Level 2 End-Point Assessment for Gas Network Operative



Contacts

This specification has been designed to provide all the advice and guidance you need to prepare yourself and your apprentices for end-point assessment. However, if you have any further questions please contact the EUIAS Help Desk using one of the following:

Help Desk email: enquiries@euias.co.uk

Help Desk telephone: 0121 713 8310



The Gas Network Operative Standard in detail

The Gas Network Operative consists of:

- Core Knowledge (18 elements)
- Core Skills (28 elements)
- Core Behaviours (8 elements)

The following pages list each of the elements of the standard and additional amplification and guidance from EUIAS on the range and depth expected.

Core Knowledge

Assessed in the Multiple Choice Test

K1 Utility industry structure and regulatory requirements, including the Gas Act and regulatory surveys

K2.ii Health and Safety at Work Act, New Roads and Street Works Act, working at heights, Provision and Use of Work Equipment Regulations (PUWER), Control of Substances Hazardous to Health (COSHH), Lifting Operations Lifting Equipment Regulations (LOLER), first aid, fire safety, asbestos awareness

K3 Environmental regulatory requirements: Environment Protection Act, disposal of waste and recycling

K6 Principles of traffic management and control

K9 Procedures for gas network emergencies



K10 Electrical safety, including equipotential bonding

K11 Emergency services and statutory authorities – local authorities, highway authorities and Environment Agency; who they are, what they do; escalation procedures

K14 Equality & diversity considerations in the workplace

K15 Data - purpose and protection, for example asset records

Assessed in Multiple Choice Test: Amplification and Guidance

Guidance:

The multiple-choice test will cover the core knowledge that is needed to be a competent gas network operative. Teaching of the core knowledge is essential for gas network operatives to be well informed about principles underpinning good operational practice.

Questions will have four options given and one correct answer. Questions will test either direct knowledge or the application of knowledge.

Questions for the test paper will cover the criteria listed for the knowledge assessment. Other knowledge required by a gas network operative will be assessed through the practical skills assessment and interview.

K1 Utility industry structure and regulatory requirements, including the Gas Act and regulatory surveys

- The difference between gas transmission and gas distribution networks
- The role of Gas Distribution Networks (GDNs)



- The role of Independent Gas Transporters (IGTs)
- The role of gas transporters, shippers, suppliers
- The role of primary organisations within the Gas Industry (including the Office of Gas and Electricity Markets (Ofgem), Gas Safe, the Institution of Gas Engineers and Managers (IGEM))
- The difference between legislation, regulations, codes of practice
- Broad topic areas covered by the Gas Act
- Broad topics areas covered by gas legislation and regulations (including the Gas Safety Management Regulations, Gas Safety (Installation & Use) Regulations, Pressure Systems Safety Regulations, Pipelines Safety Regulations)
- Provision and installation of an emergency control valve (ECV)
- Potential consequence of not complying with legislation or regulations

K2.ii Health and Safety at Work Act, New Roads and Street Works Act, working at heights, Provision and Use of Work Equipment Regulations (PUWER), Control of Substances Hazardous to Health (COSHH), Lifting Operations Lifting Equipment Regulations (LOLER), first aid, fire safety, asbestos awareness

- Health and Safety at work Act
- New Road and Street Works Act
- Working at Height Regulations, risks and safe working practices
- Provision and Use of Work Equipment Regulations (PUWER), risks and safe working practices
- Control of Substances Hazardous to Health (COSHH) Regulations, risks and safe working practices
- Lifting Operations and Lifting Equipment Regulations, risks and safe working practices



- Noise at Work Regulations, risks and safe working practices
- Risk of dust and safe working practices
- Risks and safe working practices associated with Manual Handling
- Basic emergency first aid principles and practice, including the use of first aid kits
- Principles of fire safety, the fire triangle, fire extinguishers and their use, fires on the gas network, risks and safe working practices
- Principles of the Control of Asbestos at Work Regulations, risks and safe working practices
- Hazards and risks associated with working on the gas network, principles of risk assessment, control and mitigation measures
- Correct use of personal protection equipment (PPE)
- Safety warning signs and their meaning
- Potential consequence of not complying with legislation or regulations

