

Title	Test, connect, purge and commission a polyethylene main in a gas network		
Level	4	Credits	12

Purpose	People credited with this unit standard are able to demonstrate knowledge of company procedures, documentation and equipment to test, connect, purge and commission a polyethylene (PE) gas main; prepare to test, connect, purge and commission a PE gas main; carry out a pneumatic pressure test on a PE gas main; connect, purge and commission a PE gas main and complete reporting and documentation.
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Classification	Gas Industry > Gas Network Construction
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Available grade	Achieved
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Guidance Information

- 1 This unit standard is intended for, but is not limited to, workplace assessment. The range statements relate to enterprise specific equipment, procedures, and processes.
- 2 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable manufacturer's specifications, company procedures and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 3 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of:
Health and Safety at Work Act 2015;
Resource Management Act 1991;
AS/NZS 4645.1:2018 *Gas distribution networks – Network management*;
AS/NZS 4645.3:2018 *Gas distribution networks – Plastic pipe systems*;
and any subsequent amendments and replacements.
- 4 References
Australian standards (AS) may be found at www.standards.org.au;
Australian/New Zealand standards (AS/NZS) may be found at www.standards.govt.nz.
- 5 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

6 Definitions

Company procedures mean the documented methods for performing work activities, and include health and safety, operational, environmental, and quality management requirements. They may refer to legislation, regulations, guidelines, standard operating procedures, manuals, codes of practice, or policy statements.

Connect refers to using tapping fittings, full-flow connections, squeeze offs and valves to join mains in a gas network.

Test refers to pneumatic testing.

7 Hydrostatic testing in a gas network is covered by Unit 10972, *Perform hydrostatic tests on gas mains and services.*

A connection requiring a flow-stopping operation is covered by Unit 30374, *Carry out flow stopping operations using squeeze-offs on a gas pipeline.*

Outcomes and performance criteria**Outcome 1**

Demonstrate knowledge of company procedures, documentation and equipment to test, connect, purge and commission a PE gas main.

Performance criteria

- 1.1 Company procedures for testing, connecting, purging and commissioning a PE gas main are located and interpreted.
- Range may include – company standard, safe work procedure, operating procedure, maintenance procedure, work instruction, equipment operating manual, job hazard analysis, job risk assessment.
- 1.2 Documentation and instructions for a specified job are obtained.
- Range may include – site location, network drawings, utility plans, network pressure monitoring, job card, test pressure, test duration, consents, easement conditions.
- 1.3 Reasons for testing a PE main is described.
- Range strength, leakage.
- 1.4 Pressure test criteria is described.
- Range pressure range, duration, allowable pressure loss, atmospheric pressure, temperature.
- 1.5 Methods of connecting a PE main to different types of gas mains are described.
- Range methods may include – equal tee, polyethylene saddle tee, mechanical saddle tee, valve, electrofusion coupling, mechanical coupling;
types may include – polyethylene main, metallic main.

- 1.6 Methods for purging a PE main and the required purge levels are described.
- Range methods include – direct purge, indirect purge;
purge levels include – odourant levels, minimum gas-in-air levels.
- 1.7 Potential environmental and safety hazards and controls associated with connecting, testing, purging and commissioning a PE gas main are described.
- Range hazards may include – gas release, flames, excavations, confined spaces, pneumatic release, contaminants, noise, vehicles and public, static electricity, electrical current;
controls may include - temporary traffic control, signage, barriers, personal protective equipment, safe access and egress, restraints, anchoring, exclusion zones, continuity bond, environmental protection, waste disposal;
evidence of six hazards and their controls are required.
- 1.8 The equipment and materials required for testing and purging are described in terms of type and function.
- Range test gauge, air compressor, test piece, leak detection equipment, purge stack, flare stack, gas detection equipment, hoses, anchors, restraints, continuity bond, earthing equipment, inert gas supply, fire extinguisher.
- 1.9 The potential hazards associated with incorrect pressure testing and purging of PE gas mains are described.

Outcome 2

Prepare to test, connect, purge and commission a PE gas main.

Performance criteria

- 2.1 Hazards for the specified job are identified and controlled.
- 2.2 Testing, connecting, purging and commissioning equipment and materials for specified job are prepared and positioned.
- Range may include – pressure gauges, hoses, anchors, restraints. test gauge, air compressor, inert gas supply, test piece, leak detection equipment, purge rider, purge stack, flare stack, gas detection equipment, continuity bond, earthing equipment, tools, fittings, fire extinguisher.
- 2.3 Preparation ensures that pipework and fittings are anchored in position, pipe systems are isolated, and purge stacks and drainage points are positioned.

Outcome 3

Carry out a pneumatic pressure test on a PE gas main.

Performance criteria

- 3.1 Pneumatic pressure test criteria is established.
Range test medium, test pressure, test duration, stabilisation period.
- 3.2 Pneumatic pressure test safety controls are applied.
Range may include – exclusion zone, restraints, anchoring.
- 3.3 Test pressure is applied.
- 3.4 Test equipment is checked for leaks.
- 3.5 Stabilisation period is timed.
- 3.6 Atmospheric pressure reading is obtained.
- 3.7 Test period is timed, and pressure and time readings are recorded.
Range initial readings, final readings.
- 3.8 Pneumatic pressure test criteria is met.
- 3.9 Where test results show a pressure loss, leaks are traced and repaired, and retesting is completed.
- 3.10 On completion of the test, pipe is depressurised in a controlled manner and test equipment is disconnected.
- 3.11 Record of test is completed.

Outcome 4

Connect, purge and commission a PE gas main.

Performance criteria

- 4.1 Gas main is connected.
Range connection may include – saddle tee, electrofusion coupling, mechanical coupling, valve.
- 4.2 Purging is carried out and pressure and flow conditions are monitored until the required gas concentration level is confirmed at the purge outlet(s).
Range may include – direct purge, indirect purge.
- 4.3 The purge outlet is closed, and the main and purge equipment is fully pressurised to operating pressure and any final joints checked for leakage.
- 4.4 Any leaks are identified and repaired if required.

4.5 Purging equipment is depressurised and disconnected.

Outcome 5

Complete reporting and documentation.

Performance criteria

5.1 Records and documents are completed and processed, and information is communicated to internal and external parties as required.

Range may include – job card, test records, as-built records, odourant records, special conditions, completion notice, additional work.

Replacement information	This unit standard, unit standard 32336 and unit standard 32337 replaced unit standard 30373.
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Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 May 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.