Gas network craftsperson apprenticeship level 3:

end-point assessment plan

Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the gas network craftsperson apprenticeship standard. It is for end-point assessment organisations (EPAOs) that need to know how EPA for this apprenticeship must operate. It will also be of interest to gas network craftsperson apprentices, their employers and training providers.

Full time apprentices will typically spend 48 months on-programme working towards the occupational standard and complete the required amount of off-the-job training in line with the apprenticeship funding rules.

Gas network craftsperson is a core and option apprenticeship standard. The EPA must assess apprentices against the core knowledge, skills and behaviours (KSBs), and knowledge and skills relating to their chosen option:

- network maintenance craftsperson (electrical and instrumentation)
- network maintenance craftsperson (pressure management)
- network pipelines maintenance craftsperson
- emergency response craftsperson

The EPA should only start once the EPA gateway requirements have been met and that they can be evidenced to an EPAO. As gateway requirements, the employer must be satisfied that the apprentice is consistently working at, or above, the level set out in the occupational standard and have achieved English and mathematics qualifications in line with the apprenticeship funding rules.

The EPA must be completed within a maximum 6-month period, after the apprentice has met the gateway requirements.

An approved EPAO must conduct the EPA for this apprenticeship. Employers must work with the training provider to select an approved EPAO from the apprenticeship providers and assessment register (APAR). The EPA consists of two distinct assessment methods:

- knowledge and skills assessment
- technical interview, underpinned by a logbook

The knowledge and skills assessment must be successfully completed before the technical interview.

Performance in the EPA will determine the apprenticeship grade of fail, pass or distinction.

Apprentices successfully completing the emergency response craftsperson option will need to obtain Gas Safe Registration after completing the apprenticeship standard, in order to practice as an emergency response craftsperson.

Gas network craftsperson occupational standard		
On-programme training	**Gateway**	**End-point assessment**
Training to develop the gas network craftsperson occupational standard's core knowledge, skills and behaviours and knowledge and skills for one option: • network maintenance craftsperson (electrical and instrumentation) • network maintenance craftsperson (pressure management) • network pipelines maintenance craftsperson • emergency response craftsperson have achieved English and mathematics qualifications in line with the apprenticeship funding rules. compilation of logbook.	Employer confirms the apprentice is consistently working at or above the required occupational standard and is ready to progress to end-point assessment.	Formal independent assessment carried out by an approved end-point assessment organisation The assessment methods are: • knowledge and skills assessment *followed by* • technical interview, underpinned by logbook EPA graded fail, pass or distinction

Table 1. Typical gas network craftsperson apprenticeship standard summary

End-point assessment methods overview

Assessment method	Area assessed	Assessed by
Knowledge and skills assessment, using multiple choice questions (MCQs) (1 hour 15 minutes)	Core and option knowledge and skills	EPAO marker or electronic marking
Technical interview, underpinned by logbook (2 hours)	Core knowledge, skills, and behaviours and option knowledge and skills	EPAO independent assessor

Table 2 – Gas network craftsperson end-point assessment methods overview

End-point assessment gateway

Gateway requirements:

- the apprentice's employer must confirm that the apprentice is operating at, or above, the requirements of the occupational standard. They may wish to take advice from their apprentice's training provider(s). The employer should base their decision on readiness for EPA using observations of the apprentice
- the apprentice has achieved English and mathematics qualifications in line with the apprenticeship funding rules

Assessment methods

The EPA consists of two distinct assessment methods.

- **knowledge and skills assessment**
- **technical interview**, underpinned by logbook

The EPA must be completed over a maximum 6-month period, after the EPA gateway.

Apprentices must successfully complete the knowledge and skills assessment before completing a practical task, which provides an evidence source for their logbook. The apprentice must submit their logbook to their EPAO within one-week of completing the practical task. The technical interview must be completed within three-weeks of the practical task completion.

EPAOs must ensure that the knowledge and skills assessments and technical interview are conducted in a suitable controlled environment; quiet room free from distraction and influence, with the necessary equipment for each assessment method, for example computer (if required). It is anticipated that EPAOs will use the apprentice's employer's premises wherever possible to minimise costs. Assessments may be conducted face-to-face or via a suitable online platform, for example, video-conferencing. EPAOs must ensure appropriate methods to prevent misrepresentation are in place. For example, screen share and 360-degree camera function with an administrator or invigilator when taking an assessment on-line.

Should an apprentice be declared by the employer as having special needs, for example dyslexia or English not as a first language, then appropriate reasonable adjustment may be made by EPAOs. EPAOs must have in place clear arrangements for making reasonable adjustments for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustment will be made.

The specific requirements for each assessment method are detailed below.

Method 1 – knowledge and skills assessment

Apprentices must complete a knowledge and skills assessment as part of the EPA.

The knowledge and skills assessment must assess apprentices against the core and their option knowledge and skills the as shown in Annex A.

The knowledge test must consist of 50 multiple-choice questions, this could include questions where calculations are required to determine the correct answer. EPAOs must ensure sufficient coverage of the knowledge and skills (core and option) assessed by this assessment method.

Each multiple-choice question must present the apprentice with a minimum of four options, from which the apprentice must select one correct option. Each multiple-choice question answered correctly must be assigned 1 mark, any incorrect or missing answers must be assigned 0 marks.

Apprentices must have 75 minutes to complete the knowledge and skills assessment.

The knowledge and skills assessment must be closed book, the apprentice can't refer to reference books or materials. Look up tables where required, must be supplied by the EPAO.

Knowledge and skills assessments can be either electronic or paper-based.

Apprentices must take the knowledge and skills assessment in the presence of an EPAO approved administrator or invigilator.

The maximum administrator or invigilator to apprentice ratio must be one to 12 if face-to-face or one to five if remote.

