Billing	
UTG NGS101 A	Read and Record Meter Readings
UTG NGS102 B	Investigate Billing Exceptions/Conditions
LPG Transport Storage and Processing	
UTG NGS201 A	Assess Operational Capability of Gas Safety Equipment on Tankers
UTG NGS202 A	Load Discharge LPG by Road Tanker
UTG NGS203 A	Load, Unload and Exchange Gas Cylinders
UTG NGS204 A	Fill Gas Cylinders
UTG NGS205 A	Refurbish Gas Cylinders
UTG NGS206 B	Monitor and Control Transfer of LPG
UTG NGS207 B	Process LPG
UTG NGS208 B	Perform Minor Maintenance on Gas Processing/Storage Facilities and Equipment
UTG NGS209 B	Coordinate Repair of Faults in Gas Processing/Storage Facilities and Equipment
UTG NGS210 B	Control Storage of LPG in Terminal
UTG NGS211 A	Control LPG Storage/Processing Operations
Transmission and Distribution	
UTG NGS301 A	Construct and Lay Pipelines
UTG NGS302 A	Prepare, Excavate and Reinstate Site
UTG NGS303 B	Commission/Decommission Pipelines
UTG NGS304 A	Coat Pipelines
UTG NGS305 A	Maintain Pipeline Easement
UTG NGS306 B	Coordinate Pipeline Repair and Modifications
UTG NGS307 B	Launch and Recover PIG
UTG NGS308 B	Maintain Cathodic Protection System
UTG NGS309 B	Install Cathodic Protection Systems
UTG NGS310 B	Perform Routine Maintenance on Pipeline, Facilities and Equipment

UTG NGS311 A	Operate and Monitor Pipeline Control Systems
UTG NGS312 B	Coordinate Repair of Pipeline, Facilities and Equipment
UTG NGS313 B	Control Gas Odourisation
UTG NGS314 A	Control Pipeline Operations
UTG NGS315 B	Repair Gas Meters
UTG NGS316 B	Coordinate Construction, Laying and Testing of Gas Distribution Pipelines
UTG NGS317 B	Use plans, drawings and specifications
UTG NGS318 A	Use and maintain small plant, equipment and tools and carry-out minor mechanical maintenance.
UTG NGS319 A	Supervise Technical Operations for Gas Distribution/ Transmission
UTG NGS320 A	Supervise Technical Operations for Liquefied Petroleum Gas Storage and Processing
UTG NGS321 A	Coordinate and Monitor Implementation of Risk Management Plan
Gas Systems	
UTG NGS601 A	Plan and implement the data acquisition and metering requirements of a gas system
UTG NGS602 A	Select and commission equipment to meet Pressure and Temperature control specifications
UTG NGS603 A	Manage Workplace Risk
UTG NGS604 A	Manage gas system environmental compliance
UTG NGS605 A	Prepare design specifications for a gas system
UTG NGS606 A	Manage gas systems projects
UTG NGS607 A	Manage a customer service gas business unit
UTG NGS608 A	Manage financial resources
UTG NGS609 A	Manage physical resources

Glossary

Abnormalities	To confirm any abnormal condition of an item whether or not this could eventually result in a failure.
Allied industry	Allied industry means an industry that has comparable work functions and performance requirements relating to the respective Unit(s) of Competency and/or qualification. An allied industry may include: water, electricity, construction, metals and engineering, clerical, management (including front line) and the like.
Analyse	To examine and investigate data or information.
Appropriate personnel	Individuals with responsibilities for design, installation, maintenance, production or servicing activities. This can include: site managers; project managers; engineers and technicians; line managers/supervisors; team leaders; other personnel designated by an organisation or enterprise.
AQF	Australian Qualifications Framework which describes qualifications in terms of levels characterised by the outcomes of vocational education and training.
Assemble	To take raw stock and make detailed parts by a variety of methods, such as cutting, bending, attaching, etc. It may be applied to metal and composite structures, electrical parts etc.
Assessment	Refers to the process of collecting evidence and making judgements on the extent and nature of progress towards the performance requirements set out in a standard and at the appropriate point making the judgment whether competency has been achieved.
Bridging Program	*Bridging programs* are developed to provide access to any skill or knowledge gap an intended learner has relative to the entry requirement of the intended Unit(s) of Competency or Qualification. RTO's should ensure relevant technical knowledge and skills underpinning are determined and clearly defined for respective Unit(s) of Competency and/or Qualification.
Competency	Focuses on what is expected of a worker/employee in the workplace rather than on the learning process, and embodies the ability to transfer and apply skills, knowledge and attitude to new situations and environments.
Defect	Any confirmed abnormal condition of an item whether or

	not this could eventually result in a failure.
Easement	Environmental surroundings of the pipeline.
Environment	The area surrounding the work site which can The area surrounding the work site which can be directly or indirectly affected by occurrences at the work site. It includes the atmosphere, soils, drains, underground water tables and the ecosystem. Protection of the *environment* would require the proper disposal of waste materials, restriction of burning off, the correct handling of toxic substances, the containment of CFCs and the like. The protection of the environment would also include the minimisation of those factors that contribute, directly or indirectly, to the production of greenhouse gases. These contributing factors might include the minimisation of waste materials, the correct use of enterprise vehicles and machinery, the re-use or recycling of trade materials where possible and the overall reduction of energy usage through general awareness and the use of appropriate technologies.
Fault find	Identifying problems including functional faults.
Hazardous materials	Materials that could cause serious illness or injury.
Implement	To carry out or put in place a new requirement.
In accordance	A task or procedure is performed according to a plan, rules or guidelines.
Inspect	To examine or check a system, assembly, component or part by visual or physical means, for the purpose of identifying defects or limits.
Integrity testing	To ensure the system conforms to required operating parameters.
Legislative Requirements	Approved regulations and guidelines set down by either Federal or State Governments.
Maintenance schedules/servicing	That maintenance is performed at defined intervals to retain a system, component or part in a serviceable condition by systematic inspection, detection, replacement of worn-out items, adjustment, calibration or cleaning, etc.
Modification	Where a change or update is made.
OH&S	Arrangements of an organisation or enterprise to meet their legal and ethical obligations of ensuring the workplace is safe and without risk to health. This may include: hazardous and risk assessment mechanisms; implementation of safety regulations; safety training; safety systems incorporating work clearance procedures to carry out or put in place a new requirement.

Parameters	Set guidelines to be worked within.
Permit to Work	The Permit to Work is a authorisation for a individual to work in required activities and functions associated with the Gas Industry
Personal Protective Equipment	Used to assist in providing a safe work environment for workers.
PIG	Is the abbreviation for Pipeline Inspection Gauge.
Procedures	That to which equipment and procedures and their outcomes must conform. It includes legislative obligations and regulations and standards called-up by legislation or regulations. Requirements may also include: codes of practice; job specifications; standards called-up in specifications; procedures and work instructions; quality assurance systems; manufacturers' specifications; design specifications; customer/client requirements and specifications specified underpinning knowledge (specified in units' Evidence Guides)
Reduced or eliminated	Where something is either decreased or completely removed.
Regulatory guidelines	Where something is set as a compulsory part of a work environment.
Reports/documents	Information and printed matter related to specific items or topics.
Requirements	That to which *equipment* and procedures and their outcomes must conform and includes statutory obligations and regulations and *Standards* called-up by legislation or regulations. *Requirements* may include: • codes of practice • job specifications • Standards called-up in specifications • procedures and work instructions • quality assurance systems • manufacturers' specifications • design specifications • customer/client requirements and specifications • specified underpinning knowledge (specified in units' Evidence Guides) • National and State guidelines, policies and imperatives relating to the environment.

Safe working conditions	Measures undertaken to ensure workers are safeguarded against serious injury or illness.
Signage	Signs erected for display and to advise of a certain situation.
Simulated work environment	Circumstances that may arise in the work environment are constructed and used as a tool for assessing workers/employees operating under working conditions.
Standard Operating Procedures (SOPs)	Formal arrangements of an organisation, enterprise or statutory authority of how work is to be done. This may include, for example: quality assurance systems incorporating, for example: • requirements and procedures • work orders / instructions • reporting procedures • improvement mechanisms • safety management work clearance systems incorporating, for example: • work permits • monitoring and clearance procedures • isolation procedures • OH&S practices • procedures for operating safety systems, operating plant and equipment and reporting work activities • arrangements for dealing with emergency situations
Standards	Technical documents which set out specifications and other criteria for equipment, materials and methods to ensure they consistently perform as intended. The Standards referred to in this competency standard are those published by Standards Australia or in joint venture with Standards New Zealand and Australian Gas Association Standards. Competency in the use of other technical standards may be required in industries not restricted to Australian requirements. For example, shipping and off-shore petroleum industries are subject to standards agreed to by underwriters and enterprises or some other international convention.
Stream	Broad functional grouping of industry fields of activity. An aid to competency development only.

Test equipment	Tools that tests other pieces of equipment to ensure they are operating as intended.
Troubleshooting techniques	Methods used to locate or determine the reason for a fault in a system, component or part by means of a systematic checking or analysis.

PART B

Assessment Guidelines

Part B – Assessment Guidelines

Introduction

The purpose of assessment is to confirm that an individual can perform to those standards expected in the workplace as expressed in the relevant endorsed competency standards.

These Guidelines contain five sections:

1. Assessment System Overview
2. Assessor Qualifications and Training
3. Guidelines for Designing Assessment Materials
4. Guidelines for Conducting Assessments
5. Sources of Information on Assessment

The Guidelines outlined in this document are intended to underpin assessments which lead to recognition of the achievement of National Gas Industry Competency Standards AQF levels 2-4 and the issuing of credentials under the Australian Qualification Framework (AQF).

The Guidelines are to be used by all those involved in the Assessment of Gas Industry competencies. This includes:

- State training and recognition authorities who will use the Guidelines as (1) the industry's advice to government; and (2) the minimum requirements to be satisfied by potential and practising Registered Training Organisations.
- State/Territory Industry Training bodies who will use the Guidelines to underpin their relationship with, and support for, the State training and recognition authorities' quality systems.
- Registered Training Organisations who will issue qualifications based on the requirements outlined in the Training Package.
- Individual candidates/trainees who will use the provisions of the Guidelines to establish their responsibilities and to protect their prerogatives.

1. Assessment System Overview

1.1 Benchmarks for assessment

Within the Gas Industry, the benchmark for all competency-based assessment is the *Unit of Competency*. By way of supporting and reinforcing both the concept of competency, and the Unit of Competency as the benchmark for the vocational education and training system, the Gas Industry embraces the following tenets:

Wherever practicable, summative or final assessment is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment, at the workplace or elsewhere.

- All persons may claim formal recognition for an assessment of an individual Unit of Competency, or a group of units, regardless of the relationship between these and formal national qualifications content.
- All persons have the right to have their legitimate competencies recognised through the most expeditious assessment system and method.

The Units of Competency which form the benchmarks within the Gas Industry are:

- Gas Industry Competency Standards Australian Qualification Levels 2-4.
- Imported national Units of Competency which have been recognised by the National Gas Training Group (NGTG) for credit towards the Qualification Framework.

The Gas Units of Competence are contained in Part A of this Training Package.

1.1.1 Assessment systems and strategies

Within the Gas Industry there are three main assessment systems. The three systems are:

Sampling

This is an approach in which evidence of competency is derived from a limited sample of performance. Technical/application skills are normally assessed by practical measures and knowledge is assessed by conventional written or oral questioning.

Profiling

This requires the progressive collection, documentation and judgement of direct, and possibly indirect, evidence, often over an extended period of time. In a competency system, the focus for the evidence is to be set against the critical aspects detailed in the competency unit, and the collection process staged against known and pre-planned workplace occurrences. Profiling requires a series of audit assessments and/or a final holistic assessment event.

Portfolio

This requires the progressive collection or build up of indirect evidence as to the individual's competency. It may include certificates of attainment from elsewhere, suitably focused references and testimonials, formal project appraisals, work records, and any other evidence which is current and relevant to the competencies sought.

These Assessment Systems are not mutually exclusive and a combination approach may be followed. The selection of an approach or system will be acceptable to the Industry if the outcome is valid, the requirements of the competency are satisfied, the approach supports industry-wide consistency, and the costs are acceptable to the industry and are manageable.

All systems and strategies may be used to gather evidence and assess performance. The assessment processes and practices must satisfy the principles of assessment which are:

Validity

The assessment instruments and items must be designed and administered in a manner which ensures they measure the intended performance requirement.

Reliability

Assessment practices will undergo constant monitoring and review to ensure consistency in the application of process and in interpretation of evidence.

Flexibility

A range of assessment instruments and items should be made available and, where appropriate, the time and place of assessment should be determined to suit the availability of resources, assessors and learners.

Fairness

Assessment methods and practices shall be equitable to all individuals and procedures and criteria applied to the judgement process will be made clear.

Additionally, assessment processes must satisfy the requirement for currency in relation to evidence of competency. Currency has two dimensions:

Currency in terms of technology and/or processes; and

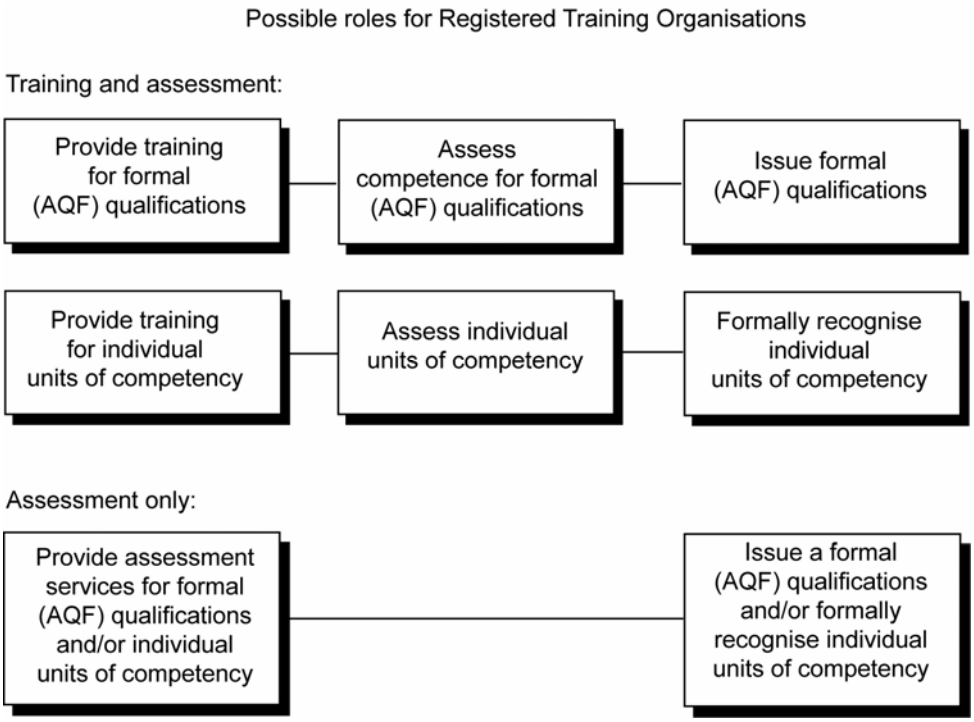
Currency in terms of recency of application.

