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## Overview

This standard is about tightness testing and direct purging of low or medium pressure gas installations, in accordance with approved procedures and practices. It covers the standards required to meet the requirements of the relevant regulations for IGE/UP/1B.

To meet this standard you will demonstrate you can:

- prepare the work area and confirm it is in a safe condition to carry out tightness testing and direct purging to industry standards
- confirm you have the appropriate job specifications and instructions
- use tools, equipment, materials and other resources required for the job to be undertaken
- communicate effectively with all customers and members of the public
- de-commission gas systems and components to industry standards
- work safely, understanding your responsibility for taking the necessary safeguards to protect yourself and others in the workplace.

You will be expected to work with minimal supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work the work carried out.

This standard is suitable for a craftsperson or technician working in the energy supply and use sector on the testing and purging of gas.

## Performance criteria

### *You must be able to:*

1. use organisational systems and available information to identify the location of the work, confirming whether the installation is low or medium pressure
2. survey the gas installation for any damage or defects
3. advise the property occupier of any defects found and confirm their understanding
4. agree the work plan with the property occupier prior to starting work
5. confirm the siting of the gas supply, meter, internal installation and ventilation meets industry requirements for tightness testing and direct purging
6. carry out a site-specific risk assessment of the work, identifying hazards and the required control measures
7. check and confirm materials, tools and equipment for the de-commissioning, installation and commissioning process are available as required and fit for purpose
8. select and use materials, tools and equipment for the de-commissioning, installation and commissioning process safely
9. select, inspect and wear relevant personal protective equipment for completing work activities in line with organisational procedures
10. protect the work site and the building fabric against possible damage being caused during the tightness testing and direct purging process
11. confirm the gas and earthing supply and provision of ventilation meet the industry standards
12. check existing installation for any unsafe appliances and system components applying the gas industry unsafe situation procedure
13. use designated safe isolation methods and procedures to de-commission, tightness test and direct purge installations and components
14. take precautionary actions to ensure that temporarily de-commissioned appliances, gas systems and components do not present a safety hazard
15. permanently remove and disconnect the required appliances and gas system components
16. confirm the completed pipework installation complies with the manufacturers' specification and industry standards
17. measure, calculate and record gas system installation volumes for tightness testing and direct purging activities
18. ensure ventilation for tightness testing and direct purging activities meets

industry standard requirements

19. ensure existing gas systems are clean and free of debris
20. use tightness testing procedures, to confirm:
  - 20.1 the integrity of the newly installed gas system
  - 20.2 the integrity of new and existing appliances
  - 20.3 the installation doesn't exceed the maximum permissible pressure drop
  - 20.4 the integrity of the gas system where the maximum operating pressure (MOP) at the outlet of the emergency control valve (ECV) is above 75mbar but not exceeding 2bar, and no meter inlet valve is fitted
21. use purging procedures to confirm the safe supply of gas to the installed gas system and appliances
22. explain to the property occupier how to operate the gas system, valves and components, providing them with a copy of any literature
23. isolate any unsafe gas appliances, gas systems and components applying the relevant gas industry unsafe situations procedure
24. record and complete all documentation in line with industry standards, including for:
  - 24.1 gas system de-commission
  - 24.2 safe tightness testing
  - 24.3 direct purging of system and component
25. report information on the work to the relevant persons, including :
  - 25.1 delays in work schedule
  - 25.2 delays in work
  - 25.3 unsafe situations and actions required
  - 25.4 deficiencies in gas and earthing input service
26. deal with problems safely and efficiently, referring matters which cannot be rectified to the appropriate person in the following situations:
  - 26.1 when there are deficiencies in gas and electric input services
  - 26.2 where pre-commissioning checks and tests reveal gas appliance, gas system or component defects
  - 26.3 when gas appliances, gas systems or components being commissioned do not meet design requirements
  - 26.4 when the gas appliance, the gas system or component cannot be restored to full performance
27. handle and dispose of all waste in line with legislative and organisational procedures, where appropriate
28. communicate the technical requirements of the completed work activity to all affected parties and answer any technical queries
29. store tools and equipment safely and securely, leaving the work area in a safe condition in accordance with organisational procedures