The knowledge and skills assessment must be delivered in a quiet and private room with chairs and a standard or larger sized desk available for each apprentice; the desk should be no smaller than 800 x 800mm. Where multiple apprentices are undertaking the knowledge and skills assessment at the same time, there should be a minimum distance of 1.2 metres from the front of any desk to the rear of any other desk and the sideways distance between desks should be not less than 1.2 metres between each apprentices' desk.

Where remote invigilation is used the apprentice must be connected to an invigilator via a webcam over the Internet and the invigilator will monitor the candidate for the duration of the assessment to ensure that no cheating occurs.

In all cases, the invigilator must authenticate that the right candidate has presented to sit the assessment.

EPAO markers must follow the marking guide produced when marking knowledge and skills assessments; electronic marking is permissible.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits or re-takes.

MCQ Example questions:

1. What is the minimum size of road sign to be used on a single carriageway 40mph road?

a. 600mm

b. 700mm

c. 750mm

d. 1000mm

2. Using the tables provided which of the following is the calculated pressure test duration for a 180m length of 355mm diameter SDR21 low-pressure polyethylene main when using a calibrated electronic pressure gauge?

a. 4 hours 22 minutes

b. 4 hours 24 minutes

c. 4 hours 37 minutes

d. 14 hours 58 minutes

EPAOs must produce the following material to support this method:

- a question bank of sufficient size to prevent predictability and review it regularly (at least once per year) to ensure the questions are fit for purpose. It is recommended that they do so in consultation with representative employers; where they do this, they must put measures in place to ensure question security.

Method 2 – technical interview, underpinned by logbook

An independent assessor will conduct a technical interview with an apprentice, in the presence of a technical expert from the apprentice's employer.

The technical expert's role is to provide context for the independent assessor with clarifications around specific company policies and procedures only and may be the same person that observed the practical task. They must not provide information on behalf of the apprentice, ask the apprentice questions or influence the apprentice in any way. The technical expert must not amplify or clarify points made by the apprentice. Note that the EPA judgement lies solely with the independent assessor who grades the technical interview.

The technical interview is underpinned by a logbook. Apprentices must draw their responses from evidence in their logbook to provide supporting evidence, although the logbook evidence will not be directly assessed. The logbook must include the technical expert's factual account as a witness testimony of a practical task completed by the apprentice during the EPA period.

EPAOs must ensure that the practical task, logbook submission and subsequent interview is scheduled during the apprentice's maximum EPA time period. The logbook must be submitted within one-week of the practical task completion. The technical interview will typically be conducted within three-weeks of practical task completion.

Practical task and logbook requirements are detailed below.

The technical interview must last 2-hours + or -10% and must be conducted in two sessions, each lasting one-hour + or -10%, with a 15-20 minute break between each session.

The independent assessor may use tailored questions based on evidence supplied in the apprentice's work log. However, EPAOs should produce sample questions for independent assessors to use and tailor.

Session 1 will **only** focus on the practical task (post gateway evidence) and the independent assessor must ask at least 10 open questions relating to the practical task, to confirm authenticity of the work and assess underpinning knowledge, skills and behaviours relating to the task. Session 2 will **only** focus on pre-gateway evidence in the logbook and the independent assessor must ask at least 10 questions relating to this evidence. Within both sessions, further follow-up questions are allowed to probe further into the detail in order to satisfy the independent assessor of the depth of competence the apprentice has achieved. A greater depth of understanding will lead to higher grading of the apprentice.

Independent assessors must assess the evidence from both interview sessions holistically against the KSBs.

The technical interview must be recorded or documented by the independent assessor.

Logbook requirements

Apprentices must compile a logbook containing evidence to demonstrate the KSBs that will be assessed by the technical interview (see Annex A). The logbook evidence will be the source of questioning for the independent assessor and will not be directly assessed. Logbook evidence will be separated into two parts. Part 1 will contain the post-gateway evidence that will inform session 1 of the interview (factual account of the practical task from the employer's technical expert), Part 2 will contain the pre-gateway evidence that will inform session 2 of the interview (on-programme evidence).

<u>Part 1</u>

During the EPA period apprentices must complete a practical task typically undertaken by a gas network craftsperson – see 'Practical task requirements'. The practical task must be administered by a technical expert from the apprentice's employer. The technical expert must complete a factual account of the task, using a recording template provided by the EPAO. The factual account will be used to inform the questioning in session 1 of the interview. It cannot be referenced in Session 2.

<u>Part 2</u>

During the on-programme period, apprentices must collate evidence of the KSBs outlined in Annex A. The logbook must also contain direct observation of knowledge and skills development or formative assessments from the last 12-months of on-programme training. Reviews should be completed and recorded to determine progression towards competence across the entire occupational standard.

Other evidence sources may include; certificates of training, job cards and work records, maintenance records, risk assessment documentation and photographs of workplace activities; this is not a definitive list, other evidence sources are allowable. The logbook cannot include any methods of self-assessment.

The logbook must contain a minimum of two pieces of evidence to demonstrate each KSB (core and option) as outlined in Annex A.

Evidence must be mapped against the KSBs; each piece of evidence is likely to demonstrate more than one KSB.

The evidence provided must be valid and attributable to the apprentice, with a qualitative as opposed to quantitative approach.

EPAOs must provide guidance on the content of the logbook.

For apprentices completing the emergency response craftsperson option, the logbook must also meet the industry requirements for the standards of training in gas work. Such evidence must be referenced against the relevant domestic natural gas training specification, details of which are currently available from: http://www.euskills.co.uk/matters-gas-safety-criteria.

Practical task requirements

The practical task will be set by the EPAO, taking account of workplace considerations as discussed with the apprentice's employer. Practical tasks may have a number of elements, but all tasks must be of equal size and complexity for each option.

EPAOs must ensure that practical task is conducted in either the workplace or a simulated environment that reflects the real working environment appropriate to the task(s) and risk involved, with the exception of not necessarily being connected to a live gas network.