Clearly if there has been a recent and quantum change in technology, then evidence of actions before the change is unlikely to reflect the required currency. Similarly, if the individual claiming competency has not performed/applied that competency for extensive periods of time then documentary evidence would not suffice as a basis of assessment.

The determination of currency of evidence is an important and sensitive issue. The principle to be applied in the Gas Industry is quite straight forward; when there are doubts as to the currency of any claimed competency, the claims are to be fully substantiated through both direct and supporting assessment processes.

1.2 Role of a registered training organisation (RTO)

A Registered Training Organisation (RTO) is one which has been formally recognised by State/Territory training and recognition authorities as being capable of providing quality outcomes for a specified area and range of services. The role of RTOs will vary depending on the outcomes being pursued and the services offered. For the Gas Sector, these services are divided into 3 possible roles:



The RTO is to be responsible for all aspects of assessment. The assessment must cover the Critical aspects of evidence (assessment) detailed in each Unit of Competency. In addressing these critical aspects, and ensuring reasonable consistency, the assessment is to ensure that:

- the individual satisfies the requirements in terms of underpinning knowledge and skills so that their ability to transfer the competency to differing circumstances may reasonably be inferred.
- the individual is competent to safely perform the practical applications required.

The RTO is also responsible for the issuing of formal recognition in the form of National Qualifications or Statements of Attainment, and where applicable individual entries into the Industry Skills Passport. The RTO will therefore:

- issue the National Qualification based on individuals having been assessed as competent in all the Units of Competency which constitute the qualification. (See Part C of the Training Package), or
- issue formal recognition (Statements of Attainment) in respect of individual Units of Competency for which candidates have been assessed and found competent.

An RTO may engage external appropriately qualified organisations and individuals to undertake aspects of the training and/or assessment process on their behalf. External organisations need not be registered training organisations (RTOs) in their own right. However, they need to meet the quality assurance measures as defined by the RTO issuing the qualification or recognition. In this way the RTO maintains in accordance with any requirements determined by State Training Authorities the overall responsibility for the quality assurance arrangements.

Consistent with the criteria established by State Training Authorities, RTOs are responsible for the implementation of the quality assurance arrangements included in these guidelines.

1.3 Assessment pathways

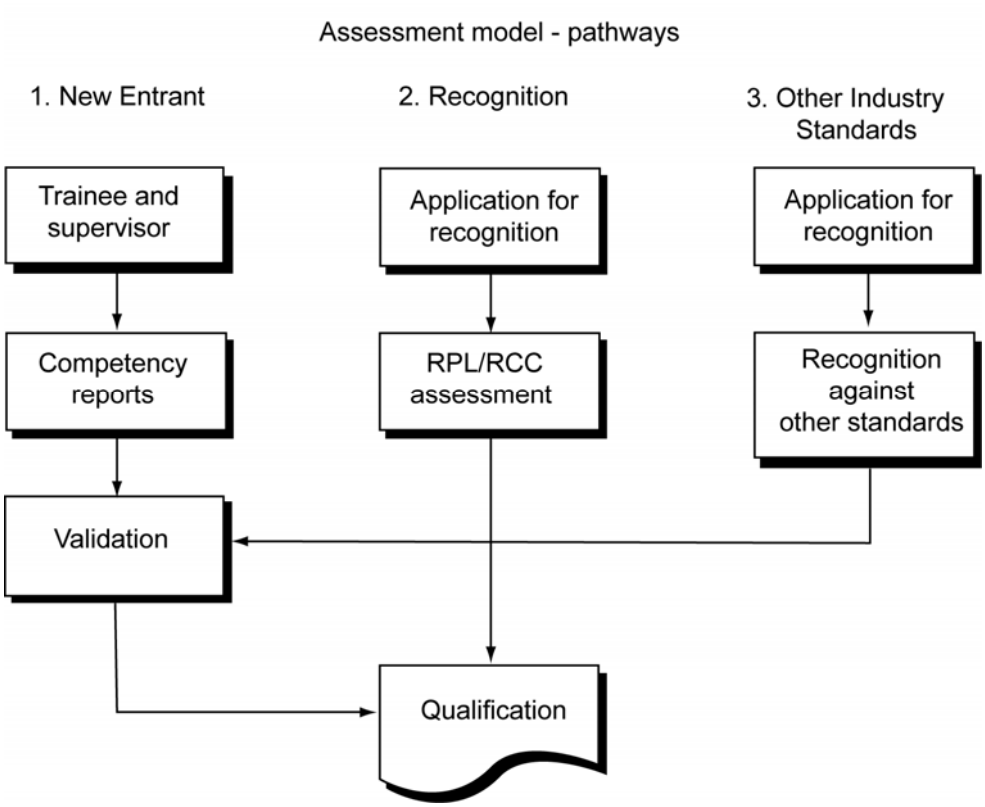
There are three Assessment Pathways that have been identified by industry which provide recognition of individual Units of Competence or groups of Units that make up Qualifications or Statements of Attainment. From an Industry perspective, assessment is to lead to formal recognition of the Industry's benchmark competencies or formal recognition of competencies from other industries. Formal recognition may be for individual competencies or for groups of competencies which combine to satisfy a National Qualification.

The Assessment Pathways are therefore threefold:

Pathway 1: New Entrant Competency Development

Pathway 2: Recognition of Current Competency or Prior Learning and workplace experience.

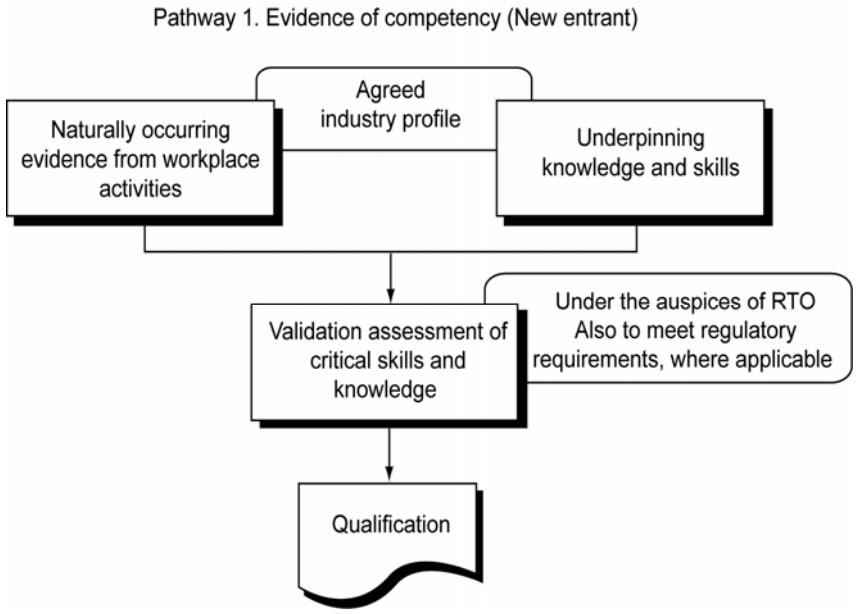
Pathway 3: Recognition of other current Competency (Other Industry Standards).



Pathway 1: New Entrant Competency Development

This pathway is for individuals who are undertaking an industry endorsed Model Training Program. The users of this pathway may be contracted employment based employees who are generally new apprentices or who undertake a training program in an institutional environment to achieve the same outcome.

The judgement about competence with respect to Units of competence forming a qualification needs to ensure sufficient evidence is gathered in a timely and accurate manner from several sources, such as, work place and educational experiences in which individuals are involved.



Pathway 2: Recognition of Prior Learning/Current Competencies (RPL/RCC)

This pathway is for those who may have acquired skills and knowledge in relevant Units of Competence outside formally recognised processes. The users of this pathway will include applicants from overseas and applicants who have developed skills in allied industries but who have no formal recognition in respect of industry standards or qualifications.

An existing national mechanism for the assessment and recognition of competencies is through the Tradesmens' Rights Regulation Act which is administered by Trades Recognition Australia (TRA), which is part of the Commonwealth Department of Industrial Relations. TRA's activities as the "relevant Australian authority" for trade skills assessment under regulations to the Migration Act, are consistent with and are accommodated by this pathway.

The Trades Recognition Australia process mainly operates to provide formal recognition of the competencies of migrants, competencies which have been developed by structured training and or work experience in overseas countries. However, it is also an important mechanism for the assessment and recognition of the competencies of unemployed people who do not have access to the profiling pathway.

Evidence of Competence

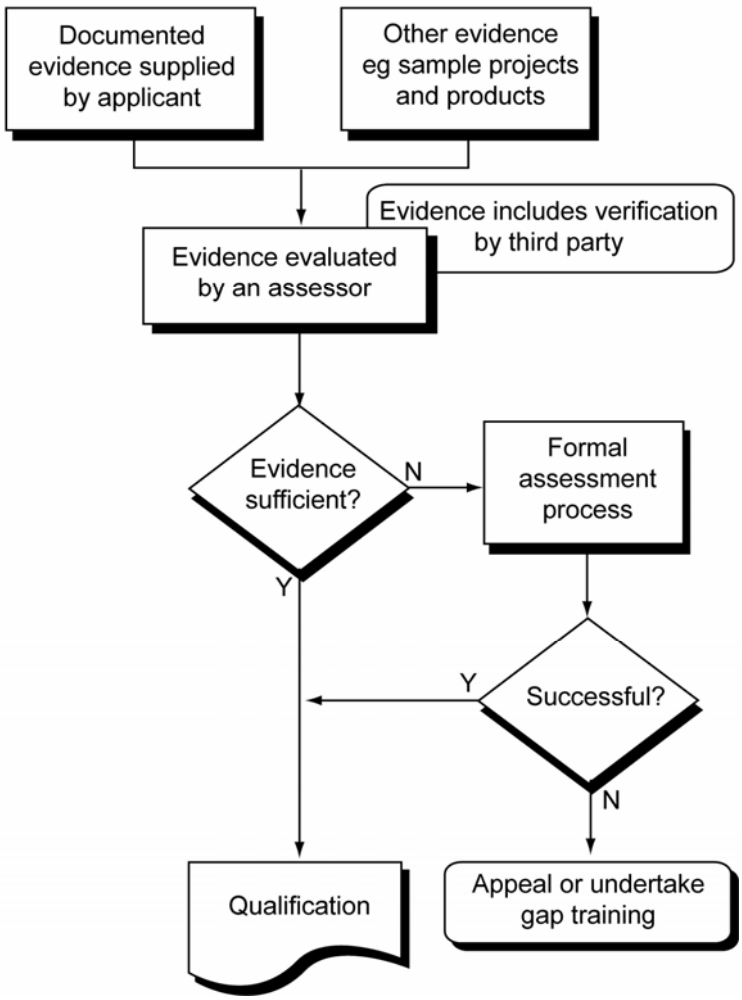
In this pathway many types of evidence are able to be used to determine competency for the issuance of qualifications or Statements of Attainment. The evidence may come from such things as records of previous relevant work experience. This type of evidence will need endorsement by a supervisor/mentor skilled in the units for which recognition is sought. Evidence may consist of portfolios which include projects or products completed for other purposes or from non registered training programs or ad hoc prior experience.

Industry would expect that this evidence will be assessed by the Registered Organisation (or their nominee – a qualified industry assessor) and a judgement made. The result will be either that the applicant is deemed competent for the unit/s of competence or gaps are identified and noted. The applicant can either accept the judgement, pursue gap training or elect to appeal the decision.

Evidence used in the judgement process may come from a variety of sources including such things as a personal portfolio, curriculum vitae, interview, comments by peers or employers and challenge tests.

The recognition of a subset of the units of competence forming a Statement of Attainment within a Qualification would generally require individuals to complete the additional units or part thereof in order to attain the full qualification. An appropriate pathway that provides credit may be developed by the Registered Training Organisation in consultation with respective stakeholders.

Pathway 2. Recognition (RPL/RCC)



Pathway 3 - Recognition of other Industry/Enterprise Standards

This pathway is for individuals who have developed skills based on other nationally recognised industry or enterprise Competency Standards and who have received formal recognition in Unit(s) of Competence from these areas.

Recognition of Units of Competence between industries is through an agreed mapping process that ensures equivalence of outcomes. The mutual recognition of Units, as part of any mapping arrangements, is the responsibility of the parties who have the responsibility for maintaining the competency standards. In this instance the National Utilities and Electrotechnology ITAB and any other party.

Registered Training Organisations should contact the National Utilities and Electrotechnology ITAB Ltd regarding mutual recognition agreements.

Evidence of competence

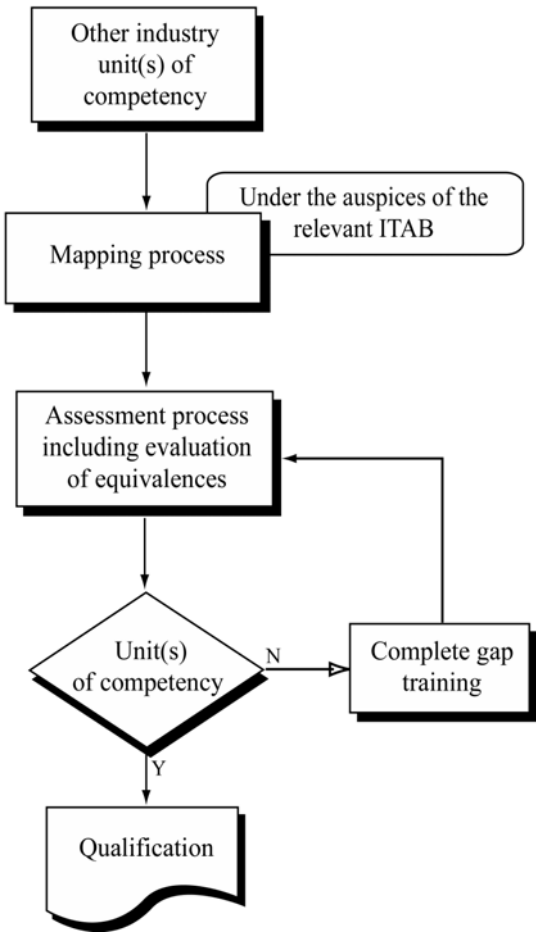
In this pathway evidence will be based on the mapping of unit(s) of competence in other Industry Competency Standards against the unit(s) in the Gas Industry Standards, for which formal recognition is sought. The applicant would be required to supply details of the unit(s) held and the unit(s) sought, including any assessment reports to the Registered Training Organisation, or their appointed nominee, for a determination.

This evidence will be assessed by the Registered Training Organisation (or their nominee) and a judgement made. The result will be either that the applicant is deemed competent for the Unit(s) or gaps are identified, advised and noted. The applicant can consider the judgement, pursue gap training or appeal the decision.

Evidence used in the judgement process is based on individuals' records of achievement relative to the Units of Competence for which recognition is sought.

The recognition of a subset of the Units of Competence forming a Statement of Attainment within a Qualification would generally require individuals to complete the additional Units or part thereof in order to attain the full qualification. An appropriate Pathway that provides credit may be developed by the RTO in consultation with respective stakeholders.

Pathway 3. recognition of other industry standards



1.4 Recording assessment outcomes

Registered Training Organisations are to provide all relevant assessment information to regulatory authorities, or their agents, pertaining to National, State or Territory licensing or certification requirements.

