



**ACS.CMIT1
SAFETY ASSESSMENT CRITERIA
INITIAL & RE-ASSESSMENT
EMERGENCY SERVICE PROVIDER AND
NON-DOMESTIC AND DOMESTIC
GAS METER INSTALLER
METER INSTRUMENTATION
NATURAL GAS**

Introduction

Tests gas safety competence in limited scope gas work on meter instrumentation.

Comprises:

1. Gas safety legislation and Standards
2. Gas emergency actions and procedures
4. Ventilation (for non-domestic meter installations and housings)
5. Installation of pipework and fittings (small bore for meter instrumentation)
6. Tightness testing and purging
7. Checking and/or setting meter regulators
8. Unsafe situations, use of emergency notices and warning labels
9. Operation and positioning of emergency isolation controls and valves.

CBs may adopt Competence and Criteria numbering different to that used in this document.

CB documentation may adopt wording for criteria different to that used in this document, provided the meaning is unaffected.

Range

Primary diaphragm, RD and turbine meters of capacity > 6 m³/h at pressures ≤ 75 bar.

Pre-requisites**Initial**

None. Covers all Natural Gas Assessments required for a LS gas meter instrumentation operative.

Re-assessment

CMIT1.

Exclusions

Altering position of meters; meter exchange; connection of outlet pipework; commissioning appliances or internal installation pipework (other than required for installation of meter converters/transmitters); electricity supply; connections required by instrumentation.

References and normative documents

MIs.

All relevant Documents as listed in the Legislative, Normative & Informative Document List (LINDL), inc.:

- HSL56
- IGEM/GM/5 Edition 3
- GIUSP.
- IGEM/GM/5
- BGES (PT5)

ACS.SMB.003.ACDND identifies Normative Documents that should be held by ACs.

Abbreviations

AC. Assessment Centre
 ECV. Emergency control valve
 I. Initial
 LS. Limited scope
 MIs. Manufacturer's/manufacturers' instructions
 MIV. Meter inlet valve
 OP. Operating pressure
 R. Re-assessment
 RD. Rotary displacement
 Ref. Reference.

1. Gas safety legislation and Standards

| KNOWLEDGE AND UNDERSTANDING | REF | I | R |
|---|-----|---|---|
| 1. HSL56: | | | |
| (i) Reg.2 General interpretation and application 2(1), (2), (3), (4), (6), (7), (8) | | ✓ | |
| (ii) Reg.3 Qualification and supervision 3(1), (2), (3) & (6) | | ✓ | |
| (iii) Reg.4 Duty on employer | | ✓ | |
| (iv) Reg.5 Materials and workmanship 5(1) to (3) | | ✓ | |
| (v) Reg.6 General safety precautions 6(1) to (6) | | ✓ | |
| (vi) Reg.7 Protection against damage 7(1) to (3) | | ✓ | |
| (vii) Reg.8 Existing gas fittings 8(1) to (3) | | ✓ | |
| (viii) Reg.33 Testing of appliances 33 (1) to (3) | | ✓ | |
| (ix) Reg.35 Duties of employers and self-employed persons | | ✓ | |

2. Gas emergency actions and procedures

| PERFORMANCE CRITERIA | REF | I | R |
|---|-----|---|---|
| 1. prepare gas detection instrument for use | | ✓ | ✓ |
| 2. sample atmosphere in meter house; check percentage of gas present | | ✓ | ✓ |
| 3. read, interpret and record from gas detection instrument | | ✓ | ✓ |
| KNOWLEDGE AND UNDERSTANDING | REF | I | R |
| 1. priorities of actions and responsibilities: | | | |
| (i) action to stop a gas escape downstream of an ECV/MIV | | ✓ | |
| (ii) action if gas continues to escape after turning off supply | | ✓ | |
| (iii) when a risk assessment needs to be undertaken | | ✓ | ✓ |
| (iv) types of hazardous areas | | ✓ | ✓ |
| (iv) classification of hazardous areas - procedures | | ✓ | ✓ |
| (v) use of equipment in non-hazardous and hazardous areas | | ✓ | ✓ |
| (vi) certification of electrical equipment in hazardous areas | | ✓ | ✓ |
| (vii) authorisation and responsibilities for meter instrumentation | | ✓ | ✓ |
| (viii) Requirement to produce hazardous area drawings and where they should be displayed. | | ✓ | ✓ |
| 2. limits of flammability | | ✓ | |
| 3. specific gravity and its effect in relation to air | | ✓ | |
| 4. hazardous ignition sources and their elimination | | ✓ | |
| 5. evacuation criteria - procedure implementation- advice to occupants | | ✓ | |
| 6. acceptable gas detection readings for operating electrical switches | | ✓ | |
| 7. methods of preventing/reducing dangerous concentrations of gas in atmosphere | | ✓ | |