The practical task must be conducted under the supervision of a technical expert from the apprentice's employer. The technical expert will provide written instructions and brief the apprentice at the beginning of the task at per EPAO guidelines and is not allowed to discuss the task with the apprentice before, during or after the practical task. The technical expert will write a factual account of the practical task using EPAO documentation as per EPAO guidelines, therefore verifying whether the task was completed appropriately. Because the practical task is administered by the employer, they must be trained by the EPAO and for the purposes of endpoint assessment are accountable to the EPAO. The technical expert must not have been involved in the learning or training of the apprentice and cannot guide the apprentice in any way.

The practical task must be designed to enable demonstration of core KSBs and the apprentice's option's knowledge and skills in an integrated way.

Practical tasks must be carried out over a maximum work time as shown below for each option; these could take be delivered over a maximum of three days due to the safety critical nature of the activities:

- network maintenance craftsperson (electrical and instrumentation) – 9 hours + or -10%
- network maintenance craftsperson (pressure management) – 12 hours + or -10%

- network pipelines maintenance craftsperson – 12 hours + or -10%
- emergency response craftsperson - 12 hours + or -10%

There may be breaks during the practical task to allow the apprentice to move from one location to another and breaks in line with working time regulations.

Technical experts must supervise the apprentice on a one-to-one basis to maintain quality and rigour.

The area where the practical task is taking place must be designed to ensure the technical expert has full sight of the apprentices at all times during the practical task.

Practical tasks, set questions and marking specifications must be developed by EPAOs, such specification having the facility to determine the level at which the apprentice operates thereby enabling a grade to be assigned.

An example practical task for each option and an example question is outlined below.

The network maintenance craftsperson (electrical and instrumentation) task:

Instrumentation fault diagnosis and repair

This should be carried out on a minimum of three of the following types of instrumentation and control equipment:

- pressure (such as absolute, gauge, vacuum)
- flow (such as orifice plate, venturi tube, ultrasonic)
- level (such as floats, displacer, differential pressure cells)
- temperature (such as thermocouples, resistance, infra-red, thermal imaging)
- fiscal metering - gas
- detection and alarm (such as smoke, heat, gas)
- recorders and indicators
- telemetry systems (such as master station, outstation, stand-alone systems)
- valves and valve mechanisms (such as control valves and valve actuators)

<u>An example technical interview question could be:</u>

Which fault finding technique would be used on a complex fault with a history of data?

Answer – The six point technique, the apprentice will be expected to describe what this is.
or

Electrical fault diagnosis and repair

This should be carried out on a minimum of three of the following types of electrical equipment:

- single-phase power circuits
- three-phase power circuits

- direct current power circuits
- switchgear and distribution panels
- motors and starters
- control systems and components
- electrical plant
- luminaires – lighting

An example technical interview question could be:

What is the main factor in determining the amount of current a cable can deliver?

Answer - The cross sectional area of the cable.

The network maintenance craftsperson (pressure management) task:

- the installation of a below 7 bar single stream regulator system including all auxiliary controls and pipework.
- testing and commissioning of the installed single stream regulator system
- completing functional checks on below 7bar twin stream regulator installations
- completing functional checks on above 7bar twin stream regulator installations
- the fault diagnosis and repair of a pressure control system including component exchange

An example technical interview question could be:

Pressure relief valves have to be tested how many times and what is this test called?

Answer - 3 times, the repeatability test.

The network pipelines maintenance craftsperson task:

Pipeline maintenance

- installing cathodic protection equipment - to include sacrificial anode, connecting to a cable and test post ad commissioning
- monitoring of CP associated equipment to include SAC and impressed current systems
- fault finding on SAC and impressed current CP schemes
- the monitoring of third party works in the vicinity of HP pipelines and associated equipment, to include walking, vantage and aerial surveys
- inspection of pipeline coatings, including VSO2 inspection
- main line valve maintenance activities

Pipeline maintenance operations

- carrying out under pressure drilling
- demonstrate Flow stopping techniques
- demonstrate Pipeline fabrication and testing
- safe isolation, venting and purging of live gas pipelines

- complete online and in-line inspections
- undertake re-compression and valve repairs

An example technical interview question could be:

When inspecting under the Pressure Systems Safety Regulations, within what timescale should "category B" faults be reported?

Answer - 28 days.

The Emergency response craftsperson should expect to be observed on:

- upstream gas emergencies
- downstream gas emergencies
- safe and unsafe combustion of natural gas
- the installation and commissioning of medium pressure regulators
- the installation of domestic gas pipework and meters
- tightness testing and purging of domestic natural gas installations
- tightness testing and purging of non-domestic natural gas installations
- application of the gas industry unsafe situations procedures

An example technical interview question could be:

When attending a reported gas escape at a property, what is the permissible pressure drop allowed on the internal pipework installation?

Answer – No pressure drop is permitted.

EPAOs must produce the following material to support this method:

- a task bank of sufficient size to prevent predictability and review it regularly (at least once per year) to ensure the practical tasks are fit for purpose. It is recommended that they develop practical tasks in consultation with representative employers; where they do this they must put measures in place to ensure task and question security
- a sample question bank of sufficient size to prevent predictability and review it regularly (at least once per year) to ensure the questions used in the technical interview are fit for purpose. It is recommended that they develop practical tasks in consultation with representative employers; where they do this they must put measures in place to ensure task and question security
- technical expert observation recording documentation
- training and guidance documentation for the technical expert to ensure the practical task is administered without bias
- technical interview recording documentation

End-point assessment and apprenticeship grading

Performance in the EPA will determine the apprenticeship grade of fail, pass or distinction.

Knowledge and skills assessments consist of 50 questions and must be independently marked by the EPAO and a grade assigned, using the grading boundaries in table 3 below.