1.5 New apprenticeship opportunities

New apprenticeship initiatives can be arranged by Registered Training Organisations (RTOs) by designing relevant training programs or utilising the industry endorsed Model Training Program which will lead to the Qualifications detailed in Part C of this Training Package.

2. Assessor qualifications and training

The integrity of the Gas Industry assessment processes is centred on the need for all assessment to be conducted under the direction or the authority of formally qualified assessors who may function with or within Registered Training Organisations (RTOs).

Within an assessment process responsibility for some activities may be delegated and it is therefore not necessary that every aspect of assessment must be personally and directly attended to by a qualified assessor. For example, in a long term profiling process the qualified assessor will establish the system and identify the evidence required. They may then cause the evidence to be gathered by others after which they will examine the evidence and make judgements.

The partnership between assessors and other competent persons is essential if the system is to function. However, technical assessment responsibility and systems accountability may only be exercised by a qualified assessor.

2.1 Assessor qualifications

Assessments against the competencies in the Training Package will be carried out in accordance with these endorsed guidelines. The guidelines include the necessary qualifications for those conducting assessments and provide for those situations where more than one person may contribute to the assessment and where the required technical and assessment competencies may not be held by any one person.

The assessment for competence

Assessors are to be competent in the competencies which they are to assess or are to be assisted by an appropriate subject matter expert who is currently competent in the unit being assessed (This may also include such things as language literacy and numeracy (LLN), environmental, occupational health & safety (OHS), equity, etc).

Assessors (and their subject matter expert) are to know current industry practices for the job or the role against which the performance is being assessed, and practice the necessary interpersonal skills required in the assessment process.

All persons required to *plan, carry out or review* assessment related matters are to be currently competent against the competency standard contained within the Assessment and Workplace Training National Training Package:

Development of Assessment Instruments

Competency against the required National Standards is to be attained through approved processes which ensure that:

- the candidate satisfies the theory underpinning the Unit(s).
- the candidate satisfies the practical application required of the Unit(s).
- the approved provider is satisfied that the candidate will be capable of competently conducting assessments in the intended environment.

2.2 Using qualified assessors

In keeping with the above policies, assessment is to be under the authority of a formally qualified assessor. Within this constraint, the Registered Training Organisation may adopt any or all of the following processes:

- using a workplace assessor who is competent against the assessor competency standards contained within the Assessment and Workplace Training National Training Package and the relevant industry vocational competencies.
- using a workplace assessor who is competent against the assessor competency standards contained within the Assessment and Workplace Training National Training Package and who has ready access to another person who is competent in, and can advise the assessor on, the relevant vocational competencies to at least the level being assessed.
- using an assessment panel which includes at least one person who is competent against the assessor competency standards contained within the Assessment and Workplace Training National Training Package as well as at least one person who is competent in the relevant vocational competencies to at least the level being assessed.
- using an external assessor who is competent against the assessor standards contained within the Assessment and Workplace Training National Training Package but with the assessment evidence being collected, utilising industry endorsed assessment procedures, by a workplace supervisor who has the relevant vocational competencies to at least the level being assessed.
- using a workplace supervisor, with the relevant vocational competencies to at least the level being assessed, who utilises industry endorsed assessment procedures with the outcome being validated by an externally qualified assessor who is competent against the assessor standards contained within the Assessment and Workplace Training National Training Package.

Notwithstanding, the industry would expect that in all instances the Registered Training Organisation will retain the responsibility of managing the Training Program, the ultimate attributing of competence against Unit(s) of Competence using qualified assessors and the Issuance of Qualifications and/or Statements of attainment. The process should be undertaken in accordance with the recognition processes defined by relevant training authorities.

3. Guidelines for designing assessment materials

3.1 Assessment material concepts

Assessment is about forming a judgement as to whether an individual is or is not competent. To be fair and consistent the judgement is to be based on the collection, analysis and evaluation of relevant and focused evidence. To facilitate counselling and follow-up, the collection of evidence and the subsequent decision process needs to be adequately recorded.

In order to satisfy these requirements, Assessment Materials are developed, designed and implemented by appropriately recognised competent assessors. The materials may range from relatively straight forward questions/answers and task tests to quite elaborate simulations for assessing concepts and values.

There is no single blueprint for assessment materials and indeed there are benefits for all from soundly based experimentation. The assessment materials need to facilitate the process by:

- detailing the personnel and material preparations required to support the assessment process
- establishing and/or confirming the circumstances under which the assessment is to take place
- detailing the evidence to be collected and the method(s) to be used to do this
- providing for the systematic review/analysis of the evidence and for the making of logical and supportable judgements
- providing the means for the recording of the process and the judgements
- providing a basis for post-assessment
- providing a basis for the counselling and guidance of the candidate.

The Industry has two expectations of those who design and develop assessment materials.

Expectation 1. The assessment materials will satisfy the requirements which the industry has established as an essential minimum.

Expectation 2. Where there are optional strategies and choices to be made, the option selected is that which is demonstrably the most appropriate to the circumstances.

3.2 Essential design requirements

Essential requirements which are to be met by assessment materials include the following:

Assessment of competency standards.

Assessment must directly address the Unit of Competency and, within this, satisfy the Critical aspects of evidence including the related performance criteria, Range of Variables, endorsements and underpinning knowledge and skills.

Learning Outcomes or other curricula documents are not to be the focus of summative assessment unless their direct relationship to the Unit of Competency is formally proven and recorded.

Assessment system/process documentation

The assessment system/process must be comprehensively and clearly documented so that the stages of assessment and their constituent parts may be observed and evaluated.

The language used must be appropriate to the situation, the assessor and the candidate.

The assessment materials must address the totality or holistic aspects of the competency in a realistic and effective way.

Assessment of practical applications

Summative assessment of practical applications should, whenever possible and practicable, be conducted in a real work environment or in a realistically simulated work environment. Removal of the summative assessment from the real work environment should occur only to the extent necessitated by circumstances such as safety, noise, and access to the required work.

Assessment of underpinning theory

Summative assessment of the theory (knowledge) underpinning competency is to be sufficiently rigorous and searching to ensure that individuals comprehend why they are doing something, the options they may use to achieve the required goal, and the fact that they can recall and/or locate and interpret this information if it is needed at some other time.

Assessment of trainees with low language/literacy/ numeracy skills

Assessment systems need to be capable of being applied in cases of low language/literacy/numeracy skills. Strategies to address assessment of those with low language, literacy and numeracy skills should be included in any Assessment Materials used by Registered Training Organisations, and should be consistent with the quality assurance requirements of State Training Authorities for registration.

Stand alone requirements for assessment materials

Assessment materials need to be designed in a manner which facilitates the capturing of evidence and the recording/reporting of decisions. The assessment material will normally be Unit of Competency based and it needs to be a stand-alone self explanatory document. A qualified assessor should be able, on the basis of the assessment material, to prepare for, conduct, record and report on an assessment process/outcomes.

3.3 Optional strategies (where choice is to be exercised)

Optional strategies are generally related to the type and range of evidence required and the methods by which the evidence is to be gathered, recorded and analysed and the containment of the costs of assessment.

Types and range of evidence.

The type and range of evidence required to assess competency is established, at least initially, in the Critical aspects of evidence contained in each Unit of Competency.

Where the Critical aspects of evidence do not provide sufficient detail, further analysis of the performance criteria (PC), the Range of Variables and the theory underpinning may be required. Where competency-based curriculum or module descriptors have been specifically prepared for the Unit of Competency, these too may be used for further detail.

Evidence collection methods

Having established the type and range of evidence required, those who prepare assessment materials need next to determine the most appropriate evidence collection method. Appropriate in this sense means the most effective and logical methods given the subject, the working environment, the target audience, the available time, the frequency, of and access to, the occurrence requiring competency, safety requirements and other relevant factors.

It will seldom be possible to arrive at a generalised solution to evidence collection. At the very least there are differing methods related to the theory underpinning and the practical applications and developers would do well to handle these two as discrete facets.

The options for assessing underpinning are described in a range of texts and they include everything from short oral questions to full blown essays. They may be audio or computer aided. But, to be effective, they must capture what the competency requires of the candidate. In terms of the theory or knowledge, is the candidate required to recall, to locate, to interpret, to evaluate, to analyse, to synthesise or to conceptualise? When this need is identified, the method of gathering the evidence becomes much easier to determine.

Evidence of practical application will likewise have to be analysed to determine how it may best be captured. The options range from simple observation, repetitive observations, projects (either routine or special) to the other end of the spectrum where full simulations are required.

In the development and/or review of assessment materials the question which needs to be satisfied is 'What evidence would a reasonable person require in order to infer that the candidate is competent, or more pointedly, on what evidence would the assessor accept the candidate now in his/her own work group, as being competent?'

Costs of assessment

The costs of assessment are critical to all parties. If the costs are unreasonably high there will be pressure to reduce these, in some cases to the point where the integrity of assessment outcomes is threatened. In order to maintain the resource commitment to assessment it will need to be demonstrated that the assessment process and materials produce a consistent quality outcome in a way which is most cost effective and least intrusive to normal workplace operations.

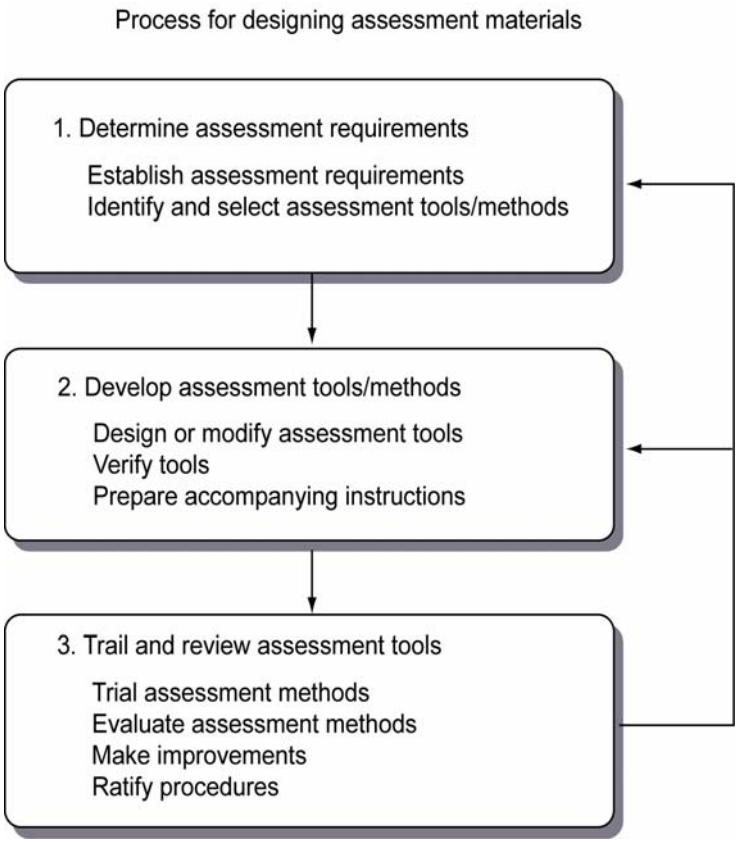
Having determined what evidence is required, the designers must establish the most efficient collection methods. The key threats to efficiency and cost effectiveness include the following:

1. The Assessor may be away from their normal place of work resulting in a loss of productivity.
2. The candidate's productivity will, at a minimum, be impaired during assessment.
3. Equipment or plant which is required for the assessment may not be operating to capacity.
4. Resources such as venues, transport or replacement personnel may be required to support the process.

There will be occasions when high cost assessment is unavoidable. The operations of single items of major plant may require simulation leading to on-line activities. Emergency response assessment is likewise costly. The issue for designers is not to avoid high cost assessment but rather to be able to justify the costs of assessment for each unit. In particular they need to demonstrate that they have considered all the relevant options and selected those which satisfy quality, but minimise the cost impacts of 1 - 4 above.

3.4 Assessment material design process

There are a range of views on how best to approach the design of assessment materials and this diversity is both positive and desirable. An overview of a typical process is depicted in the following table and paragraphs:



Determine Assessment Requirements

Establish assessment requirements - in development of tools and methods the assessor will need to determine the range of methods appropriate to the assessment Context and the characteristics of the person being assessed. The assessor may use the following questions when designing the assessment method:

- Can you assess at either the unit or element level?
- Do you always need to assess real work?
- How is the critical evidence specified?
- How many assessment tasks are required to collect the critical evidence of competency?
- Which assessment tasks will provide broad coverage of the Range of Variables?
- Are there any knowledge and skills that the candidate should have before they are assessed for the Unit?

Identify and select assessment tools/methods - the assessor will be required to identify and select the assessment methods consistent with the Gas Sector's assessment situation and procedures. The types of assessment methods which will require consideration include the following:

- Direct observation - Observe the learner carrying out their usual practical tasks in the workplace. This may be accompanied by questions. Direct observation is probably the easiest and most convenient method of assessment.
- Third party reports - Information provided from immediate supervisory or other appropriate persons may constitute profiling reports. An external assessor may not have the opportunity to make multiple observations of a candidate over a period of time, unlike an internal (in-house) assessor. The external assessor may obtain third party reports to supplement an assessment.
- Demonstration and questioning - Candidate gives a demonstration of a practical task. If there is no opportunity to observe this competency in the standard work environment, the assessor may ask the candidate to provide a practical demonstration. The assessor can see both the process and the finished product.
- Pen and paper tests and essays - To measure the extent of knowledge or may test problem solving capabilities. These may be used to complement practical demonstration.
- Oral tests - These can be an adjunct to practical demonstration.
- Projects - Tends to be unsupervised. The assessor uses the final product on which to base a judgement.
- Simulation - This may involve an off-site practical test. The actual tasks and conditions are similar to real life situations.
- Portfolios - Used for assessing skills achieved in the past. Can include work samples.

Develop Assessment Tools/Methods

Design or modify assessment tools - the assessor will be required to design or modify existing assessment tools so that their format, language, literacy and numeracy requirements are appropriate to the characteristics of the assessment Context and the person being assessed.

Verify tools - the assessor will need to verify the assessment tools which maintain validity, but are easy to administer, and allow sufficient flexibility to meet the range of possible assessment Contexts.

Prepare accompanying instructions - the assessment system/process must be comprehensively and clearly documented so that the stages of assessment and their constituent parts may be observed and evaluated.

The assessment materials must relate directly to the Unit of Competency and address the totality of the competency in a realistic and effective way.

Trial and Review Assessment Tools

Trial assessment methods - the assessor will be required to trial the assessment methods with a representative group of people similar to those who will ultimately be assessed.

Evaluate assessment methods - the assessor will evaluate the assessment methods and tools for clarity, reliability, validity, fairness and cost-effectiveness.

Once trials are conducted the assessor will need to seek responses from all parties and compile and analyse these responses.

Make improvements - the assessor will modify the assessment tools based on the responses to the trials.

Ratify procedures - the assessor ratifies, with relevant people in the Gas Sector, procedures of the evidence requirements, assessment methods and assessment tools and the process used in developing them.

3.5 Assessment instruments

Assessment instrument is the term used to describe the documentation for the recording of the assessment process and the outcomes.

A template for a Gas Sector Assessment Instrument is provided at Attachment 1 to this Part.