K3 Environmental regulatory requirements: Environment Protection Act, disposal of waste and recycling

- Broad topic areas covered by the Environmental Protection Act
- Types of pollution on land, water, air
- Potential consequences of pollution
- Operational practices required to protect the environment
- Principles of waste disposal, minimising waste, types of waste, segregation of waste, recycling



Potential consequence of not complying with legislation or regulation

K6 Principles of traffic management and control

- Safe practices for working on the highway
- Requirements of the "Red Book" (Safety at Street Works and Road Works A Code of Practice)

K9 Procedures for gas network emergencies

- Priority of actions on gas escapes
- Advice for customers on gas escapes
- Controlled and Uncontrolled gas escapes
- Requirements for Internal and External gas escapes
- Standards to be met for public reported gas escapes
- Explosive range for natural gas
- Principles of dealing with liquid petroleum gas (LPG)
- Principles of dealing with reports of poor pressure
- Interpretation of gas readings, lower exposure limit (LEL), Gas in Air (GIA), relationship between LEL and GIA readings
- Risks posed by escaping gas and safe working practices
- Use of gas detection equipment, principles of use
- Practices for undertaking site surveys on the highway, in private land, inside properties
- Evacuation and reoccupation criteria
- Fires on the gas network



- Use of breathing apparatus, requirements for use
- Use of personal atmosphere monitors, principles of use
- Practices for dealing with gas in ducts

K10 Electrical safety, including equipotential bonding

- Hazards and risks posed by electricity
- Safe working practices for dealing with safe digging practices and cables exposed in the highway
- Use of electrical safety equipment, including volt stick, cat and genny, continuity bonds, insulation joints
- Safe working practices for cutting metallic and polyethylene (PE) pipework to minimise the risk of sparks
- Principles and practices of equipotential bonding

K11 Emergency services and statutory authorities – local authorities, highway authorities and Environment Agency; who they are, what they do; escalation procedures

- Highways authorities
- Local authorities
- Environment Agency, potential sanctions
- Health & Safety Executive, potential sanctions
- Emergency services (Fire, Ambulance, Police) and interactions on gas emergencies

K14 Equality & diversity considerations in the workplace



Meaning of equality, diversity

K15 Data - purpose and protection, for example asset records

Core Knowledge

Assessed in Practical Assessment with questioning

K2.i Health and safety standards, regulations, and practice, including risk assessments and safe systems of work, permits to work, working in confined spaces, personal protective equipment (PPE), manual handling

K4 Principles and processes that underpin the location of gas utility network assets, including health and safety guidance on avoiding damage to **underground** utility services

K5.i Checks and operation requirements for commonly used gas utility network operations equipment and tools, for example utility location equipment/tools, pneumatic gun, hand/power tools – power disc cutter, chain saw, drills

K8 Procedures for the construction, testing, purging, repair commissioning and decommissioning of gas network assets



K12 Communication techniques – written, verbal; customer service techniques

Assessed in Practical Assessment with Questioning: Amplification and Guidance

Guidance:

As well as giving the apprentice the opportunity to demonstrate practical operational skills, the practical assessment will cover the core knowledge that is needed to be a competent gas network operative. The teaching of the core knowledge is essential for the foundation of knowledge for all Gas Network Operatives.

The apprentice will be required to demonstrate underpinning knowledge and understanding through the practical skills assessment, during which operational procedures will be correctly applied to produce work of the required standard. Additional questioning is intended to supplement the practical skills assessment, either to address gaps in knowledge demonstrated or to provide supplementary evidence of knowledge.

Knowledge questions must be limited to the criteria listed for the practical skills assessment. Other knowledge required by a gas network operative will be assessed through the multiple choice test question paper and through the interview.

K2.i Health and safety standards, regulations, and practice, including risk assessments and safe systems of work, permits to work, working in confined spaces, personal protective equipment (PPE), manual handling.