Grading boundaries	**Fail** ≤34 marks	**Pass** 35 – 44 marks	**Distinction** 45 – 50 marks

Table 3. Knowledge and skills assessment grading boundaries

The independent assessor must assess the technical interview using the grading criteria in the tables below, **Table 4a** Technical interview grading criteria Part 1 – practical task (post-gateway) and **Table 4b** Technical interview grading criteria on-programme evidence (pre-gateway) to award a grade of fail, pass or distinction:

Technical interview part 1 – practical task (post-gateway)							
Core element code	**Fail criteria – does not meet the occupational standard**	**Pass criteria – to achieve a pass apprentices must demonstrate competence in all the relevant, skills, knowledge and behaviours of the occupational standard**	**Distinction criteria – is in addition to meeting the pass criteria. To achieve distinction 5 of the following 8 criteria must be met**	**Option element code**			
				E & I	**Pressure Management**	**Pipeline Maintenance**	**Emergency Response**
CS1 CS2 CS4 CS9 CB3	Working practices fail to demonstrate competence in meeting the requirements for the health and safety of the apprentice and others to ensure the safety, security and integrity of supply	Working practices consistently ensure the health and safety of the apprentice and others, demonstrates how to evaluate risk and implements and reviews control measures which to ensure the safety, security and integrity of supply	Critically appraised own approach to health and safety, acting as a role model by identifying deficiencies and providing proactive solutions to ensure the safety, security and integrity of supply	NMCEi4 NMCEi12	NMCPM3 NMCPM5	NPMC6	NERC1 NERC2 NERC3 NERC6 NERC7

CS3 CS10 CS11 CB1 CB5 CB6	Work planning is not evident, tasks are not completed in a methodical or logical order, the need to change or repeat tasks is observed	Work planning and execution was completed in a competent manner with both methodical and logical order without the need to change or repeat any tasks already completed	Uses recognised planning techniques and implements these to improve work efficiency. Operates upon own initiative, demonstrates examples of critical reflection, analysis and evaluation	NMCiE2 NMCiE9	NMCPM1 NMCPM3	NPMC10 NPMC3	NERC1 NERC2 NERC3 NERC4 NERC5 NERC8 NERC9 NERC10 NERC11
CS1 CS5 CS6 CS7	Tasks completed are not or only partially compliant with company specific operating procedures	All tasks were completed in a competent manner in accordance with company specific operating procedures	Shows understanding of the detailed technical aspects of the task undertaken and uses this understanding to evaluate the methods used to undertake the task. Consults and involves people from the team and other areas to achieve shared understanding	NMCiE1 NMCiE2 NMCiE4 NMCiE5 NMCiE9 NMCiE12 NMCiE15	NMCPM1 NMCPM2 NMCPM3 NMCPM5 NMCPM7 NMCPM8 NMCPM10 NMCPM11 NMCPM12	NPMC1 NPMC2 NPMC3 NPMC4 NPMC9 NPMC10 NPMC11	NERC1 NERC2 NERC3 NERC4 NERC5 NERC8 NERC9 NERC10 NERC11 NERC18 NERC19
CB6 CB8	The apprentice operates in an unsafe or untidy manner	A safe, clean and ordered working environment was maintained at all times	Educates others when an unsafe working environment is encountered and puts measures in place to mitigate safety issues	NMCiE2 NMCiE5	NMCPM10 NMCPM11 NMCPM12	NPMC1 NPMC2 NPMC3 NPMC10	NERC8 NERC9

CB3 CB4	The apprentice is unable to explain the underpinning safety, process and engineering	Explains the safety, process and company specific engineering requirements	Explains the implications of not following safety, process and company specific engineering requirements	NMCiE4 NMCiE12	NMCPM3 NMCPM5	NPMC1 NPMC2 NPMC3 NPMC10	NERC1 NERC2 NERC7 NERC24
	requirements of the task being undertaken	of the task undertaken in relation to their role				NPMC4 NPMC9	
CS7 CS8	Tools or gas detection equipment are used in a manner that is not compliant with company specific requirements	All tools and gas detection equipment are utilised in the correct manner and in accordance with company specific requirements	Uses a range of tools and gas detection equipment and is able to provide full explanation of standards and engineering principles that apply and the reasons for their recommended choice	NMCiE2 NMCiE4 NMCiE5 NMCiE9 NMCiE15	NMCPM1 NMCPM2 NMCPM3 NMCPM5 NMCPM7 NMCPM10 NMCPM11 NMCPM12	NPMC3 NPMC10	NERC4 NERC5 NERC8 NERC9 NERC10 NERC11
CS3 CS4 CS5	The engineering product or process output does not meet or only partially meets company specific requirements	Ensures that the engineering product or process output meets company specific requirements	Shows understanding of the relevant engineering products, their application and process outputs relative to their company specific requirements. Consistently applies reasoning to support decisions made	NMCiE2 NMCiE9 NMCiE15	NMCPM5 NMCPM12	NPMC1 NPMC2	NERC4 NERC5 NERC7 NERC8 NERC9 NERC10 NERC11

CS13	Documentation is not completed in line with company specific requirements	All required documentation was fully and accurately completed in line with company specific requirements	Analyses, and interprets recorded data and articulates the need for accuracy and the importance of qualitative data capture and recording	NMCiE1 NMCiE9	NMCPM2 NMCPM3	NPMC1 NPMC2 NPMC10	NERC1 NERC2 NERC3 NERC5 NERC7 NERC8 NERC10 NERC11

Table 4a Technical interview grading criteria Part 1 – practical task (post-gateway)

Technical Interview Part 2 – On-programme Evidence (pre-gateway)							
Core element code	**Fail criteria – does not meet the apprenticeship standard**	**Pass criteria – to achieve a pass apprentices must be able to:**	**Distinction criteria – is in addition to meeting the pass criteria. To achieve distinction 4 of the following 7 criteria must be met**	**E & I**	**Pressure Management**	**Pipeline Maintenance**	**Emergency Response**
CS1 CS2 CS3 CS14	Cannot identify health, safety and environmental legislation or identifies health, safety and environmental legislation but is unable to describe how to comply with the regulations	Identifies current health, safety and environmental legislation and describes how they comply with the regulations applicable to their role	Describes in detail how such legislation impacts their day-to-day activities	NMCiE17	NMCPM3 NMCPM20	NPMC6 NPMC5	NERC18 NERC19