4. Guidelines for conducting assessments

4.1 Assessment conduct concepts

Assessment within the Gas Sector is to be carried out by a Qualified Assessor who will have been trained in the conduct of assessment.

The main issues to be satisfied during the conduct of assessment include the following:

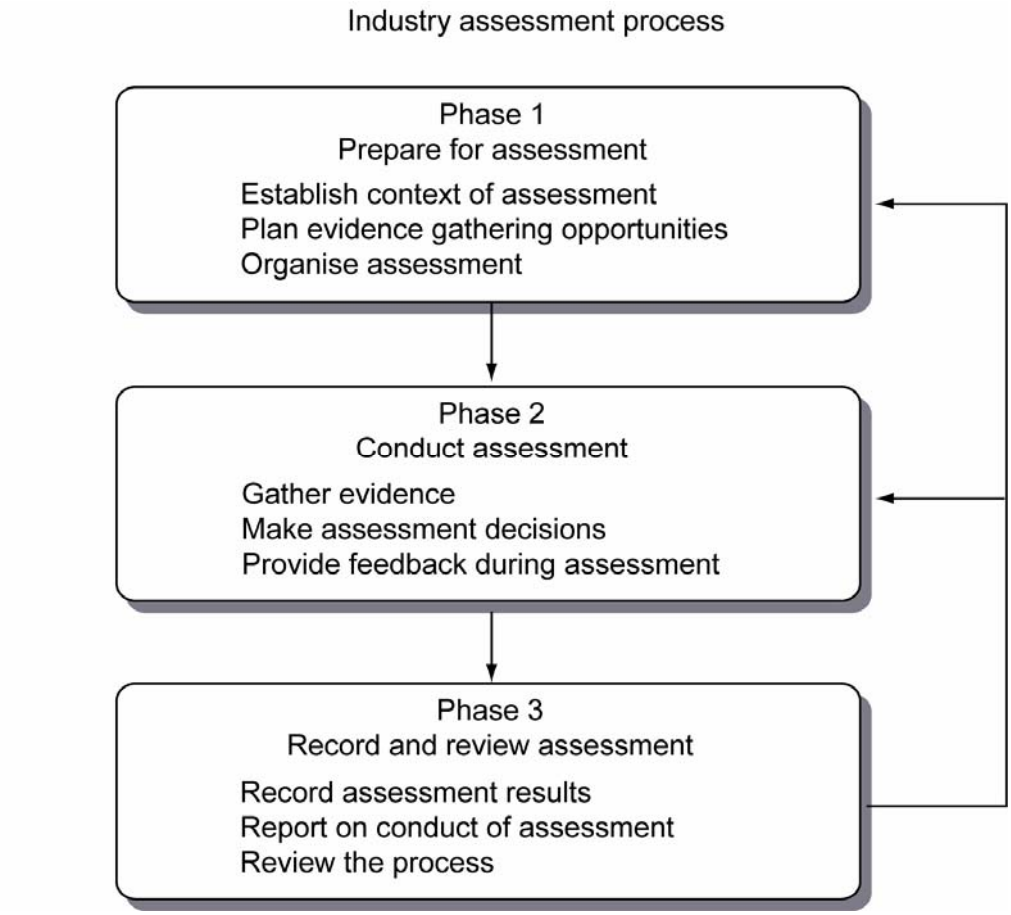
- Assessment should be planned, arranged and organised well in advance of the event/process.
- The candidate should be involved in the planning and preparation so that their readiness and availability is assured, and their advice on evidence collection opportunities may be considered.
- The environment within which assessment is to occur is acceptable to the parties and conducive to the assessment process.
- The assessor's actions throughout the process are firm, fair, friendly and unambiguous.
- Specific rulings on safety breaches are explained up-front and acted on in accordance with the assessment materials.
- The assessment process should contain no surprises for any party.
- Feedback is provided as required throughout the assessment process.
- Post assessment activities including recording, reporting, counselling etc. are finalised promptly.

Candidates will invariably be accepting of the outcomes of an assessment process in which:

- they consider they were treated fairly, consistently and with dignity.
- they were given the full opportunity to demonstrate their capabilities.
- their inadequacies were pointed out in a sensitive and constructive manner.
- the reasons for the assessment decisions were appropriate, logical and constructively explained.

4.2 Overview of assessment conduct issues

The flow chart below provides an overview for assessment within the Gas Sector. The flow chart outlines the process involved in conducting assessment in both the institutional and workplace Context and consists of the three major components each assessor will need to address:



4.2.1 Prepare for assessment

Establish context of assessment

- Identify the competency standards appropriate to the assessment including the relevant performance measures applying to assessment.
- Ensure the candidate has access to the relevant competency standards and other relevant information.
- Discuss and confirm the purpose of assessment with the candidate and where appropriate, the employer.
- Discuss the Gas Sector/enterprise assessment policy with the candidate (they need to understand how the competencies to be assessed will fit in with the Industry Training Framework or enterprise arrangements for training. The assessor should also understand what the candidate has done to acquire the knowledge and skills.)
- Explain and obtain agreement to the assessment procedure.

Plan evidence gathering opportunities

- Identify opportunities to gather evidence of competence which occur as part of the workplace activities.
- Explain to the candidate what evidence will be looked at to constitute competency.
- Choose the techniques that will be used to assess the candidate's knowledge and skill.
- Identify the need to gather additional evidence which may not occur as part of workplace activities.
- Ensure the planned approach to gathering evidence will provide sufficient, reliable, valid and fair evidence of competence.

Organise assessment

- Obtain the appropriate resources. Practical assessment should preferably be conducted on site. However, if on-site practical assessment is not possible then off-site assessment at a mutually agreeable site could be appropriate. It can be part of the current work (i.e. observation of current tasks) or a demonstration (i.e. a simulated task).
- Check the assessment environment permits fair, valid and reliable assessment and that it is safe and accessible.
- Discuss the Context and purpose of assessment arrangements and requirements with the person being assessed and confirm that it is agreed and understood.
- Inform the relevant people of assessment plans.

4.2.2 Conduct assessment

Gather evidence

- Evidence is gathered in accordance with agreed competency standards and in accordance with Gas Sector assessment procedure using specified assessment methods and tools.
- Document the evidence gathered in accordance with the assessment procedure.
- Ensure evidence gathered is valid, reliable and consistent.

Make assessment decision

- Evaluate the evidence gathered in terms of its: validity; authenticity; sufficiency; currency; consistent achievement of the specified standard.
- Make the assessment decision in accordance with the criteria specified in the assessment procedure.
- If in doubt, seek guidance from a more experienced assessor nominated in the assessment procedure.

Provide feedback during assessment

- Candidate is put at ease throughout assessment and given clear and constructive feedback where appropriate.
- Progress is discussed (if it is appropriate to the form of assessment being used).
- Discussion is held with candidate on methods of overcoming any gaps of competency revealed by the assessment.
- If appropriate, give guidance on training opportunities that could overcome any gaps revealed in the assessment.
- Where appropriate, confirm with the person being assessed the opportunities for re-assessment and/or the Gas Sector appeal procedure available.

4.2.3 Record and review assessment

Record assessment result

- Assessment results are properly recorded on the Gas Sector Assessment Instrument, and in accordance with specified assessment procedure.
- The assessment result is recorded in line with the Instrument's required details and record-keeping requirements.
- Assessment records are stored by the assessor in a secure place to ensure both access to authorised people only and the confidentiality of assessment outcomes.

Report on conduct of assessment

- Any disputed assessment decisions are recorded and reported promptly to those nominated by the RTO in the assessment procedure.
- Where appropriate, report positive and negative features experienced in conducting assessments to the RTO.
- Where appropriate, make suggestions for improving the process to the RTO.

Review the procedure

This needs to be done in cooperation with the candidates who have been assessed, but not necessarily as part of an individual assessment procedure. This will involve:

- Reviewing the operations of the assessment procedure at the site.
- Recording and reporting promptly any assessment decision disputed by the person being assessed to the RTO.
- Make suggestions for improving any aspect of the assessment process to the RTO.

5. Sources of information on assessment

Information on Assessment falls into four categories:

- Industry Policy
- State/Territory Policy
- National Policy and Guidelines
- Process Information.

Industry Policy.

The National and State/Territory ITABs are the custodians of industry policy. They have responsibility for the definition and implementation of this National Training Package in conjunction and cooperation with the State/Territory recognition authority.

State/Territory Policy.

The State/Territory training and recognition authorities have constitutional responsibility for vocational education and training. They will, from time to time, issue policies and guidance on training and assessment issues.

National Policy and Guidelines.

National Policy and Guidelines are established under the auspices of the Australian National Training Authority and the relevant Commonwealth Department. This information includes:

- Competency Standards for Assessment (September 1995)
- Guide to Competency Standards for Assessment, ANTA, 1997
- Standards Best Practice Manual, ANTA, 1997
- Guidelines for Training Package Development, ANTA, 1997

Process Information.

Process information covers all parts of the competency assessment process. It is published in books, periodicals, computer packages and increasingly on electronic information services. It would be quite pointless in including here information which may shortly be replaced or redundant. A list of available and relevant information sources are included in this section and will be re-issued on a regular basis.

It is also suggested that those wishing to obtain information relevant to Competency Assessment in the Gas Sector should contact, in order of priority:

1. their State/Territory Training and Recognition Authority.
2. their servicing ITAB at the State/Territory level.
3. the National Utilities and Electrotechnology ITAB.
4. the National Assessors and Workplace Trainers Body (refer to ANTA for current address/contact details).

5.1 Competency standards and Evidence Guides

Format and Definitions:

Standards Best Practice Manual. (1997) Australian National Training Authority, Australian Training Products Ltd.

National Training Board (1992) Policy and Guidelines. (Second Edition), National Training Board: Canberra

5.2 Gas industry references

A list of Australian Standards, Gas and Fuel, Standards Australia, May 1995

Australian Bureau of Statistics, 1993-94 Electricity and Gas Operations Australia, Cat. No. 8208.0

Australian Bureau of Statistics, ASCO Keyword Index to Occupation Definitions, Cat. No. 1229.0

Australian Bureau of Statistics, Australian and New Zealand Standard Industrial Classification 1993 (ANZIC), Cat. No. 1292.0

5.3 Assessment instrument design

Guidelines for Training Package Development (1997) Australian National Training Authority

Hagar, P., Athanasou, J. & Gonzi, A. (1994) *Assessment Technical Manual* Australian Government Publishing Service: Canberra

Toop, L., Gibb, J. & Worsnop, P. (1994) *Assessment System Design* Australian Government Publishing Service: Canberra

5.4 Assessor training

Competency Standards for Assessment (1995) Australian National Training Authority

Guidelines for Training Package Development (1997) Australian National Training Authority

Standards Best Practice Manual. (1997). Australian National Training Authority, ACTRAC Products Ltd.

5.5 Conducting assessments

Foyster, J. (1990) *Getting to Grips with Competency-based Training and Assessment*. TAFE National Centre for Research and Development Ltd: Adelaide

Hager, P. (1993) *Principles of Competency-Based Assessment*. In *Testing Times* conference papers. National Centre for Vocational Education Research Ltd: Leabrook, South Australia

Competency Standards for Assessment (1995) Australian National Training Authority

Rumsey, D. (1994) *Assessment Practical Guide* Australian Government Publishing Service: Canberra

Guidelines for Training Package Development (1997) Australian National Training Authority

NSW Department of Training and Education Coordination & Commonwealth Department of Employment, Education, Training and Youth Affairs (1996) Teaching and Learning Key Competencies. A resource kit.

5.6 Evidence gathering methods

Competency Standards for Assessment (1995) Australian National Training Authority

Guidelines for Training Package Development (1997) Australian National Training Authority

NSW Department of Training and Education Coordination & Commonwealth Department of Employment, Education, Training and Youth Affairs (1996) *Teaching and Learning Key Competencies. A resource kit*.

5.7 Assessment system design and management

Competency Standards for Assessment (1995) Australian National Training Authority

Guidelines for Training Package Development (1997) Australian National Training Authority

Attachment 1 - Assessment Instrument

Unit
Name of Candidate:
Work Area/Contact Number:
Name of Workplace Supervisor:
Name of Assessor:
Date of Assessment:

Part A Questions to assess underpinning knowledge of the Unit

Part B Observation checklists to assess practical skills

Part C Supporting Evidence (including supervisor's report)

Part D Assessor's outcome for the Unit

Notes for this Assessment Instrument use

Designing the Instrument

- The questions and observation checklists in this example were designed by analysing the performance criteria for the Unit and the accompanying Evidence Guide.
- Practical assessment for the Unit may require the assessor to undertake additional tasks if the assessment of this cannot be fitted into the candidate's normal work cycle.
- Part C - "Supporting Evidence" may be required when the assessor is:
  - unable to identify certain aspects of the work outcome
  - uncertain of the assessment decisions and requires additional evidence to back up their own judgement
  - not actually present to assess all critical aspects of the job.

Conducting the assessment

- The assessor should check whether the candidate has any literacy or numeracy problems before the assessment is conducted. For example, the assessor could ask the candidate to fill in the details on the cover sheet for the unit assessment instruments (i.e. names, dates).
- To make sure that the candidate is ready for assessment, the assessor will need to ask questions that test underpinning knowledge before conducting the practical demonstrations. However, in some cases it may be more appropriate to ask particular questions during the actual performance of the workplace tasks.

Recording the assessment result

- The assessor will need to explain the outcome of the assessment to the candidate. The assessor and the candidate will need to complete, sign and date the result sheet.

Part A: Questions to assess underpinning knowledge

The candidate is to answer all questions.

Ask the candidate each question using the words listed below. You may clarify the question with the candidate but you must not provide assistance with the answers.

	Some suggested questions	**Satisfactory Response**	
		Yes	***No***

Feedback to Candidate:

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Part B: Observation checklists to assess practical skills

You should stop the assessment immediately if the candidate's work practices are unsafe.

Element 1

Practical skills	Competent	Not Yet Competent
Feedback to Candidate		

Element 2

Practical skills	Competent	Not Yet Competent
Feedback to Candidate:		

Element 3

Practical skills	Competent	Not Yet Competent
Feedback to Candidate: …… …… …… …… …… ……		

Element 4

Practical skills	Competent	Not Yet Competent
Feedback to Candidate: …… …… …… …… …… …… ……		

When relevant components of other Units are assessed concurrently with this unit, record the outcomes using the assessment instruments listed separately for those units.