- Identification of hazards and risks associated with a task, identification and implementation of control measures, purpose of a risk assessment
- The purpose of a Permit to Work, understanding of content, need for compliance
- Hazards and risks associated with a confined space, control measures, safe working practices
- Understanding of the purpose and correct use of various items of personal protective equipment, limitations, know not to modify



• Risks and safe working practices for associated with manual handling, ways of minimising risk

K4 Principles and processes that underpin the location of gas utility network assets, including health and safety guidance on avoiding damage to underground utility services

- Hazards associated with underground utilities, including cables, pipes, drains, sewers, ducts
- Need to avoid damage to underground utilities, potential consequences of damage
- Correct operation of plant detection equipment, safe working practices, calibration, limitations
- Use of plans, interpretation
- Marking of tracings
- Actions to take if damage occurs or is identified

K5.i Checks and operation requirements for commonly used gas utility network operations equipment and tools, for example utility location equipment and tools, pneumatic gun, hand, and power tools – power disc cutter, chain saw, drills

- Hazards and risks associated with power tools and equipment
- Selection and safe use and operation of power tools and equipment, limitations
- Requirement for pre-use checks
- Requirements for maintenance and calibration
- Action to take if faulty equipment is identified



Action to take if faulty equipment is identified

K8 Procedures for the construction, testing, purging, repair commissioning and decommissioning of gas network assets

- Procedures for the construction, testing, purging, commissioning, and decommissioning of gas services (at low pressure and medium pressure), including transfers, mains connection, house entry, service termination, methods of construction (open cut, dead insertion, live insertion, moling), hazards and risks
- Procedures for the construction, testing, purging, commissioning, and decommissioning of gas mains (at low pressure and medium pressure),
 including jointing methods, connections, methods of construction (open cut, dead insertion, live insertion), hazards and risks
- Procedures for flow stopping mains at low pressure and medium pressure, including squeeze off, bag stop, hazards and risks

K12 Communication techniques – written, verbal; customer service techniques

- Effective means of communications, written, verbal
- Requirements for documented records
- Effective customer service

Core Knowledge

Assessed in the Interview underpinned by portfolio of evidence

K5. ii Maintenance and storage requirements for commonly used gas utility network operations equipment and tools, for example utility location equipment/tools, pneumatic gun, hand/power tools – power disc cutter, chain saw, drills



K7 Excavation techniques, for example, open cut, moling, vacuum extraction. Trench support for example, proprietary systems, sheeting and mechanical

K13 Reporting channels; limits of authority

K16 Information technology, for example to support an accurate audit trail using electronic equipment including handheld and mobile devices

Assessed in the Interview underpinned by portfolio of evidence: Amplification and Guidance

Guidance:

The interview provides the apprentice the opportunity to demonstrate knowledge and understanding which will complement that demonstrated during the multiple choice test and practical skills assessment. The interview will cover the core knowledge that is needed to be a competent gas network operative, addressing topics that are not likely to have been adequately covered through other means due to practical assessment being undertaken in a simulated environment. The teaching of the core knowledge is essential for the foundation of knowledge for all gas network operatives.

The apprentice will be required to demonstrate underpinning knowledge and understanding through the interview process.



Interview questions must be limited to the criteria listed for the interview. Other knowledge required by a gas network operative will be assessed through the multiple choice test question paper and through the practical skills assessment.

K5.ii Maintenance and storage requirements for commonly used gas utility network operations equipment and tools, for example utility location equipment/tools, pneumatic gun, hand/power tools – power disc cutter, chain saw, drills

- Requirements for equipment to be effectively maintained, importance of calibration
- Ways to store tools and equipment safely, and promoting care
- Hazards and risks associated with tools and equipment that is not properly maintained or calibrated
- Requirement for effective records of tools and equipment

K7 Excavation techniques, for example, open cut, moling, vacuum extraction. Trench support for example, proprietary systems, sheeting and mechanical

- Appropriate use of different excavation techniques (e.g. open cut, moiling, vacuum excavation), benefits and downsides
- Operational application of different excavation techniques, hazards, and risks
- Risks of excavating different soil types and at increasing depths
- Requirements and procedures for the installation and removal of trench support systems, hazards, and risks

K13 Reporting channels; limits of authority



- Management and reporting structure, supervision
- How to report accident, incidents, near misses
- Limits of authority

K16 Information technology, for example to support an accurate audit trail using electronic equipment including handheld and mobile devices

