Australian Government

UEGNSG102 Prepare safe design specifications of a gas system

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEG Gas Industry Training Package.

Application

This unit involves the skills and knowledge required to prepare safe design specifications of a gas system.

It includes identifying safe system/installation design specifications, preparing gas system input and output performance criteria, and assessing environment impact of a gas system. It also includes identifying and evaluating gas system options and preparing system specifications for fuel gases.

This unit applies to safe work site where gas industry operations occur. It could also apply to other workplaces in the electricity supply industry (transmission and distribution and generation), the electrotechnology industry and the water industry, subject to work health and safety (WHS)/occupational health and safety (OHS) and duty of care requirements being met for the workplace.

The application of the skills and knowledge described in this unit may require a licence/registration to practise in the workplace.

Other conditions may apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

Not applicable

Competency Field

Cross Discipline

Unit Sector

Gas Industry

Elements and Performance Criteria

ELEMENTS **PERFORMANCE CRITERIA**

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Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Prepare gas system input and output performance criteria	**1.1** WHS/OHS principles and practices and environmental and sustainable energy workplace procedures which may influence the systems are reviewed and determined
	1.2 Proposed gas system usage is analysed and technical requirements of the system are investigated and expected outcomes of design work are confirmed with the appropriate persons
	1.3 Workplace policies and procedures for specifications of a gas system design are obtained or determined with appropriate persons
	1.4 Testing parameters are determined and discussed with appropriate person/s to ascertain the gas system project brief in accordance with workplace policies and procedures
	1.5 Equipment, tools and personal protective equipment (PPE) are selected and coordinated based on specified requirements and workplace procedures
	1.6 Work roles and tasks are allocated in accordance with design requirements and person/s competency
	1.7 Work is prioritised and sequenced for the most effective outcome, completed within an acceptable timeframe to an industry quality standard and in accordance with workplace procedures
	1.8 Liaison and communication with authorised persons, authorities, clients and land owners are undertaken to resolve gas system issues and coordinate design work activities
	1.9 Risk control measures are identified, prioritised and evaluated against the work schedule
	1.10 Relevant work permits are secured to coordinate the performance of work in accordance with requirements and workplace procedures
2 Assess impact of gas system on the environment	**2.1** Gas system logistics are determined and environmental impact on interconnected systems is assessed
	2.2 WHS/OHS and sustainable energy principles,

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		functionality and practices to reduce the incidents of accidents and minimise waste are incorporated into the gas system project in accordance with workplace requirements and procedures
	2.3	Practicable design decisions are made on basis of safety and effective outcomes in accordance with workplace requirements and procedures
	2.4	Mathematical modelling is used to analyse the effectiveness of the design specification in accordance with workplace requirements and procedures
	2.5	Technical advice is obtained related to hazards, assessed risks and reasonably practicable risk control measures so that monitoring can be undertaken and appropriate authorities consulted, as required, in accordance with workplace requirements and procedures
	2.6	Specific data is analysed and compared with compliance specifications to ensure completion of the project within an agreed timeframe in accordance with requirements
	2.7	Environmental testing is undertaken in accordance with workplace requirements and procedures
	2.8	Work teams are arranged to ensure planned goals are met in accordance with workplace procedures
	2.9	Solutions to unplanned events are responded to in accordance with workplace procedures, in a manner that minimises risk to personnel and equipment
	2.10	Quality of work is monitored against performance agreement and workplace organisational and industry standards
	2.11	Environmental strategic plans are developed incorporating organisational initiatives in accordance with workplace procedures
3 Identify and evaluate gas system options and prepare specifications	**3.1**	Review of gas system is undertaken to ensure design complies with requirements and includes specifications and documentation needed to complete the gas project
	3.2	Design and construction resources option/s are identified, availability and price is determined, and maintenance requirements are documented

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3.3 Cost-benefit analysis is prepared and evaluation criteria are determined, any shortfalls in recommended option/s are justified and compliance requirements are met

3.4 Appropriate persons are notified of design completion and gas system reports and completion documents are finalised

3.5 Reports and completion documents are submitted to relevant persons for approval and as required, statutory or regulatory approval

3.6 Approved copies of documents are issued and controlled, and records are updated in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEG Gas Industry Training Package Companion Volume Implementation Guide.

constants and variables must include:	• gas system • environmental hazards • system logistics • resources • relevant documentation • legislative compliance • safe design principles • relevant authorities
gas systems must include at least six (6) of the following (at least the first three, OR the last three):	• natural gas systems • transmission and distribution pipelines • control systems • custody transfer stations • odorising plant • corrosion control • hydrogen gas systems • interconnecting system

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environmental hazards must include at least three (3) of the following:	• LPG storage greater than 50 kL • underground storage • tankers and ships • hazards associated with LPG • hazards associated with natural gas • geological features • soil types • neighbouring plants • residential areas • separation distances and emission and contamination hazards • hazards associated with hydrogen gas
gas system logistics must include at least one (1) of the following:	• land and sea transport routes and equipment • transmission and distribution pipelines • land ownership and easements
relevant persons must include at least two (2) of the following:	• company planners and marketers • department heads • business unit managers • company engineers and consultant engineers • technical specialists • statutory authorities and environmental specialists
legislative requirements must include at least two (2) of the following:	• WHS/OHS legislation • relevant government acts, regulations and codes of practice • local government traffic management
relevant authorities must include at least two (2) of the following:	• local and shire councils • local government authorities • emergency transport authorities • rail departments • landowners/traditional land owners
relevant documentation must include at least eight (8) of the following:	• contracts • specifications/drawings/plans • manufacturer specifications • work permits • company standard operation and safety procedures • company management plans and policies • hot work permits • company forms and files • WHS/OHS legislation and codes of practice • other government legislation

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- pipeline licenses
- quality assurance
- commercial agreements

Unit Mapping Information

This unit replaces and is equivalent to UEGNSG121 Prepare safe design specifications of a gas system

Links

Companion Volume Implementation Guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6a6c032e-ffcb-4f3d-8063-415efbd261e8

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