Part C: Supporting Evidence (including supervisor's report)

Element	Source of Evidence	Valid?
		Y/N
		Y/N
		Y/N
		Y/N
		Y/N
		Y/N
		Y/N
		Y/N
		Y/N

Supervisor Report:

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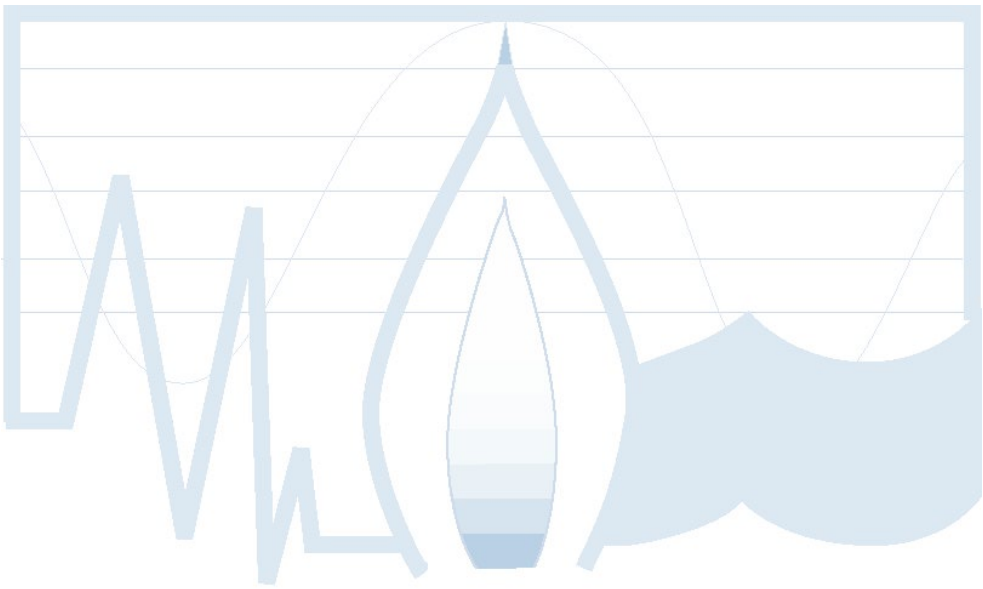
Part D: Assessor's outcome for the Unit

Competency Assessment Result	
Unit	
Name of candidate:	
The candidate was assessed as:	☐ Competent ☐ Not Yet Competent
Feedback to candidate:	
Signatures	
The candidate has been informed of the assessment result and the reasons for the decision.	_____ Signature of Assessor Date:
I have been informed of the assessment result and the reasons for the decision.	_____ Signature of Candidate Date:



PART C

QUALIFICATIONS

Part C – Qualifications

1. Introduction

The National Utilities and Electrotechnology Industry Training Advisory Body Limited (NUEITAB) in association with the Australian National Training Authority (ANTA) has coordinated the development of a Training Package for Australian Qualification Framework Levels 2-6 in the Gas Industry of Australia.

The availability of national competency standards for the Gas Industry will provide the catalyst for the development of structured accredited training arrangements that meet enterprise needs and are genuinely portable between industries and regions.

The part of the Training Package provide the basic principles for the implementation of National Qualifications within the Gas Industry. They must be read in conjunction with Gas Industry Competency Standards and Assessment Guidelines.

The Gas Industry Qualifications Framework was developed to adhere to the following principles:

- Qualifications must be relevant, in terms of both level and scope, to the realistic needs of the industry and to facilitate real career pathways.
- Qualifications must reflect real work requirements and not be influenced by the variety of existing qualifications which may have been used in the past for career progression.

The approach adopted in the Gas Industry Qualifications Framework is aimed at providing maximum flexibility for all parties using the qualifications.

The Qualifications have been structured to meet the needs of all Gas Industry employees. The adoption of a broad group of electives in a qualification is one indicator of the flexibility available.

2. Titling

2.1 Gas Industry National Qualifications

AQF Level	Qualification Title
2	Certificate II – Gas Industry Operations
3	Certificate III – Gas Industry Operations
4	Certificate IV – Gas Industry Operations
5	Diploma – Gas Industry Operations
6	Advanced Diploma – Gas Systems

2.2 Components of qualifications

The approach taken to the packaging in the Gas Industry is to include a core and elective model as it will best deliver the outcomes which reflect the Industry training needs. It will also maximise the potential for choice through electives within the boundaries agreed by the Gas Industry as essential for competent performance in a given area of work. In the packaging the Gas Industry has also included arrangements for using units from other Industry competency standards and defined cross-industry competencies. This will enable greater breadth to the structure and broader relevance to employers and employees in the Gas Industry.

Core: Core Units are those that are applicable to every employee at that qualification level.

Electives: Any Units which are not required as Core or Stream Electives and are required as complementary to the work functions for the respective qualification.

2.3 Composition of qualifications

In all cases the composition of qualifications must be agreed to between the person seeking the qualification and the employer. General principles regarding the composition of qualifications include:

- Units of Competency making up a qualification must be appropriate to the work being performed by the person seeking the qualification.
- Units of Competency making up the qualification must be appropriate to the level of qualification sought.
- Unless specifically stated otherwise the major component of the Units of Competency making up a qualification should be mainstream core units.

The selection of the Units of Competency making up the qualification must be consistent with the Unit Packaging arrangement outlined in the framework associated with each qualification.

3. Issuance of qualifications and competency recognition

Formal recognition of competency achievement may be in the form of:

- A full qualification in accordance with the criteria established under the Gas Qualifications Framework. Where the title of the qualifications within the framework requires further clarity to satisfy State/Territory and/or Enterprise requirements, then an additional occupational identifier to the title in the National Gas Qualifications Framework shall be provided.
- A Statement of Attainment and, where, appropriate, an authorised entry in an individual's Industry Skills Passport, which recognises the attainment of a subset group of individual Units of Competence within a full qualification.

Formal recognition of both types is to be issued by a Registered Training Organisation (RTO). The recognition is to be recorded on formats established by relevant State Training Authorities and include additional items which have been agreed by industry via the National Utilities and Electrotechnology ITAB or its nominated representatives. Industry would expect formal recognition to include:

- The name of the recipient.
- The title of the qualification or Statement of Attainment.
- The title and logo of the RTO.
- The logos of the relevant State/Territory Training and Recognition Authorities, the Nationally Recognised Training (ANTA) logo and, preferably, the logo of the National Utilities and Electrotechnology ITAB Ltd.
- An attached transcript of information that is meaningful for maximum recognition and skills transfer. Generally this would be the individual Unit of Competence titles and any endorsement thereof, as well as detailed statements about the achievement of knowledge and skills. Where Nationally and Industry endorsed training materials e.g. modules, programs or other exist and these are used to provide the underpinning knowledge and skills identified in the Units of Competence, then the relevant Titles of the subjects within the Training programs as above, shall form part of the transcript attached to the qualification.

4. Maintenance of qualifications

The Gas Qualifications structure was developed by and is therefore owned by the industry.

The Qualifications structure must be maintained so that it reflects the ongoing needs of the Sector and responds in a timely manner to changed technologies and circumstances.

Responsibility for the maintenance of the Qualifications structure is shared by the parties who constitute the Sector:

Qualifications maintenance will be coordinated and managed by the National Gas Industry Training Task Force (NGITTF).

Suggestions and proposals for changes from all parties are welcome. These should be documented and submitted to the NGITTF through the National Utilities and Electrotechnology ITAB.

5. Pathways into individual qualification

There are four identified pathways into individual qualifications at Certificate II, Certificate III and Certificate IV and Diploma levels and three into the Advanced Diploma:

Certificate II, Certificate III and Certificate IV and Diploma

- Entry level contracted employment, as a new apprenticeship.
- Existing employees whose occupation is peculiar to one stream and who may wish to gain a qualification in another stream (including individuals who are trained outside Australia) and who would be eligible for recognised prior learning/current competencies.
- Operatives wishing to multi-skill by seeking to obtain a National Gas Qualification or Statements of Attainment (including individuals who are trained outside Australia).
- Employees of other industries or companies with relevant or similar skills who may wish to have their skills recognised within the National Gas Qualification (including individuals who are trained outside Australia).

Advanced Diploma

- Entry from AQF levels 3, 4 or 5 of the National Gas Industry Training Package. Note that for purposes of entry into the Advanced Diploma qualification, there may be limited advantage in entry from levels 4 and 5 over level 3. This is because levels 4 and 5 predominantly reflect the supervisory nature of the work functions performed at these levels.
- Graduates of engineering or science based diploma level qualification with sufficient mathematical and science underpinning knowledge and skills who need to gain gas industry competencies in gas systems design.
- Employees of other industries or companies with relevant or comparable skills/competencies who may wish to have their skills recognised within the National Gas Qualification (including individuals who are trained outside Australia).

Typically these pathways will include a combination of on and off job training leading to the achievement and demonstration of competence. That is, the pathways identify how competence is developed and how evidence is gathered for the assessment of competence. This would include assessment practices for recognising existing workers' prior learning/current competencies.

Industry acknowledges that competence may be developed entirely in an institutional setting or entirely on the job. However the combination of Units of Competence which will result for instance, in an AQF3 outcome will require a substantial period of training and practice for new entrants (New Apprenticeships) to achieve competence. Whilst these are nominal hours and whilst it may be the case that some reduction in this time could be achieved in an institutional setting, due to reducing any peripheral activity that naturally occurs in an actual workplace, the burden on an institute, individual or employer in relation to costs, would be considerable and possibly prohibitive. This is to be considered when promoting and implementing this pathway.

In general pathways will include a combination of on and off job training leading to the achievement and demonstration of competence. That is, the preferred industry pathways reflect how competence is developed and how evidence is gathered for the assessment of competence. It should be noted that where a shortfall of prerequisite knowledge and skills are evident for those entering through pathway two, a *bridging program* is to be developed to assist the candidate achieve the appropriate level of entry. Equally so, recognition of prior learning/competencies for existing workers should follow a similar approach in recognising existing skills and knowledge and a tailored program be developed by RTOs to meet individual requirements.

Bridging programs are developed to provide access to any skill or knowledge gap an intended learner has relative to the entry requirement of the intended Unit(s) of Competency or Qualification. RTO's should ensure relevant technical knowledge and skills underpinning are determined and clearly defined for respective Unit(s) of Competency and/or Qualification.

The decision as to where the training is provided and the evidence is gathered, is a matter for the Registered Training Organisation (RTO). The RTO would be expected to carry out such activity in accordance with the criteria established by the relevant State or Territory Training Authority and as outlined in the respective parts A, B and C of this Training Package. The industry considers the institutional pathway is clearly much more expensive than a combination or all on the job approach to developing competence.

The industry is of the view that what is critical is that all evidence must be present so that best practice in assessment and the judgement process about attributing competence is valid and reliable.

6. Alignment and packaging

It is recommended that the Gas Industry competency standards be initially aligned against six levels of the AQF. This represents the first step in the "packaging" process. These five levels range from Certificate II to Advanced Diploma.

In consideration of the alignment and packaging of the units the Gas Industry considered that it would be inappropriate at this stage to specify a Certificate 1 qualification in the Gas Industry. Rather it is seen that the three core units would be covering all the required underpinning knowledge and skills for entry into a Level 2 qualification pathway. The competency standards already clearly indicate the underpinning knowledge and skills required for each unit as well as the interdependency with other units, which will assist in the future design of a traineeship pathway. Additionally, the Certificate II in Gas Operations is a prerequisite to the Certificate III in Gas Operations.

RTOs designing training programs for delivery of the CIII in Gas Operations are to ensure all of the requirements for gaining the CII in Gas Operations are incorporated in the program. Additionally, recognition of prior learning/competencies for existing workers should form part of any delivery strategy developed by an RTO providing training and assessment services to the Gas Industry. Recognition of existing worker skills and knowledge by the RTO should be approached in such a manner that tailors a program to meet individual requirements.

The decision as to where the training is provided and the evidence is gathered, is a matter for the Registered Training Organisation (RTO). The RTO would be expected to carry out such activity in accordance with the criteria established by the relevant State or Territory Training Authority and as outlined in the respective Parts A, B and C of this Training Package. The industry considers the institutional pathway is clearly much more expensive than a combination or all on the job approach to developing competence.

The industry is of the view that what is critical is that all evidence must be present so that best practice in assessment and the judgement process about attributing competence is valid and reliable.

When aligning and packaging the Gas Industry competency standards account is taken of already existing "cross industry competency standards". The standards represent competencies for functions or activities that are common across a number of industries such as clerical and administrative functions.

The diagrams in the following pages detail an overview of the grouping of 35 units of competency unique to the selected function of the Gas Industry. It also includes the recommendations for the utilisation of cross industry competency standards including the sets outlined below.

Frontline Management Competency Standards

ANTA has developed and endorsed 11 units of competency that represent generic management competency standards for frontline managers. The competency standards can be adapted to needs unique to Gas Industry functions.

The National Clerical-Administrative Competency Standards

The National Clerical-Administrative Competency Standards describe clerical administrative competencies common across industries. It is recommended that only Levels II and III be used in the packaging process for the Meter Reading and Billing Streams.

Road Transport Industry Competency Standards

The Road Transport Industry Competency Standards describe the competency required for the operation of trucks or heavy vehicles and forklifts. The loading and distribution of LPG in tanker and cylinders will require the use of the relevant competency standards covering the driving of heavy rigid and heavy combination vehicles and/or forklifts.

Metal and Engineering Industry National Competency Standards

The Metal and Engineering Industry National Competency Standards divide into a number of streams, the most relevant to the Gas Industry is the Mechanical steam, describe the repair of gas meters. This will require the use of relevant Metal and Engineering Industry National Competency Standards associated with this Gas Industry Unit of Competence.

National Electrotechnology Industry Competency Standards

The National Electrotechnology Industry Competency Standards which were incorporated in the National Electrotechnology Training Package, endorsed August 1999. The selected competencies of the National Electrotechnology Industry are directly relevant to the Gas Industry Units of Competence for the installation of Cathodic Protection Systems.

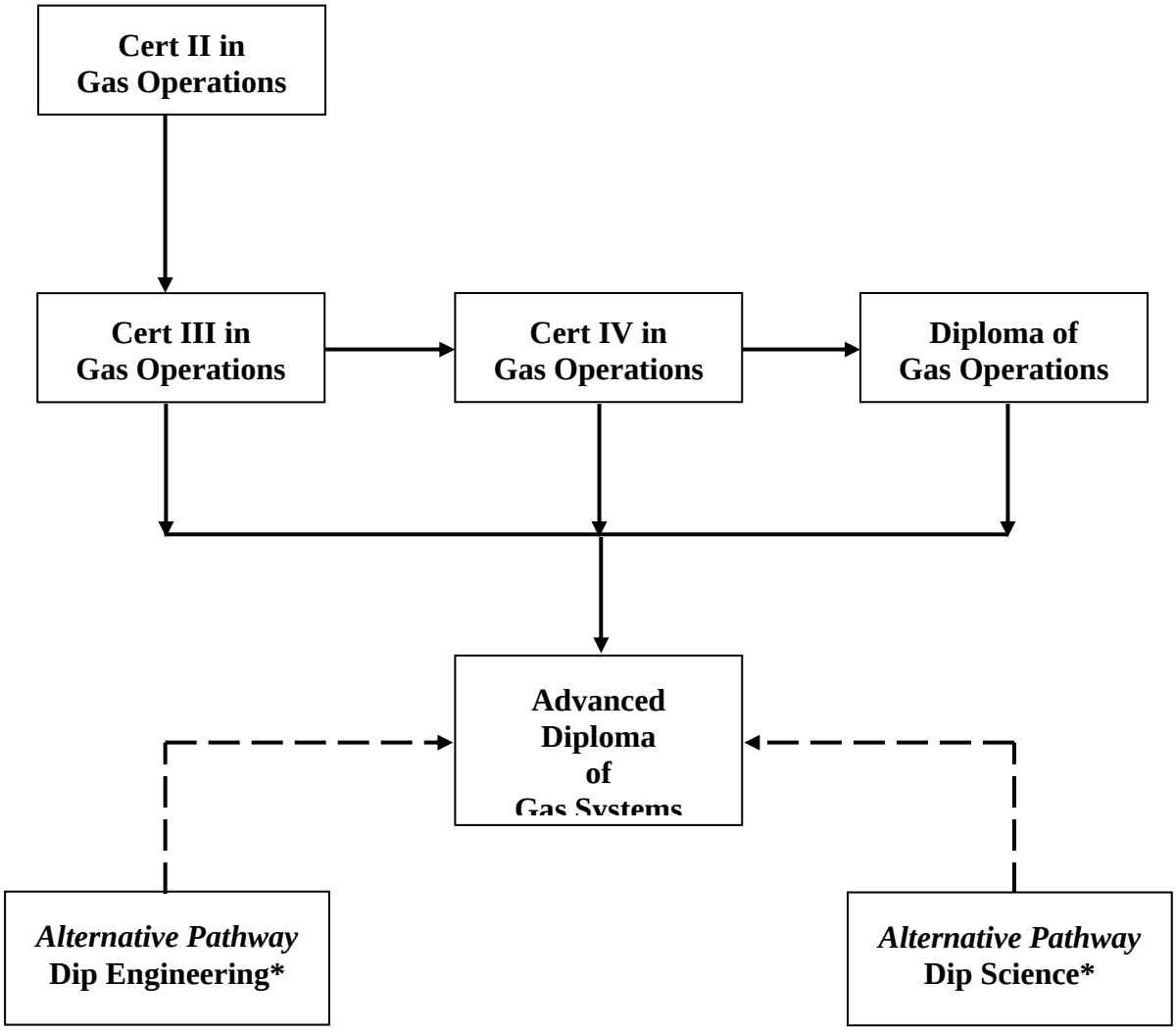
The Units of Competency within the Advanced Diploma qualification collectively align to AQF Level 6. Individual Units of Competency may be aligned to neighbouring AQF Levels where the dominant holistic performance standards warrant the inclusion of the Unit.