4. Ventilation

| PERFORMANCE CRITERIA | REF | I | R |
|---|-----|---|---|
| 1a. assess area classification within meter housing | | ✓ | ✓ |
| 1. identify ventilation area for area classification of meter housing | | ✓ | ✓ |
| 2. identify installation of inadequate ventilation for area classification of meter housing | | ✓ | ✓ |
| 3. recognise suitable ducted extraction for meter pit installations | | ✓ | ✓ |
| KNOWLEDGE AND UNDERSTANDING | REF | I | R |
| 1. calculating/positioning ventilation at high/low level in meter housings/compartments | | ✓ | ✓ |
| 2. ventilation grilles and vents – ducted systems for meter pit installations | | ✓ | |
| 3. types and sizing of grilles and vents (free area availability) | | ✓ | ✓ |
| 4. identification of unsafe ventilation installations | | ✓ | |
| 5. labels and notices | | ✓ | |
| 6. ventilation of meter housings and separation from vent stack zones | | ✓ | ✓ |

5. Installation of pipework and fittings (small bore for meter instrumentation)

| PERFORMANCE CRITERIA | REF | I | R |
|---|-----|---|---|
| 1. join threaded pipe using appropriate fittings, methods and agents | | ✓ | |
| 2. connect stainless steel compression joints with appropriate fittings; methods; agents | | ✓ | |
| 3. use temporary earth continuity bond correctly | | ✓ | |
| 4. ensure instrumentation is gas tight (for re-assessment, Competency 6. can be assessed at this point) | | ✓ | ✓ |
| 5. purge instrumentation and pipework of air | | ✓ | ✓ |
| 6. identify instrumentation and pipework safety defects | | ✓ | ✓ |
| KNOWLEDGE AND UNDERSTANDING | REF | I | R |
| 1. recognising correct types of instrumentation connections | | ✓ | |
| 2. threaded fittings | | ✓ | |
| 3. flexible and rigid connections | | ✓ | |
| 4. jointing agents for stainless steel compression connections | | ✓ | |
| 5. pipe supports, clips and fixing pipework | | ✓ | |
| 6. sleeving and sealing pipework | | ✓ | |
| 7. equipotential bonding | | ✓ | |
| 8. temporary continuity bond | | ✓ | |
| 9. siting and installation for gas controls, isolation valves and vent stacks | | ✓ | |
| 10. HSL56: | | | |
| (i) Reg.10 Maintaining electrical continuity | | ✓ | |
| (ii) Reg.18 Safe use of pipes 18 (1) to (2) | | ✓ | |
| (iii) Reg.19 Enclosed pipes 19 (1), (2), (3), (5), (6) | | ✓ | |
| (iv) Reg.20 Protection of buildings | | ✓ | |
| (v) Reg.22 Testing and purging of pipes 22 (1) to (3) | | ✓ | |
| (vi) Reg.23 Marking of pipes 23 (1) to (2) | | ✓ | |
| 11. purpose and suitability to using a non-contact voltage tester | | ✓ | ✓ |