## Knowledge and understanding

### *You need to know and understand:*

1. the principles of health, safety and environmental legislation in relation to the work to be carried out
2. how to maintain safe working and environmental practices throughout the duration of the work minimising the risks to self and others
3. The correct personal protective equipment for the work and how to select , inspect and use this
4. how to carry out a risk assessment, identify hazards and assess risks for the installation process
5. your organisation's reporting lines, internal and external authorisation roles and responsibilities
6. how to provide safe access to work at heights or in confined spaces
7. the tools and equipment required for working safely at heights, in confined spaces, de-commissioning, tightness testing and direct purging
8. your organisation's isolation and locking-off procedure relating to work on gas systems
9. your organisation's procedures for introducing yourself to customers
10. the methods of working which protect the building décor, customer property and existing systems and components
11. how to safely secure and store tools, equipment, materials and components to minimise loss or wastage
12. the potential hazards that could arise from all de-commissioning, tightness testing and direct purging and the checks to be carried out before work takes place
13. the steps to take where materials, components, tools and equipment are not available at the site to commence the de-commissioning, tightness testing and direct purging
14. how and where to access relevant information to ensure the work is carried out in line with specifications and industry standards
15. safe isolation methods, tests, and procedures to de-commission gas systems and components
16. the procedures for temporary and permanent de-commissioning of appliances and gas systems including use of temporary continuity bonds
17. measures to prevent de-commissioned and un-commissioned appliances or systems being brought into operation utilising safety and warning notices

18. the need to liaise with others whose procedures or routines may be affected by the suspension of the gas system
19. the industry practices and work standards for fabricating and installing gas pipework, valves, systems and components; for jointing materials and fittings suitable for carrying gas, including connecting to lead composition pipes; for tracing and repairing gas escapes; for positioning and fixing requirements for gas pipework, valves, systems and components; for connecting to input services, pipework and valves including; gas, earthing systems and ventilation
20. the types of pipe materials suitable for carrying gas including steel, malleable iron, copper, trac pipe, polyethylene and lead
21. the types of pipe fittings suitable for carrying gas including capillary, compression, union joints and screwed joints
22. the procedures to follow to confirm that the gas supply and ventilation are adequate for de- commissioning, tightness testing and direct purging of the gas system, appliances and components
23. the procedures to follow to measure, calculate and record gas system installation volumes for tightness testing and direct purging activities
24. the test equipment and legislative requirements for applying tightness testing to gas systems, appliances and components
25. tightness testing procedures to confirm the integrity of the system, appliances and components including:
  - 25.1 newly installed gas system and, where applicable, new and existing appliances
  - 25.2 existing installed gas system and, where applicable, new and existing appliances to ensure the installation doesn't exceed the maximum permissible pressure drop
  - 25.3 where the maximum operating pressure (MOP) at the outlet of the emergency control valve (ECV) is above 75mbar but not exceeding 2bar and where a meter inlet valve (MIV) is fitted or, no meter inlet valve is fitted
26. how to identify low or medium pressure regulator sets where the maximum operating pressure (MOP) at the outlet of the emergency control valve (ECV) is above 75mbar but not exceeding 2bar and, whether a meter inlet valve (MIV) is fitted
27. the process and procedures, equipment and legislative requirements for purging of gas systems, appliances and components
28. the routines and sequences for commissioning gas systems, valves and components to industry standards
29. how to complete all tightness testing and direct purging documentation and

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records to be left with the property occupier

30. the system handover procedures, confirming the end user can operate the gas systems and components

31. how to isolate unsafe gas appliances, gas systems and components and application of the gas industry unsafe situations procedure

32. how to inspect and determine dimensions and values for metering and associated equipment

33. the process to be followed if the installation fails the tightness test

34. how and when to advise turn off and isolate gas unsafe appliances, systems and components

35. how to handle and dispose of hazardous and non-hazardous waste materials in line with relevant regulations

36. how to leave the work area secure and the importance of doing so

EUSSM012

Carry out tightness testing and direct purging of gas installations



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