An additional Unit of Competency may be included within the "elective" element of the Advanced Diploma qualification if:

- It has been selected for importation from an equivalent AQF 6-Advanced Diploma qualification level from another NTQC endorsed National Training Package;
- The unit of competence chosen is similar in breath, depth, complexity and effort as those typical to the Gas Advanced Diploma or *allied industry* and is necessary for the performance of a specific work function;
- A suitable enterprise unit of competence has been selected and, approved by the National Utilities and Electrotechnology Industry Training Advisory Body Gas Sector Council for inclusion as an imported unit and complies with point 2 above;
- An equivalent unit of competence has been "approved" for inclusion in a bank of approved units for the Elective in the Advanced Diploma by the National Utilities and Electrotechnology Industry Training Advisory Body Gas Sector Council, and endorsed by the NTQC.

Entry Pathways

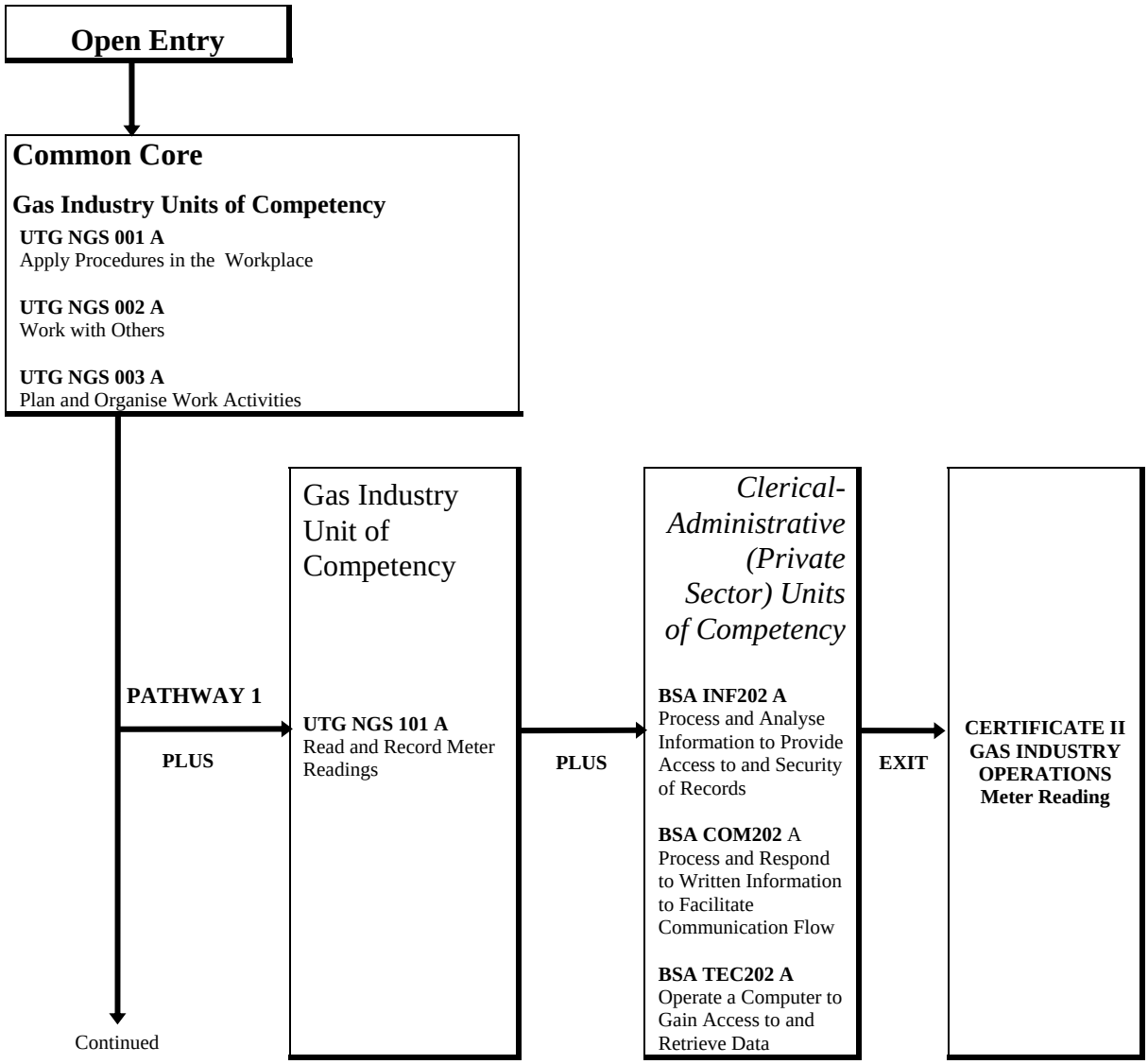
Advanced Diploma in Gas Systems



* Individuals with a relevant diploma of engineering or science would be expected to have attained the requisite underpinning knowledge and skills in mathematics and science, which should accelerate their progress through the Advanced Diploma in Gas Systems. However, should this not be the case a suitable bridging program is to form part of the entry requirement.

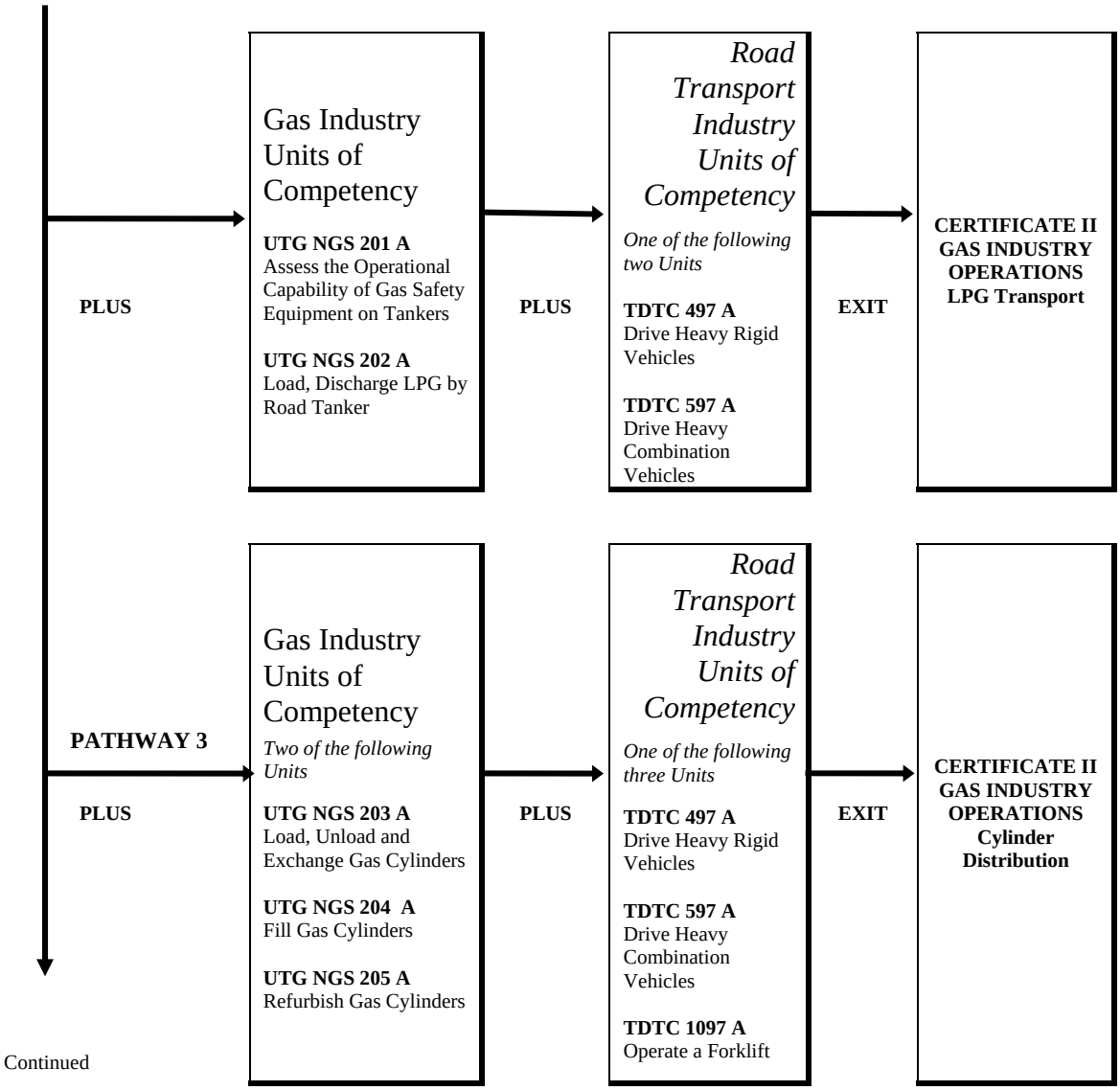
7. Alignment of units of competencies to qualification level and outcome

Certificate II Qualification Pathways



Certificate II Qualification Pathways (continued)

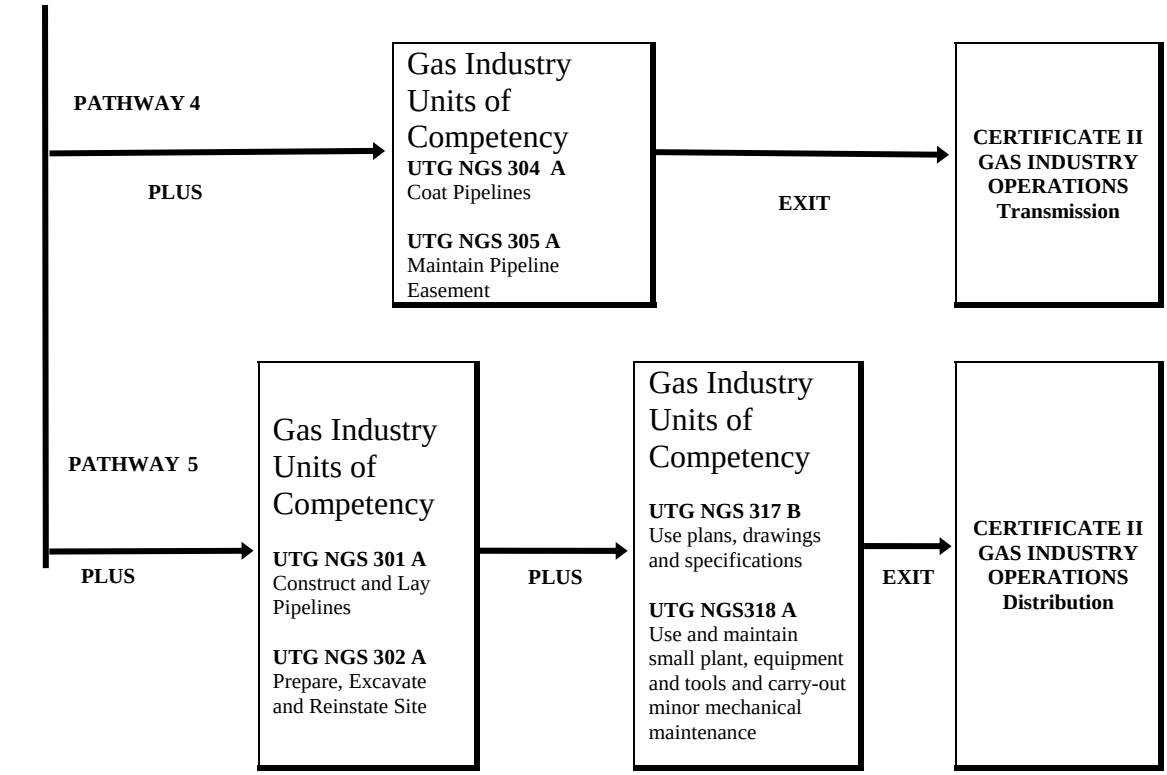
From
Common Core - Entry
Gas Industry
Units of Competency
UTG NGS 001 A, UTG NGS 002 A
and UTG NGS 003 A
continued