- How to receive job or work instructions for service laying, main laying or gas escapes using IT systems
- How to provide or update job or work records for service laying, main laying or gas escapes using IT systems
- Types of date to be received and reported and their importance
- The importance of accurate site and job records
- Protecting the security of information
- Situations where the use of IT systems and communications methods may not be appropriate
- Awareness of Business Continuity Management (BCM) processes to use if IT systems fail



Core Skills

Assessed in Practical Assessment with Questioning: Amplification and Guidance

- S1 Identify hazards and implement controls to reduce risks
- S2 Interpret work instructions, engineering instructions and determine actions
- S3 Identify and organise resources to undertake activities
- **S4** Comply with workplace health, safety & environmental policy, and practice, including use of Personal Protective Equipment (PPE) and safety equipment
- \$5 Set out signing, lighting, and guarding
- **S6** Excavate holes for gas utility network services
- \$7 Monitor and maintain site conditions, including good housekeeping
- **S8** Identify, locate, and avoid utility supply apparatus and sub-structures
- **S9.i** Check and operate equipment and tools; report faults if required



Core Skills

Assessed in Practical Assessment with Questioning: Amplification and Guidance

\$10 Communicate with colleagues and or stakeholders, for example, statutory agencies and members of the public, customers

S11 Use breathing apparatus

\$15 Construct new and replacement gas services to internal and external service termination positions using a range of techniques

\$16 Carry out squeeze off activities on gas services (low and medium pressure)

\$17 Construct new and replacement gas mains using a range of techniques

\$18 Carry out flow stopping on gas mains by use of squeeze off and bag stop

S19 Disconnect gas meters

\$20 Repair gas assets including valves and fittings using a range of techniques

S21 Join materials by electro-fusion



Core Skills Assessed in Practical Assessment with Questioning: Amplification and Guidance S22 Join materials by butt fusion processes \$23 Exchange emergency control valve S24 Test gas network assets at low and medium pressure S25 Purge, commission and decommission gas network assets **\$26** Apply gas network emergency procedures, including the analysis of gas readings S27 Apply water extraction techniques for gas mains and services Core Skills Assessed in the Interview Underpinned by Portfolio of Evidence **S9.ii** Maintain and store equipment and tools



Core Skills

Assessed in Practical Assessment with Questioning: Amplification and Guidance

\$12 Use gas detection equipment

\$13 Carry out trench installation for example, sheeting, lightweight and proprietary systems

\$14 Record information, for example job reports, time sheets

Core Skills

Assessed in Interview Underpinned by Portfolio of Evidence: Amplification and Guidance

Guidance:

The practical assessment will cover the core skills that are needed to be a competent gas network operative. The teaching and application of the core skills is essential for the foundation of skills needed for all gas network operatives.



The practical assessment will require the application of knowledge and the demonstration of practical skills in a safe and logical manner and in accordance with relevant procedures.

Assessments will cover each the topic areas of Service laying, Main laying and Emergency & Repair.

Assessments will be undertaken in simulated environments (e.g. a workshop) rather than on site, with activities being as realistic as possible.

S1 Identify hazards and implement controls to reduce risks

Undertake a risk assessment of the task and implement control measures

S2 Interpret work instructions, engineering instructions and determine actions

- Identify applicable work instructions and engineering instructions
- Identify the applicable procedures to follow
- Decide how to carry out the practical task

S3 Identify and organise resources to undertake activities

- Identify and obtain the tools and equipment required for the task
- Identify and obtain the materials required for the task
- Prepare tools, equipment and materials for use



S4 Comply with workplace health, safety & environmental policy, and practice, including use of Personal Protective Equipment (PPE) and safety equipment

- Wear PPE appropriate for the task
- Demonstrate the correct use of PPE
- Apply safe working practices, including the safety of self and others
- Demonstrate care for the environment
- Demonstrate the correct use of safety equipment, including volt stick, breathing apparatus, personal atmosphere monitor

\$5 Set out signing, lighting, and guarding

• Set out signing, lighting, and guarding appropriate for the task in accordance with the Red Book

S6 Excavate holes for gas utility network services

- Select appropriate tooling
- Use safe excavating practices
- Appropriately segregate excavated material
- Appropriately store and protect excavated material