CK1 CB7	Cannot identify the hazards they encounter or identifies the hazards they encounter but cannot explain the control measures needed to mitigate the risk from the hazard identified	Identifies the hazards they may encounter and explains the control measures needed to mitigate the risk caused by the hazard identified, these must be specific to activities on the gas network	Evaluates risk assessment processes including likelihood and consequence and is able to describe suitable control measures and how to implement such measures to reduce the residual risk value	NMCiE18 NMCiE19 NMCiE20 NMCiE22	NMCPM3	NPMC3 NPMC5 NPMC6	NERC18

CK1 CS14 CB2 CB4 CB7 CB9 CB11 CB12	Cannot explain how they approach their work activities, evidence of ineffective customer communication or the task preparation	Explains how they approach their work activities including effective customer communication and suitable task preparation required to carry out work relative to their job role on the gas network	Describes instances of using negotiation and influencing skills to coordinate contrasting views and drive actions	NMCiE13	NMCPM14	NPMC6 NPMC15	NERC18 NERC19 NERC21 NERC24
CK1 CK4 CK6 CS15 CB10	Cannot identify the company specific policy or identifies the company specific policies and procedures relevant to their role but does not have a good understanding of these.	Identifies the company specific policies and procedures relevant to their role and demonstrates how these are applied. Complies with company CPD requirements	Relates company specific policies and procedures to legislative requirements. Is working towards professional recognition	NMCiE14	NMCPM3 NMCPM10 NMCPM11 NMCPM12	NPMC3 NPMC5	NERC18 NERC19 NERC21

CK1 CK4 CS15 CB4 CB7 CB12	Cannot describe or only partially describes the testing procedure for an item of plant, an installation or piece of equipment they encounter. Unable to describe how to interpret the results of the tests undertaken	Accurately describes the testing procedure for an item of plant, an installation or piece of equipment they encounter as part of their day-to-day duties on the gas network. Describes how to accurately interpret the results of the tests undertaken	Details 3 of the following principles that drive testing requirements. • explain why testing parameters are at the levels they are • evaluate the results of such tests • explain the potential consequences of failed tests	NMCiE3 NMCiE6 NMCiE8 NMCiE7 NMCiE10 NMCiE11	NMCPM10 NMCPM8 NMCPM6 NMCPM13	NPMC3 NPMC5	NERC21 NERC8 NERC9 NERC10
			• interpret results and offer the reasons for failed tests • provide potential solutions for failed tests				
CK1	Cannot use and apply mathematical calculations to determine the correct operating or safety parameters of equipment used or encountered as part of their job role	Uses and applies mathematical calculations to determine the correct operating or safety parameters of equipment used or encountered as part of their job role	Identifies solutions and recommends actions to be taken where the result of such calculation deliver unsatisfactory conclusions	NMCiE6 NMCiE10 NMCiE14	NMCPM8 NMCPM6 NMCPM13 NMCPM16	NPMC3 NPMC5 NPMC8	NERC18 NERC9 NERC21

CS14 CB4 CB7 CB9 CB11 CB12	Cannot identify or describe instances where they have worked effectively on both an individual basis and as part of a team	Identify and describes instances where they have worked effectively on both an individual basis and as part of a team	Critically reflects upon situations where they have taken the initiative to lead a team to drive a project from conception to conclusion	NMCiE14	NMCPM6 NMCPM9	NPMC6	NERC14 NERC18

Table 4b Technical interview grading criteria on-programme evidence (pre-gateway)

The independent assessor who conducted the interviews, must combine the results of both part 1 and part 2 of the interview to determine the overall technical interview grade. A fail in either of the two parts will result in technical interview fail grade being awarded.

Technical interview pass grading combinations are shown in table 5.

Technical interview part 1 grade	Technical interview part 2 grade	Technical Interview grade
Pass	Pass	**Pass**
Distinction	Pass	**Pass**
Pass	Distinction	**Pass**
Distinction	Distinction	**Distinction**

Table 5. Technical interview grading combinations

The EPAO must combine the grade of the two assessment methods to determine the EPA and apprenticeship grade.

To achieve an EPA and apprenticeship **pass** apprentices must achieve a pass or distinction in both assessment methods. A fail in any one assessment method will result in an overall EPA and apprenticeship fail. Pass grading combinations are shown in table 6.

Knowledge and skills test grade	Technical interview grade	Overall EPA grade
Pass	Pass	**Pass**
Distinction	Pass	**Pass**
Pass	Distinction	**Pass**

Table 6. Overall EPA pass grading combinations

To achieve an EPA and apprenticeship distinction, apprentices must achieve a distinction in both assessment methods. Distinction grading is shown in table 7.

Knowledge and skills test grade	Technical interview grade	Overall EPA grade
Distinction	Distinction	**Distinction**

Table 7. Overall EPA distinction grading combination

Independent assessor decisions must be subject to moderation by the EPAO – see internal quality assurance section below. Grading decisions must not be confirmed to the apprentice until after moderation.

Re-sit and re-take information

Apprentices who fail one or more EPA method will be offered the opportunity to take a re-sit or re-take. A re-sit does not require further learning, whereas a re-take does.

The employer determines if a re-sit or re-take is the most appropriate course of action.

A technical interview re-sit or re-take must be taken within three-months of the fail notification, otherwise the whole EPA must be re-sat or re-taken.

Re-sits and re-takes will be capped at pass, that means a candidate is not able to achieve a distinction in a re-sit or re-take, unless there are extenuating circumstances.

EPAOs must ensure that apprentices have different questions for the knowledge and skills assessment and technical interview when taking a re-sit or re-take.