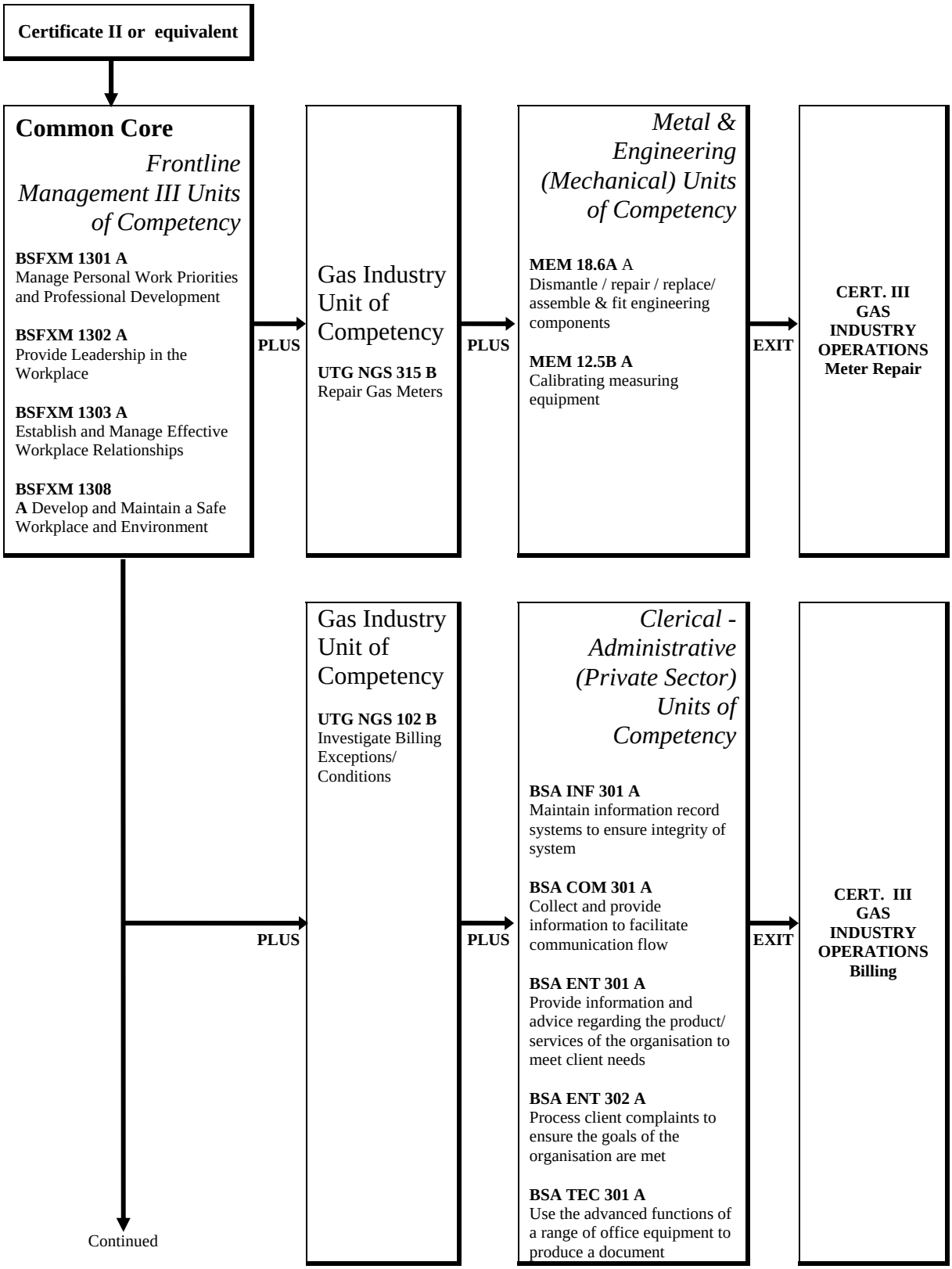
Continued

Certificate II Qualification Pathways (continued)

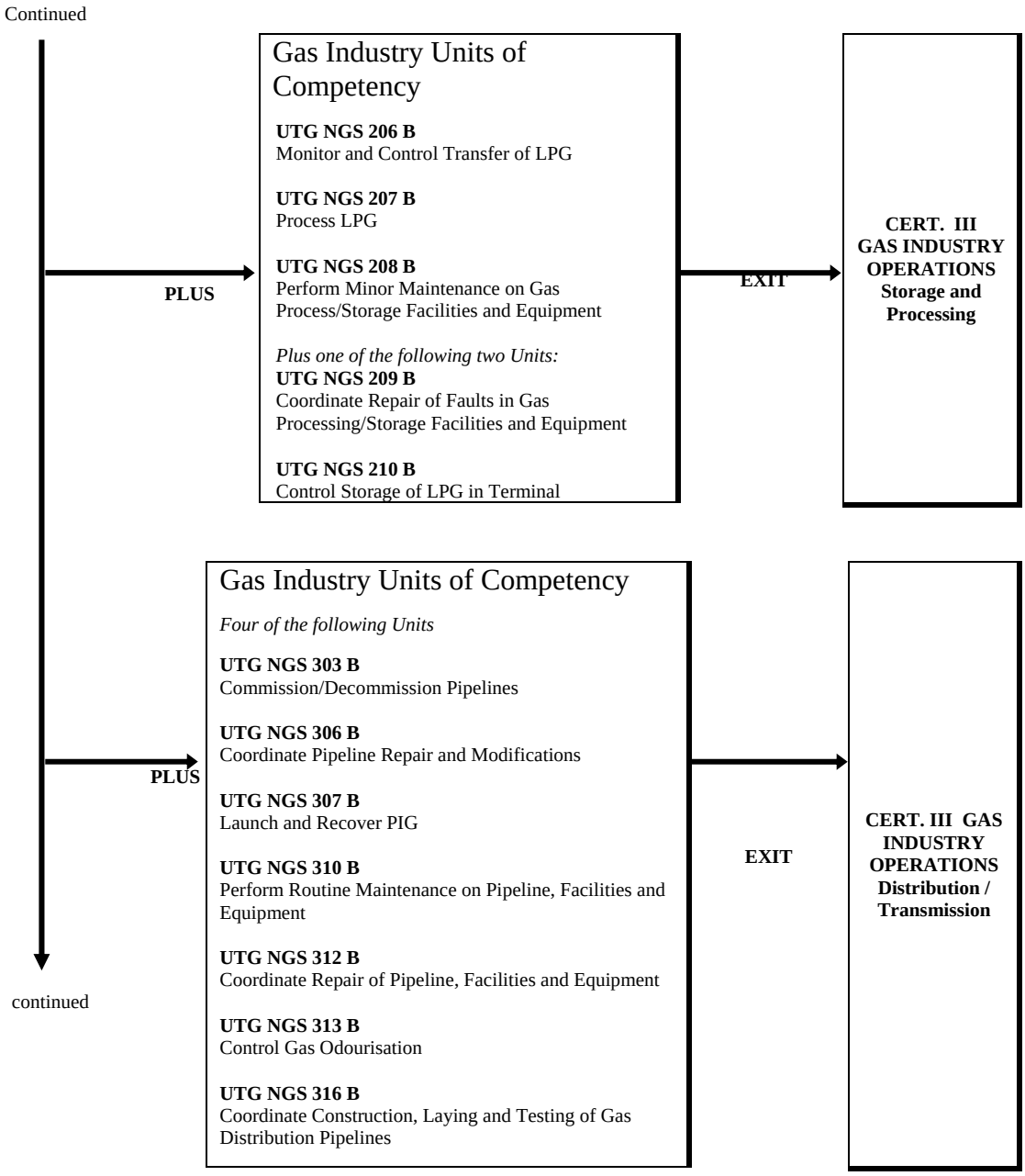
Continued



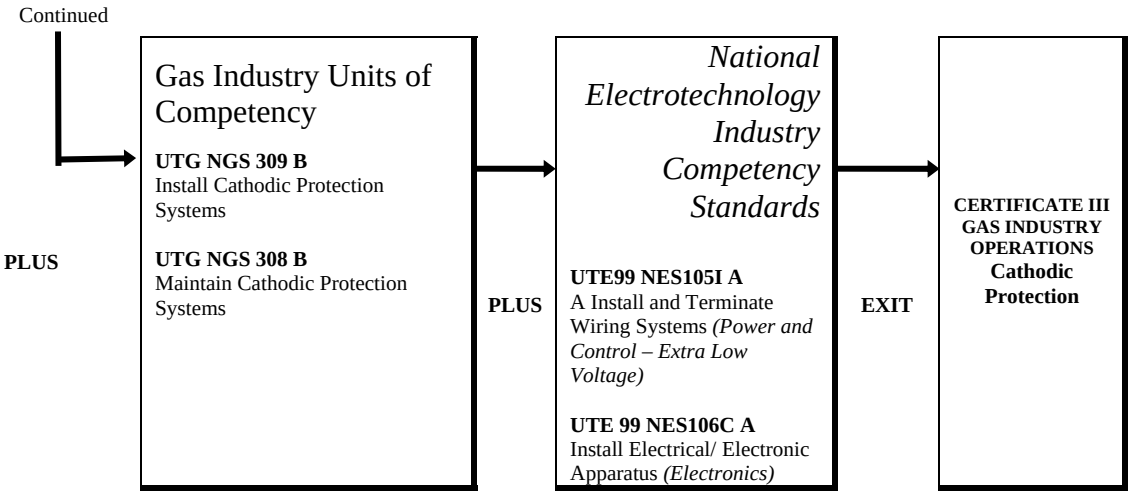
Certificate III Qualification Pathways



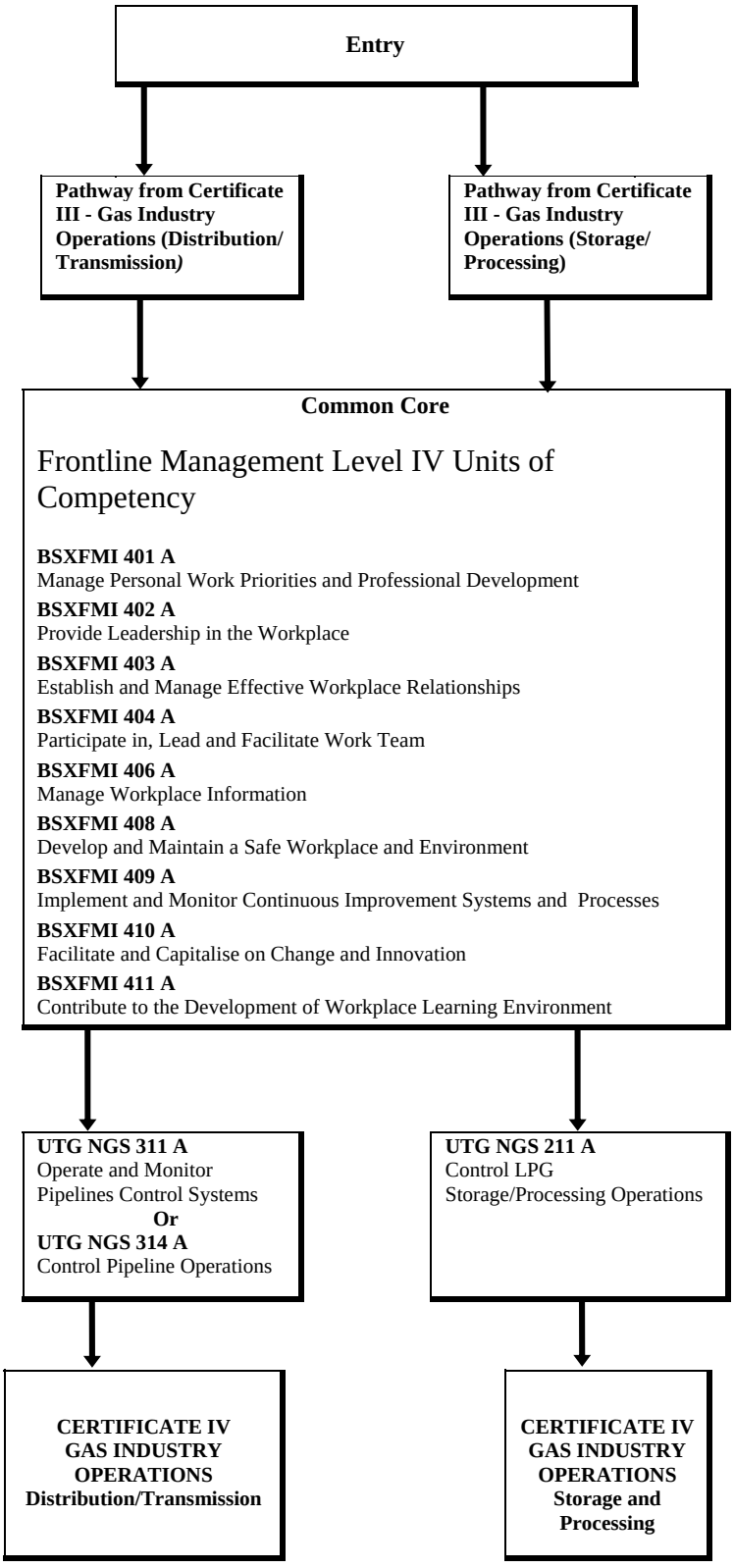
Certificate III Qualification Pathways (continued)



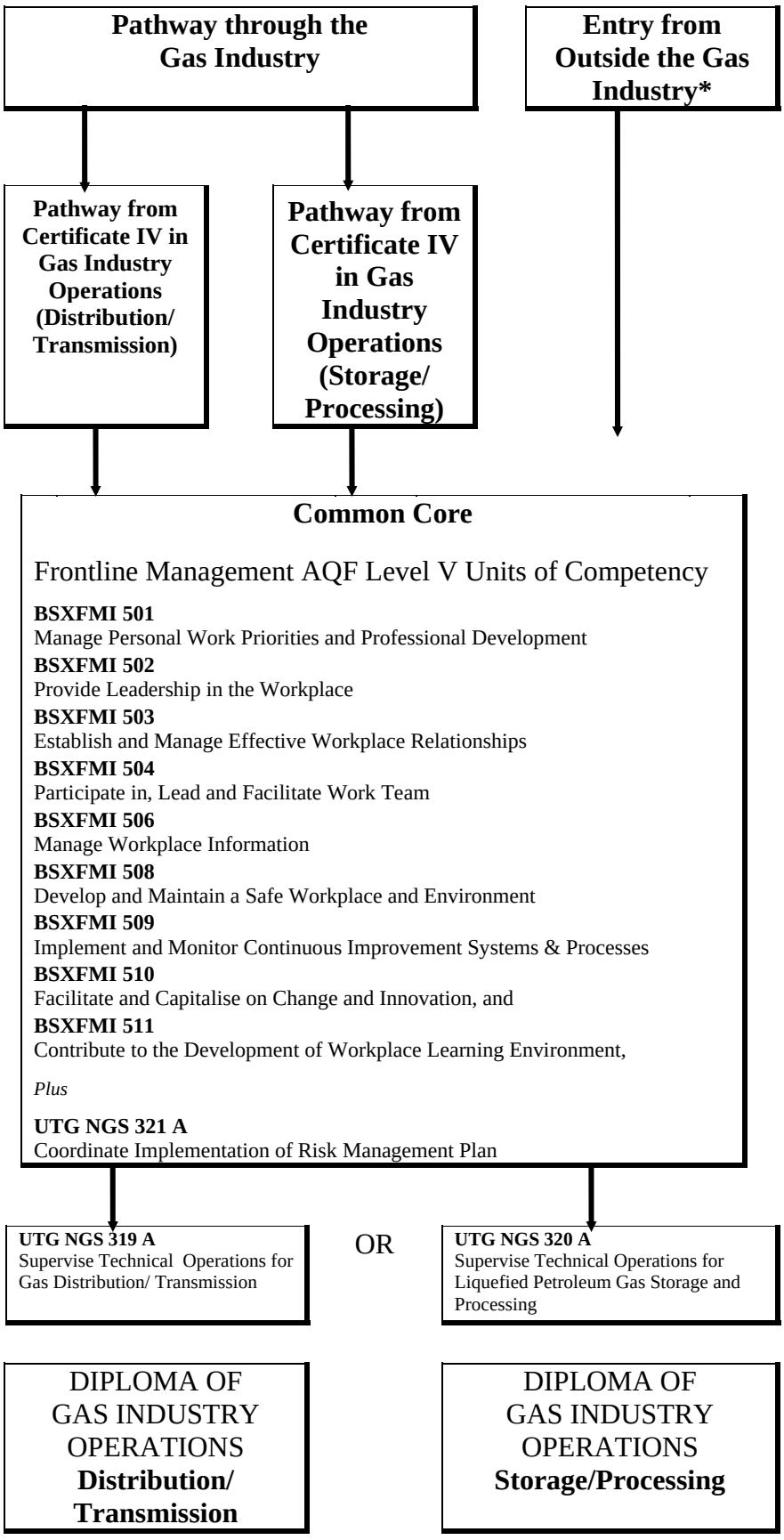
Certificate III Qualification Pathways (continued)