\$7 Monitor and maintain site conditions, including good housekeeping

- Organise and maintain the site in a safe and tidy manner
- Put away tools and equipment when not in use
- Collect and safely dispose of any waste produced

S8 Identify, locate, and avoid utility supply apparatus and sub-structures

- Demonstrate the use and understanding of utility plans
- Undertake a comprehensive site survey with plant location equipment
- Mark any indications traced

S9.i Check and operate equipment and tools; report faults if required

- Undertake appropriate pre-use checks on tools and equipment to ensure fitness for purpose
- Identify any faulty equipment
- Apply appropriate procedures for the reporting of faulty equipment
- Correctly use items of tools and equipment, demonstrating safe working practices



\$10 Communicate with colleagues and or stakeholders, for example, statutory agencies and members of the public, customers

- Communicate effectively with others, as required by the task
- Demonstrate polite and courteous interaction with others whilst being clear and concise about the message given.
- Confirm the understanding of others about any message given.
- Demonstrate good customer service

S11 Use breathing apparatus

- Correctly prepare breathing apparatus prior ready for use
- Correctly apply and test breathing apparatus
- Demonstrate the use of breathing apparatus whilst undertaking a task
- Remove breathing apparatus after use, clean and store

\$15 Construct new and replacement gas services to internal and external service termination positions using a range of techniques

- Check PE pipe for damage prior to use
- Demonstrate the correct installation of new and replacement service pipework through a range of techniques (eg open cut, dead insertion, live insertion, moling)



- Demonstrate the drilling and tapping of a metallic main
- Demonstrate the connection of a service to a metallic main
- Demonstrate the fusion of a top tee to a PE main through the correct use of equipment
- Demonstrate the connection of a service to a PE main through the correct use of equipment
- Ensure that electrofusion joints have been successful
- Demonstrate the connection of service pipework to internal and external meter positions
- Demonstrate the correct termination of a service through the installation and labelling of the ECV

S16 Carry out squeeze off activities on gas services (low and medium pressure)

- Demonstrate the squeeze-off of a low pressure service
- Demonstrate the squeeze-off of a medium pressure service

\$17 Construct new and replacement gas mains using a range of techniques

- Check PE pipe for damage prior to use
- Demonstrate the correct installation of new and replacement mains pipework through a range of techniques (eg open cut, dead insertion, live insertion)



- Undertake a branch connection of a PE main to another PE main.
- Undertake a branch connection of a PE main to a metallic main.
- Connect a PE main to a metallic flange

\$18 Carry out flow stopping on gas mains by use of squeeze off and bag stop

- Correctly apply squeeze-off equipment on a low pressure PE main, with bypass and pressure points
- Undertake a flowstopping operation using squeeze-off, applying correct sequences and in accordance with procedures
- Correctly remove squeeze-off equipment
- Undertake appropriate checks of bagstop equipment
- Correctly install bagstop equipment on a low pressure metallic main, with bypass and pressure points
- Undertake a flowstopping operation using bagstop, applying correct sequences and in accordance with procedures
- Correctly remove bagstop equipment and plug holes in main

\$19 Disconnect gas meters

- Correctly apply procedures for the disconnection of a meter, applying safe working practices
- Demonstrate care for the removed meter



\$20 Repair gas assets including valves and fittings using a range of techniques

- Apply safe working practices when working with escaping gas
- Apply a temporary repair to a leaking gas service
- Replace a section of damaged PE service pipe
- Undertake the repair of a leaking lead yarn joint on allow pressure main
- Undertake the repair of a bolted or flanged joint on a metallic main
- Apply a repair clamp to a metallic main
- Apply a temporary repair to a fitting on a metallic main
- Remove and replace a leaking metallic fitting on a main
- Demonstrate understanding of how a leaking valve may be repaired

S21 Join materials by electro-fusion

- Prepare pipes for jointing by electrofusion
- Demonstrate mains jointing by electrofusion using appropriate equipment
- Ensure that electrofusion joints have been successful



\$22 Join materials by butt fusion processes

- Prepare pipes for jointing by butt fusion
- Demonstrate mains jointing by butt fusion using appropriate equipment
- Carry out checks to ensure the quality of butt fused joints