Professional body recognition

Upon successful completion of this apprenticeship, individuals will be eligible for membership and professional registration as an Engineering Technician (EngTech) with the Institution of Gas Engineers and Managers (IGEM).

Gas Safe Registration

Apprentices successfully completing the emergency response craftsperson option will need to obtain Gas Safe Registration in order to practice as an emergency response craftsperson. To satisfy the requirements of Gas Safe Registration, the Emergency response apprentice will need to successfully complete Matters of Gas Safety (MoGS) assessments. This assessment must be delivered through a certification body approved to deliver the Nationally Accredited Certification Scheme. This may be delivered by the EPAO if they hold a contract with the Gas Safe Register© to do this.

End-point assessment organisations

Employers must work with the training provider to select an approved EPAO from the apprenticeship providers and assessment register (APAR).

Roles and responsibilities

The following table outlines the roles and responsibilities of all parties involved in the EPA process.

End point assessment – roles and responsibilities	
Role	Responsibilities
EPAO	• produce all EPA materials and resources as required including: • conform to the requirements of the apprenticeship provider and assessment register • knowledge and skills assessment question bank • practical task specification bank • technical interview question bank • logbook guidance • documentation for recording assessment evidence and decisions • guidance documents for technical experts and independent assessors to support the EPA • guidance documents for apprentices, their employers and training providers to support the EPA • provide appropriate and qualified staff to deliver the EPA including: o administrators or markers for the knowledge and skills assessment o independent assessors to conduct the technical interview o invigilators for the knowledge and skills test o quality assurance personnel to undertake moderation • combines the grades from all three EPA activities and determines the final grade • confirm the suitability of those involved or conducting the end-point assessment including: o independent assessors o technical experts o invigilators o markers • provide training for independent assessors and markers and invigilators, in terms of good assessment practice and how to operate the assessment tools and make grading decisions • provide training for technical experts, in terms of their role and how to conduct it without bias • provide guidance and templates for the technical experts for use when briefing the apprentice and recording the factual account during the practical task • liaise with the employer to arrange practical task, dates, times and locations for the assessment components • ensure all required material is made available at the EPA venue

EPAO	• confirms result of EPA to apprentice and employer • applies for certification • maintain robust internal quality assurance (QA) procedures and moderation • support as requested the activities of the nominated external quality assurance body • comply with the requirements of the EQA provider
Employer	• works with the training provider to select the EPAO • confirms all EPA gateway requirements are in place, ensure final reviews are completed and documented • confirms planning with EPAO (who, when, where and what) • prepares apprentice for the EPA, ensuring they are ready • confirms apprentice availability – schedules EPA activities • provides an appropriate technical expert to supervise the practical task and complete factual account, which is included in apprentice's logbook and to provide the independent assessor with technical information during the technical interview upon request

Independent assessor	• appointed by the EPAO • be independent of the apprentice, the employer and training provider(s); there must be no conflict of interest • hold or be working towards an assessor qualification, for example A1, TAQA (Training, Assessment and Quality Assurance) and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading • have experience working in the gas network sector at level 3 or above • have completed a minimum of 2 days continuing professional development (CPD) relevant to gas networks in the last year; they do not necessarily still need to be employed in gas networks • undertake a minimum of 1 day EPAO standardisation training and 1 moderation event per year • conducts and assesses both assessment methods, awarding a grade • records the assessment outcomes • participate in Internal quality assurance and standardisation activities • contribute to investigations of any alleged cases of assessment irregularities
Technical expert	• nominated by the apprentice's employer • can demonstrate competence in gas network operations as conducted by the apprentice's employer, for example experience of working in the gas networks sector at level 3 or above • have completed a minimum of 2 days continuing professional development • (CPD) relevant to gas networks in the last year

	• may hold or be working towards a recognised assessor award, but must have received training from their EPAO in terms of administering the practical task • undertake a minimum of 1 day EPAO training per year • completes a statement for submission with the apprentice's report
Technical expert	• completes a factual account of the practical task • provide technical information at the technical interview upon request • must not have had any involvement with the apprentice's on-programme training.
Invigilators	• there are no qualification requirements for invigilators • appointed by the EPAO • be independent of the apprentice, the employer and training provider(s); there must be no conflict of interest • ensure the area selected for the knowledge and skills assessment meets requirements • ensure the knowledge and skills assessment is delivered in accordance with requirements • ensures all assessment documentation is securely returned to the EPAO
Markers	• there are no qualification requirements for markers • appointed by the EPAO • be independent of the apprentice, the employer and training provider(s); there must be no conflict of interest • ensure the knowledge and skills assessment paper is accurately completed • marks the knowledge and skills assessment paper in line with guidance provided

Internal quality assurers (EPAO)	• the EPAO must evaluate and assure fairness and consistency in the assessment process • ensures assessment tools and supporting materials used for the EPA follow best assessment practice • provides training and guidance for independent assessors and technical experts in terms of good assessment practice, use of assessment tools and grading • implements and maintain internal quality assurance systems and procedures that support fair, reliable, valid and consistent assessment across the organisation and over time • ensures representative sampling of apprentice assessment work from all components of the EPA. The sample should include: • all fails • all distinctions grades awarded • a minimum of 10% of all pass grades awarded • and additional sampling to ensure a minimum of 20% • ensures sampling plans represent apprentices from a diversity of demographic factors (i.e. age, gender, ethnicity, disability) and modes of study (i.e. full or part-time). • ensures that assessed work from all independent assessors is represented as part of the sample • conducts bi-annual standardisation events that enable independent assessors and technical experts to attend a minimum of one event per year.

Table 8. Organisation and individual roles, requirements and responsibilities

Internal quality assurance

Internal quality assurance refers to the requirements that EPAOs must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPAOs for this EPA must undertake the following:

- appoint suitable EPAO personnel that meet the requirements as detailed in Table 8 of this plan
- provide training for all EPA personnel in terms of good assessment practice, operating the assessment tools and grading
- have quality assurance systems and procedures in place that support fair, reliable and consistent assessment across organisation and over time
- operate regular standardisation events that enable independent assessors to attend a minimum of 1 event per year
- operate moderation – 20% of independent assessors' decisions must be moderated

External quality assurance

External quality assurance arrangements will ensure that EPAOs delivering EPA for this apprenticeship operate consistently and in line with this plan.