Certificate IV Qualifications Pathways

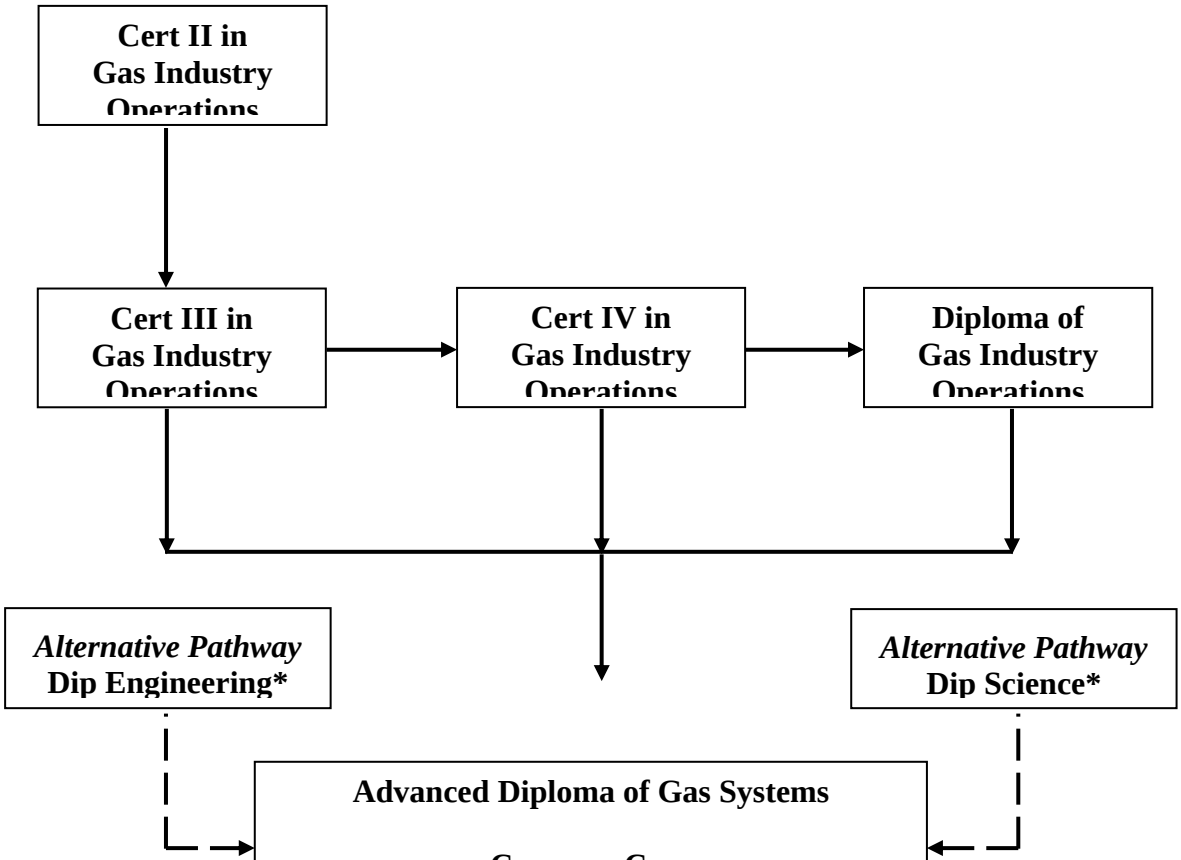


Diploma Qualification Pathways



***Note:** *For those people with appropriate managerial non-technical qualifications or experience entering the Gas Industry, the Diploma of Gas Industry Operations provides them with the necessary base, underpinning technical knowledge and skills, derived from Certificates III and IV in Gas Industry Operations.*

Advanced Diploma Qualification Pathways



Advanced Diploma of Gas Systems

Common Core

UTG NGS 602A
Select and commission equipment to meet pressure and temperature control specifications
UTG NGS 603A
Manage workplace risk
UTG NGS 604A
Manage gas system environmental compliance

Plus three of the following Units

UTG NGS 601A
Plan and implement the data acquisition and metering requirements of a gas system
UTG NGS 605A
Prepare design specifications for a gas system
UTG NGS 606A
Manage gas systems projects
UTG NGS 607A
Manage a customer service gas business unit
UTG NGS 608A
Manage financial resources
UTG NGS 609A
Manage physical resources
A nationally endorsed unit of competence
Any Unit of Competence can be selected from an NTQFC endorsed National Training Package or Unit of Competence having sufficient breadth, depth, complexity and effort and similarly aligned to an equivalent AQF 6 – Advanced Diploma qualification level.

* Individuals with a relevant diploma of engineering or science would be expected to have attained the requisite underpinning knowledge and skills in mathematics and science, which should accelerate their progress through the Advanced Diploma in Gas Systems. However, should this not be the case a suitable bridging program is to form part of the entry requirement.

National Gas Industry Qualification Framework

This enclosure contains the detailed framework and structures for the following National Gas Qualifications.

AQF Level	Qualification Title
2	Certificate II – Gas Industry Operations
3	Certificate III – Gas Industry Operations
4	Certificate IV – Gas Industry Operations
5	Diploma – Gas Industry Operations
6	Advanced Diploma – Gas Systems

Gas Industry Operations – Certificate II

National Qualification No	UTG 2 01 98	
Common Core	**Gas Industry Units**	
	UTG NGS001 A	Apply Procedures in the Workplace
	UTG NGS002 A	Work with Others
	UTG NGS003 A	Plan and Organise Work Activities

Electives:

In addition to Common Core, choose **one** of the following Stream Core: Cylinder Distribution; LPG Transport; Meter Reading; Transmission; or Distribution

Stream Core: Cylinder Distribution	**Gas Industry Units**	
	Two of the following **three Units**	
	UTG NGS203 A	Load, Unload and Exchange Gas Cylinders
	UTG NGS204 A	Fill Gas Cylinders
	UTG NGS205 A	Refurbish Gas Cylinders
	Road Transport Industry Competencies	
	One of the following three Units	
	TDTC497 A	Drive Heavy Rigid Vehicles
	TDTC597 A	Drive Heavy Combination Vehicles
	TDTC1097 A	Operate a Forklift

OR

Stream Core: LPG Transport	**Gas Industry Units – all to be attained**	
	UTG NGS201 A	Assess the Operational Capability of Gas Safety Equipment on Tankers
	UTG NGS202 A	Load, Discharge LPG by Road Tanker
	Road Transport Industry Competencies – one to be selected and attained	
	TDTC497 A	Drive Heavy Rigid Vehicles
	TDTC597 A	Drive Heavy Combination Vehicles

continued

National Qualification No	UTG 2 01 98	
Stream Core: Meter Reading	**Gas Industry Units – must attain**	
	UTG NGS101 A	Read and Record Meter Readings
	Clerical-Administrative (Private Sector) Competencies - all to be attained	
	BSA INF202 A	Process and Analyse Information to Provide Access to and Security of Records
	BSA COM202 A	Process and Respond to Written Information to Facilitate Communication Flow
	BSA TEC202 A	Operate a Computer to Gain Access to and Retrieve Data
OR		
Stream Core: Transmission	**Gas Industry Units – all to be attained**	
	UTG NGS304 A	Coat Pipelines
	UTG NGS305 A	Maintain Pipeline Easement
OR		
Stream Core: Distribution	**Gas Industry Units – all to be attained**	
	UTG NGS301 A	Construct and Lay Pipelines
	UTG NGS302 A	Prepare, Excavate and Reinstate Site
	UTG NGS317 B	Use plans, drawings and specifications
	UTG NGS318 A	Use and maintain small plant, equipment and tools and carry-out minor mechanical maintenance

end

Gas Industry Operations – Certificate III

National Qualification No	UTG 3 01 98	
Prerequisite	Entry for this qualification requires completion of Certificate II in Gas Operations or equivalent	
Common Core	**Frontline Management III Competencies – attain all**	
	BSFXMI 301 A	Manage Personal Work Priorities and Professional Development
	BSFXMI 302 A	Provide Leadership in the Workplace
	BSFXMI 303 A	Establish and Manage Effective Workplace Relationships
	BSFXMI 308 A	Develop and Maintain a Safe Workplace and Environment

Electives In addition to Common Core, choose **one** of the following Stream Core – Billing; Storage and Processing; Distribution/Transmission

Stream Core: Billing	**Gas Industry Units – attain all**	
	UTG NGS050 A	Investigate Billing Exceptions / Conditions
	Clerical-Administrative (Private Sector) Competencies – attain all	
	BSA INF301 A	Maintain information record systems to ensure integrity of system
	BSA COM301 A	Collect and provide information to facilitate communication flow
	BSA ENT301 A	Provide information and advice regarding the product/services of the organisation to meet client needs
	BSA ENT302 A	Process client complaints to ensure the goals of the organisation are met
	BSA TEC301 A	Use the advanced functions of a range of office equipment to produce a document

continued

National Qualification No	UTG 3 01 98	
OR		
Stream Core: Storage and Processing	**Gas Industry Units – attain all**	
	UTG NGS206 B	Monitor and Control Transfer of LPG
	UTG NGS207 B	Process LPG
	UTG NGS208 B	Perform Minor Maintenance on Gas Process/Storage Facilities and Equipment
	Gas Industry Units - select and attain one of the following two units	
	UTG NGS209 B	Coordinate Repair of Faults in Gas Processing/Storage Facilities and Equipment
	UTG NGS210 B	Control Storage of LPG in Terminal
OR		
Stream Core: Distribution / Transmission	**Gas Industry Units - select and attain four of the following seven units**	
	UTG NGS303 B	Commission/Decommission Pipelines
	UTG NGS306 B	Coordinate Pipeline Repair and Modifications
	UTG NGS307 B	Launch and Recover PIG
	UTG NGS310 B	Perform Routine Maintenance on Pipeline Facilities and Equipment
	UTG NGS312 B	Coordinate Repair of Pipeline Facilities and Equipment
	UTG NGS313 B	Control Gas Odourisation
	UTG NGS316 B	Coordinate Construction, Laying and Testing of Gas Distribution Pipelines

continued

National Qualification No	UTG 3 01 98	
OR		
Stream Core: Meter Repair	**Gas Industry Units – attain all**	
	UTG NGS315 B	Repair Gas Meters
	Metal & Engineering (Mechanical) Units of Competency – attain all	
	MEM 18.6A A	Dismantle/repair/replace/assemble and fit engineering components
	MEM 12.5B A	Calibrating measuring equipment
OR		
Stream Core: Cathodic Protection	**Gas Industry Units – attain all**	
	UTG NGS308 B	Maintain Cathodic Protection Systems
	UTG NGS309 B	Install Cathodic Protection Systems
	National Electrotechnology Industry Competency Standards – attain all	
	UTE NES105I A	Install and Terminate Wiring Systems (*Power and Control - Extra Low Voltage*)
	UTE NES106C A	Install Electrical/Electronic Apparatus (*Electronics*)

end

Gas Industry Operations – Certificate IV

National Qualification No	UTG 4 01 98	
Common Core	**Frontline Management Level IV**	
	BSFXMI 401 A	Manage Personal Work Priorities and Professional Development
	BSFXMI 402 A	Provide Leadership in the Workplace
	BSFXMI 403 A	Establish and Manage Effective Workplace Relationships
	BSFXMI 404 A	Participate in, Lead and Facilitate Work Team
	BSFXMI 406 A	Manage Workplace Information
	BSFXMI 408 A	Develop and Maintain a Safe Workplace and Environment
	BSFXMI 409 A	Implement and Monitor Continuous Improvement Systems and Processes
	BSFXMI 410 A	Facilitate and Capitalise on Change and Innovation
	BSFXMI 411 A	Contribute to the Development of Workplace Learning Environment
Electives In addition to Common Core, choose **one** of the following Stream Core		
Stream Core: Transmission / Distribution	**Gas Industry Units – select and attain one of the following tow units**	
	One of the following two Units:	
	UTG NGS311 A	Operate and Monitor Pipelines Control Systems
	UTG NGS314 A	Control Pipeline Operations
OR		
Stream Core: Storage/Processing	**Gas Industry Units – attain the one unit**	
	UTG NGS211 A	Control LPG Storage/Processing Operations

end

Gas Industry Operations – Diploma

National Qualification No	UTG 5 01 01	
Common Core	**Frontline Management Level V**	
	BSFXMI 501 A	Manage Personal Work Priorities and Professional Development
	BSFXMI 502 A	Provide Leadership in the Workplace
	BSFXMI 503 A	Establish and Manage Effective Workplace Relationships
	BSFXMI 504 A	Participate in, Lead and Facilitate Work Team
	BSFXMI 506 A	Manage Workplace Information
	BSFXMI 508 A	Develop and Maintain a Safe Workplace and Environment
	BSFXMI 509 A	Implement and Monitor Continuous Improvement Systems and Processes
	BSFXMI 510 A	Facilitate and Capitalise on Change and Innovation
	BSFXMI 511 A	Contribute to the Development of Workplace Learning Environment
	UTG NGS321 A	Coordinate and monitor implementation of Risk Management Plan
Electives In addition to Common Core, choose **one** of the following Stream Cores		
Stream Core: Transmission / Distribution	**Gas Industry Units – attain all**	
	UTG NGS319 A	Supervise Technical Operations for Gas Distribution/Transmission
OR		
Stream Core: Storage/Processing	**Gas Industry Units – attain all**	
	UTG NGS320 A	Supervise Technical Operations for Liquefied Petroleum Gas Storage and Processing

***Entry requirements:** Entry to the Diploma in Gas Industry Operations is from the Certificate IV in Gas Industry Operations OR appropriate managerial non-technical qualifications. In the latter instance, the Diploma of Gas Industry Operations provides the learner with the necessary base, underpinning technical knowledge derived from the Certificates II and III in Gas Industry Operations.*

end

Gas Systems - Advanced Diploma

National Qualification No	UTG 6 01 01	
Core	UTG NGS602A	Select and commission equipment to meet pressure and temperature control specifications
	UTG NGS603A	Manage workplace risk
	UTG NGS604A	Manage gas system environmental compliance
Electives	**Gas Industry and other imported NTQC endorsed National Training Package/Units of competence - any three of the following to be selected and attained**	
	UTG NGS601A	Plan and implement the data acquisition and metering requirements of a gas system
	UTG NGS605A	Prepare design specifications for a gas system
	UTG NGS606A	Manage gas systems projects
	UTG NGS607A	Manage a customer service gas business unit
	UTG NGS608A	Manage financial resources
	UTG NGS609A	Manage physical resources
	A nationally endorsed unit of competence	*Any Unit of Competence can be selected from an NTQFC endorsed National Training Package or Unit of Competence having sufficient breadth, depth, complexity and effort and similarly aligned to an equivalent AQF 6 – Advanced Diploma qualification level.*

end