\$23 Exchange emergency control valve

Correctly apply procedures for the exchange of an emergency control valve, applying safe working practices

S24 Test gas network assets at low and medium pressure

- Demonstrate safe working practices when applying pressure tests
- Correctly apply a pressure test to a new low pressure service and make appropriate records
- Correctly apply a pressure test to a new medium pressure service and make appropriate records
- Correctly apply a pressure test to a new low pressure main and make appropriate records
- Correctly apply a pressure test to a new medium pressure main and make appropriate records

S25 Purge, commission and decommission gas network assets



- Demonstrate procedures to purge a service to gas
- Demonstrate procedures to directly purge a main to gas
- Demonstrate procedures to decommission a service, purging from air to gas
- Demonstrate procedures to decommission a main, directly purging from air to gas

\$26 Apply gas network emergency procedures, including the analysis of gas readings

- Apply procedures following a public reported gas escape
- Prioritise actions on site
- Undertake a site survey in accordance with procedures to identify the source of an escape.
- Undertake checks inside and outside of properties
- Apply evacuation criteria as appropriate
- Make appropriate records of the site search inside and outside of properties

S27 Apply water extraction techniques for gas mains and services

- Demonstrate correct use of equipment to extract water from a service
- Demonstrate correct use of equipment to extract water from a main



- Check gas supplies to adjacent properties
- Demonstrate correct disposal of water extracted

Core Behaviours

Assessed in Practical Assessment with Questioning

B1 Prioritises health, safety and environment when undertaking work to safeguard life and property

B4 Professional, for example punctual, trustworthy, polite, courteous, presentable, maintains security of business specific and personal data, takes account of equality and diversity in interactions

B5 Self-motivated, for example manages own time effectively, takes responsibility to complete the job

B6 Pride in work, for example works to agreed quality targets and standards



Assessed in Interview Underpinned by Portfolio of Evidence B2 Adaptable, for example willing to accept changing priorities and working requirements B3 Team player, for example keeps others informed, recognises personal and professional limitations, and seeks advice when necessary B7 Customer focus, for example keeps customers informed B8 Committed to continued professional development

Core Behaviours

Assessed in Practical Assessment with Questioning: Amplification and Guidance

B1 Prioritises health, safety and environment when undertaking work to safeguard life and property

- Demonstrates the application of knowledge to promote safety, health and care for the environment
- Demonstrates the need to safeguard life and property when undertaking operations, particularly when attending gas escapes



B4 Professional, for example punctual, trustworthy, polite, courteous, presentable, maintains security of business specific and personal data, takes account of equality and diversity in interactions

- Demonstrate professionalism when undertaking operations and when representing the Company
- Demonstrate understanding of the need to be punctual, trustworthy, polite, courteous, presentable
- Demonstrate understanding of the need to maintain the security of business specific and personal data
- Demonstrate understanding of equality and diversity in interactions with others

B5 Self-motivated, for example manages own time effectively, takes responsibility to complete the job

- Demonstrate self-motivation when undertaking work
- Demonstrate the effective use of own time
- Take responsibility for work undertaken on site

B6 Pride in work, for example works to agreed quality targets and standards

- Demonstrate pride in own work
- Demonstrate understanding of the need to work to quality standards



Demonstrate understanding of the need to work to agreed targets

Core Behaviours

Assessed in Interview Underpinned by the Portfolio: Amplification and Guidance



B2 Adaptable, for example willing to accept changing priorities and working requirements

Recognise when changing conditions can impact on site operations

B3 Team player, for example keeps others informed, recognises personal and professional limitations, and seeks advice when necessary

- Recognise the benefits of teamwork
- Recognise and acknowledge personal limitations and limits of authority
- Recognise the need to seek advice from others when necessary

B7 Customer focus, for example keeps customers informed

- Demonstrate effective interaction with customers, recognising customers' needs
- Agree with customers the work to be undertaken and then carry out work as agreed
- Recognise the need to keep customers informed of progress

B8 Committed to continued professional development

• Demonstrate the need for continued professional development to remain competent in the job role



Recognise ways in which continued professional development can be achieved