Ofqual will undertake external quality assurance for this apprenticeship standard.

Affordability

The following factors should ensure the EPA is affordable:

- the knowledge and skills test and technical interview could be conducted remotely using technology, reducing time and travel costs
- employers' premises should be used for EPA venues where possible

Volumes

It is anticipated that there will be 90 starts per year on this apprenticeship and 90 per year once established.

Annex - A: knowledge and skills assessment – Gas network craftsperson: level 3

Key to assessment method identification	
TI	Technical interview
KSA	Knowledge and skills assessment

Core requirements – knowledge

Element code	Core knowledge	EPA
CK1	Company testing and commissioning procedures needed to establish the condition of gas assets, equipment, network infrastructure and the actions needed as a result of the tests. This includes both practical applications and the use of diagnostic techniques and IT systems	TI
CK2	The requirements of the Gas Safety (Management) Regulations as relevant to their role, this being supported through company specific procedures involved in the practical installation and maintenance of gas network assets	KSA
CK3	The requirements of Health and safety standards and regulations, and environmental and regulatory requirements, including; The Health and Safety at Work Act, the Environmental Protection Act, Dangerous Substances Explosive Atmospheres Regulations, The ATEX Directives, The Management of Health and Safety regulations, PUWER, Working at Height Regulations, Confined spaces Regulations, COSHH, PPE Regulations, RIDDOR, Noise at work regulations, Control of Asbestos regulations and the Manual Handling Operations Regulations	KSA
CK4	Company maintenance practices, processes and procedures associated with gas network systems, controls and equipment	TI
CK5	Gas engineering and mechanical or electric principles and processes that underpin the location, diagnosis and rectification of faults	KSA
CK6	Company policies, procedures and engineering instructions as specified by the employer	TI

Core requirements – skills

Element code	Core skills	EPA
CS1	Undertake and document risk assessments in accordance with company procedures	TI
CS2	Comply with workplace health, safety and environmental practices and regulations, maintaining a safe and secure working environment	TI
CS3	Follow engineering instructions and company procedures to complete tasks safely and on-time	TI
CS4	Undertake inspection and examination of network assets in order to maintain the safe and compliant operation of the network to ensure the integrity, safety and security of supply	TI
CS5	Maintain or install gas engineering assets, components and associated equipment	TI
CS6	Install, test, purge and commission gas network assets	TI
CS7	Operate powered tools and equipment, such as drills, angle grinders, brush cutters and shot blasting equipment as required for network maintenance operations	TI
CS8	Use approved gas detection equipment to ensure safe environment	TI
CS9	Use Personal Protective Equipment (PPE) and safety equipment in accordance with manufacturer's instructions and employer policy	TI
CS10	Obtain and analyse asset condition and performance information to facilitate decision making	TI
CS11	Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact	TI
CS12	Through risk assessment, minimise risks to life, property and the environment when undertaking work activities	KSA
CS13	Accurately record job information, complete job reports and process	TI
CS14	Liaise with gas consumers, statutory agencies and members of the public in order to ensure their safety	TI

CS15	Accurately update company systems with details of work undertaken	TI

Core requirements – behaviours

Element code	Core behaviours	EPA
CB1	Display a self-disciplined, self-motivated approach	TI
CB2	Deliver a polite, courteous professional service to all customers, stakeholders and members of the public as appropriate	TI
CB3	Demonstrate and apply a safety first approach	TI
CB4	Accept accountability when undertaking individual and team tasks	TI
CB5	Follows instruction from appropriate supervision, and makes decisions when required	TI
CB6	Quality-focussed and professional in work and in personal standards	TI
CB7	Recognise personal limitations and seek advice from managers, experts and specialists when required	TI
CB8	Accepts responsibility for work undertaken	TI
CB9	Receptive to the needs and concerns of others, especially where related to diversity and equality	TI
CB10	Committed to carrying out and recording Continued Professional Development necessary to maintain and enhance competence	TI
CB11	Exercises responsibilities in an ethical manner	TI
CB12	Interacts with people and approaches work activities in a way that contributes to continuous self-improvement	TI

Skills and knowledge requirements - Network maintenance craftsperson (electrical and instrumentation)

Element code	Network maintenance craftsperson (electrical and instrumentation) – skills	EPA
NMCEi1	Apply electrical theories and principles and use equipment to carry out diagnostic fault finding procedures	TI
NMCEi2	Inspect, maintain, repair, overhaul test and calibrate instrumentation and control equipment and circuits in accordance with company procedures	TI
NMCEi3	Maintain site lighting and fixed and portable equipment which may include generators, batteries and associated equipment	TI
NMCEi4	Carry out cable testing across a range of voltages to ensure safety and suitability for use	TI
NMCEi5	Install, maintain and dismantle instruments, controllers, probes, attachments, cabling, meters and display units	TI
NMCEi6	Configure telemetry outstation and internal systems	TI
NMCEi7	Identify and resolve data quality and calibration issues	TI
NMCEi8	Test, calibrate and validate fixed and portable analogue and digital instrumentation using approved procedures and standards	TI
NMCEi9	Repair, maintain, configure and calibrate field instrumentation, communication devices and associated equipment used in system and process control	TI
NMCEi10	Use standards and specifications to improve the information gathered by telemetry data	TI
NMCEi11	Inspect and maintain security equipment, telecommunication devices and alarm systems	TI
NMCEi12	Carry out isolation procedures to ensure process or system stability and the safety of personnel when carrying out operations	TI
NMCEi13	Provide support to day-to-day users of instrumentation and control systems	TI