6. Tightness testing and purging (for new gas meter volume conversion systems) (BGES/PT5, Figs. 1 and 2)

| PERFORMANCE CRITERIA | REF | I | R |
|--|-----|---|---|
| 1. Using air: | | | |
| (i) turn off gas at control valve V1 | | ✓ | ✓ |
| (ii) connect calibrator to valve V3 | | ✓ | ✓ |
| (iii) assemble suitable pressure gauge (Drück Tester), calibrate and connect to test point | | ✓ | ✓ |
| (iv) pressurise system to 1.5 times expected OP, using a hand pump | | ✓ | ✓ |
| (v) carry out initial leakage test with LDF and, if leakage detected, re-fit pipework and repeat test | | ✓ | ✓ |
| (vi) allow 5 minutes stabilisation; monitor pressure for a min. of 10 minutes during which there should be no appreciable loss | | ✓ | ✓ |
| (vii) reduce installation pressure gradually to atmospheric pressure | | ✓ | ✓ |
| (viii) if test is satisfactory, purge system of air and prepare for gas test | | ✓ | ✓ |
| 2. Using gas: | | | |
| (i) shut valve V3, if applicable, remove calibrator and replace any blanking plugs | | ✓ | ✓ |
| (ii) open valve V1, increasing pressure gradually in stages | | ✓ | ✓ |
| (iii) carry out further tightness tests using LDF | | ✓ | ✓ |
| (iv) if leakage detected, re-fit pipework and repeat test | | ✓ | ✓ |

| | | | | |
|------|---|--|---|---|
| (v) | ensure system integrity cannot be compromised | | ✓ | ✓ |
| (vi) | remove gauge, re-plug testing tee/point | | ✓ | ✓ |
| 3. | locate and repair a gas leak | | ✓ | ✓ |

7. Checking and/or setting meter regulators (checking gas pressures)

| PERFORMANCE CRITERIA | | REF | I | R |
|----------------------|---|-----|---|---|
| 1. | zero gauge and connect to meter test point | | ✓ | ✓ |
| 2. | re-establish gas supply | | ✓ | ✓ |
| 3. | read and record OP | | ✓ | ✓ |
| 4. | remove gauge; re-seal points and test for tightness | | ✓ | ✓ |

8. Unsafe situations, use of emergency notices and warning labels

| PERFORMANCE CRITERIA | | REF | I | R |
|-----------------------------|--|-----|---|---|
| 1. | identify unsafe situations as ID AR | | ✓ | ✓ |
| 2. | identify and label defective installation(s) | | ✓ | ✓ |
| 3 | identify when and where items are to be reported under RIDDOR | | ✓ | ✓ |
| KNOWLEDGE AND UNDERSTANDING | | REF | I | R |
| 1. | explain dealing with ID | | ✓ | ✓ |
| 2. | explain dealing with AR | | ✓ | ✓ |
| 2a | explain dealing with AR installations/appliances when turning off does not remove the risk | | ✓ | ✓ |
| 3. | explain dealing with situations that do not meet current standards but are not unsafe | | ✓ | ✓ |
| 4. | identify correct notices and labels to be used: | | | |
| | (ii) warning notice forms | | ✓ | |
| | (iii) advisory notices, electrical bonding, RIDDOR | | ✓ | |
| 5. | identify and explain reporting to HSE | | ✓ | ✓ |
| 6. | HSL56: Reg.34 (1) - (3) | | ✓ | |
| 7. | GIUSP: | | | |
| | (i) | | | |
| | (ii) overall scope | | ✓ | ✓ |
| | (iii) gas incidents | | ✓ | ✓ |
| | (iv) non-domestic installations | | ✓ | ✓ |

9. Operation and positioning of emergency isolation controls and valves (applies to ECV/isolation control/valve)

| PERFORMANCE CRITERIA | | REF | I | R |
|-----------------------------|---|-----|---|---|
| 1. | identify incorrectly positioned valve | | | ✓ |
| 2. | identify correctly positioned valve | | | ✓ |
| 3. | demonstrate dealing with incorrectly positioned valve | | | ✓ |
| 4. | identify correct labels and attach to valves | | | ✓ |
| KNOWLEDGE AND UNDERSTANDING | | REF | I | R |
| 1. | inside meter positions | | ✓ | |
| 2. | outside meter positions | | ✓ | |
| 3. | emergency isolation valves in non-domestic premises | | ✓ | |