Title	**Install fixed gas detection apparatus in hazardous areas**		
Level	**4**	**Credits**	**2**

Purpose	This unit standard is intended for people who are authorised by the Electrical Workers Registration Board (EWRB) to carry out installations of electrical apparatus, and are responsible for installation of electrical apparatus in explosive atmospheres. People credited with this unit standard are able to: – prepare for installation of gas detection apparatus – install gas detection apparatus, and – check and calibrate response of gas detection apparatus.

Classification	Explosive Atmospheres > Electrical Apparatus in Explosive Atmospheres - Operations

Available grade	Achieved

Guidance Information

1 This unit standard has been designed for training and assessment on-job or off-job in a simulated environment which includes explosion-protected apparatus and wiring systems similar to those encountered in a real workplace. It is recommended candidates achieve Unit 17056, *Install explosion-protected equipment and associated equipment and wiring systems*; and Unit 24976, *Use and maintain the integrity of portable gas detection devices in hazardous areas*; or demonstrate equivalent knowledge and skills, prior to enrolment in this unit standard.

2 This unit standard is intended to be assessed against in conjunction with other work skills related to operation, installation, maintenance, or servicing of plant or machinery in explosive atmospheres.

3 Competence is to be demonstrated in relation to any classified hazardous areas and explosion-protection techniques. Where competency is demonstrated on wiring/cabling and apparatus that operate at extra low voltage and low voltage, registration with the EWRB as able to install electrical apparatus is required. For work on wiring and apparatus operating above 1000 V AC or 1500 V DC, competency in high voltage work must be held. A copy of a candidate's current practicing license must be presented at the time of assessment.

4 References

- AS/NZS 1826:2008, *Electrical equipment for explosive gas atmospheres – Special protection – Type of protection 's'*
- AS/NZS 3000 (version as cited in the Electricity (Safety) Regulations), *Electrical installations (known as the Australian/New Zealand Wiring Rules)*
- AS/NZS 4641:2018, *Electrical apparatus for detection of oxygen and other gases and vapours at toxic levels – General requirements and test methods*
- AS/NZS 4761.1 (version as cited in the Electricity (Safety) Regulations), *Competencies for working with electrical equipment for hazardous areas (EEHA) Part 1 – Competency standards*
- AS/NZS 60079.0 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Equipment – General requirements*
- AS/NZS 60079.1:2015, *Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures 'd'*
- AS/NZS 60079.10.1 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Classification of areas – Explosive gas atmospheres*;
- AS/NZS 60079.11 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Equipment protection by intrinsic safety 'i'*
- AS/NZS 60079.14 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Electrical installations design, selection and erection*
- AS/NZS 60079.17 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Electrical installations inspection and maintenance*
- AS/NZS 60079.20.1:2012, *Explosive atmospheres – Part 20.1: Material characteristics for gas and vapour classification – Test methods and data*
- AS/NZS 60079.29.1:2017, *Explosive atmospheres – Part 29.1: Gas detectors – Performance requirements of detectors for flammable gases*
- AS/NZS 60079.29.2 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen*
- Electricity Act 1992
- Electricity (Safety) Regulations 2010
- Health and Safety at Work Act 2015 and associated regulations
- *Workplace Exposure Standards and Biological Exposure Indices Edition 13*, available from WorkSafe New Zealand www.worksafe.govt.nz, and associated regulations

and their subsequent amendments and replacements.

5 Definitions

Certification documentation – document(s) that assure(s) the conformity of a product, process, system, person, or organisation with specified requirements.

Explosion-protection techniques – techniques applied to the design of electrical apparatus, components, and systems to prevent the electrical energy from becoming an ignition source in the presence of flammable vapours and gases or combustible dusts in explosive atmospheres. See *explosion-protected apparatus*.

Explosion-protected apparatus – electrical apparatus to which specific measures are applied to avoid ignition of a surrounding explosive atmosphere.

Verification dossier – a set of documents showing the complete compliance history of electrical apparatus and installations within hazardous areas, as defined in Standards.

6 Range
- a Assessment is to take account of variations between the industry sectors and enterprises. For example, apparatus used in dust-explosive atmospheres will be different in some respects from that used in a petrochemical plant.
- b Health and safety policies and procedures may include but are not limited to – work permits and clearances, hazard monitoring, evacuation procedures, plant and electrical isolation.
- c Established maintenance procedures must be followed.
- d All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with safe working principles and practices, legislation, policies, procedures, ethical codes and Standards, safe and sound practice, and industry practice; and, where appropriate, manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Prepare for installation of gas detection apparatus.

Performance criteria

1.1 Determine the location in which gas detection apparatus is to be installed from design documents.

1.2 Check gas detection apparatus markings to ensure they conform to design specifications and certification documentation.

1.3 Collect certification documentation supplied with each item of gas detection apparatus for inclusion in site records and verification dossier.

Outcome 2

Install gas detection apparatus.

Performance criteria

2.1 Handle, install, and wire gas detection apparatus and connect it to sampling points or point sensors in accordance with design specifications and standards, within the limits specified by apparatus certification and manufacturer, and in a manner that does not reduce the integrity afforded by the apparatus.

2.2 Install gas detection sampling point or point sensor apparatus in appropriate locations.

Range gas or vapour sources, propagation, and protection from environmental and mechanical damage, access for checking, routine calibration and maintenance.

2.3 Install gas detection apparatus in a manner that does not reduce the type of protection specified by any associated explosion-apparatus design.

Outcome 3

Check and calibrate response of gas detection apparatus.

Range local site, remote site.

Performance criteria

3.1 Check and calibrate gas detection apparatus in accordance with established site requirements and instrument accuracy.

3.2 Document the installation of gas detection apparatus in accordance with requirements and forward it to personnel responsible for compiling and maintaining verification dossier.

Planned review date	31 December 2027

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 May 2011	31 December 2025
Review	2	2 March 2023	N/A

Consent and Moderation Requirements (CMR) reference	0003

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact the Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.