NMCEi14	Ensure consistent and valid data is available for business and regulation purposes	TI
NMCEi15	Apply electrical knowledge and skills to install, maintain and dismantle a wide range of plant, machinery and components	TI

	Network maintenance craftsperson (electrical and Instrumentation) – knowledge	EPA
NMCEi16	The safety processes to be applied when testing for voltages across the range likely to be encountered	KSA
NMCEi17	The permitry requirements when maintaining or configuring telemetry systems or undertaking works that may initiate system alarms	TI
NMCEi18	Recognise the processes to be followed in order to identify and resolve data quality and calibration issues	TI
NMCEi19	Understand how to test and calibrate instrumentation and control equipment in accordance with company specific procedures	TI
NMCEi20	The theories used to maintain, test and calibrate electrical equipment in line with company specific procedures	TI
NMCEi21	Understand how to safely apply diagnostic fault finding principles to electrical systems	KSA
NMCEi22	Identify relevant, company specific procedures and know how to access such documentation	TI
NMCEi23	Legislative requirements affecting electrical works and be able to describe how such legislation may affect them	KSA
NMCEi24	The hazards that could be encountered when maintaining both fixed and portable electrical equipment	KSA
NMCEi25	Understand why safe isolation procedures must be followed when carrying out electrical or instrumentation operations	KSA

Skills and knowledge - Network maintenance craftsperson (pressure management)

	Network Maintenance Craftsperson (Pressure Management) – Skills	EPA
NMCPM1	Apply mechanical theories and principles for example thermo dynamics and laminar flow theories, in order to carry out diagnostic fault finding procedures	TI
NMCPM2	Carry out remote pressure monitoring and control on the gas network	TI
NMCPM3	Inspect and monitor mechanical systems and equipment in order to ensure safety and suitability for service	TI
NMCPM4	Undertake corrosion inspection activities	KSA
NMCPM5	Maintain, dismantle and repair mechanical equipment and components	TI
NMCPM6	Test mechanical equipment and systems to ensure integrity, safety and security of supply	TI
NMCPM7	Assist in installing mechanical systems and equipment	TI
NMCPM8	Install, maintain and dismantle a wide range of complex plant, machinery and components including; pressure regulators, safety devices, system protection devices and monitoring equipment	TI
NMCPM9	Consult design specifications to analyse and calculate mechanical system parameters and rectification procedures	TI
NMCPM10	Interpret plans and drawings to install, position or re-locate mechanical equipment and components	TI
NMCPM11	Test, service and repair mechanical equipment as part of planned preventative maintenance or reactive maintenance programmes	TI
NMCPM12	Install mechanical components including regulators, filters, valves, compressor equipment	TI
NMCPM13	Maintain mechanical components including regulators, filters, valves, compressor equipment	TI
NMCPM14	Apply pressure reduction techniques to assist in dealing with gas emergencies	TI

Requirements

NMCPM15	Inspect and maintain condition monitoring equipment	TI
NMCPM16	Locate and avoid underground plant and equipment prior to and whilst undertaking activities	KSA
NMCPM17	Install signing, lighting and guarding systems	KSA

	Network Maintenance Craftsperson (Pressure Management) – Knowledge	EPA
NMCPM18	Understand how to apply diagnostic fault finding procedures to pressure control equipment	KSA
NMCPM19	Understand how to operate the systems and processes used for remote pressure monitoring and control of the gas network	KSA
NMCPM20	Understand the permitry requirements when maintaining or configuring pressure control equipment	KSA
NMCPM21	Understand the company specific and legislative requirements for the inspection and monitoring of mechanical pressure control systems and equipment	KSA
NMCPM22	The requirements for corrosion inspection activities in line with the requirements of both the pressure systems safety regulations and pipeline safety regulations	KSA
NMCPM23	The hazards associated with working on systems that contain pressurised gas	KSA
NMCPM24	The security of gas supply implications when undertaking pressure control work operations	KSA
NMCPM25	The implications of the pressure systems safety regulations when assessing the suitability of equipment to be used	KSA
NMCPM26	The safety processes to be followed when planning to access pressure control equipment	TI
NMCPM27	The New Roads and Street Works Act requirements for the provision of signing, lighting and guarding when working in or adjacent to the public highways	KSA

Skills and knowledge – Network pipelines maintenance craftsperson

	Network pipelines maintenance craftsperson – skills	EPA
NPMC1	Apply non-destructive testing theories and principles in order to carry out diagnostic fault finding procedures	TI
NPMC2	Apply the theories and principles of integrity testing, purging commissioning and de-commission of gas pipelines and associated equipment and components	TI
NPMC3	Inspect, monitor, maintain, dismantle, install and repair pipeline systems and equipment for example; flow regulators, safety devices, system protection devices, measurement devices and monitoring equipment	TI
NPMC4	Remove, repair and replace components of gas transportation pipelines and associated equipment	TI
NPMC5	Undertake corrosion prevention activities i.e. cathodic protection systems and monitoring, coating and wrapping	TI
NPMC6	Take action to prevent third parties causing damage to gas transportation pipeline assets and equipment i.e. tracing, marking, monitoring third party activities and responding to encroachments	TI
NPMC7	Liaise with relevant land owners and third parties, for example; statutory agencies and members of the public	KSA
NPMC8	Consult design specifications to analyse and calculate pipeline system parameters and rectification procedures	TI
NPMC9	Interpret plans and drawings to install, position or re-locate pipeline equipment and components	TI
NPMC10	Test, service and repair pipeline equipment as part of planned preventative maintenance or reactive maintenance programmes	TI
NMPC11	Operate specialised tools and equipment for pipeline maintenance operations for example; in line inspection tools, damage assessment, intelligent pigging, valve repairs, flow stopping and under pressure drilling	TI
NPMC12	Locate and avoid underground plant and equipment prior to and whilst undertaking activities	KSA

Requirements

NPMC13	Install signing, lighting and guarding systems	KSA
NPMC14	Liaise with emergency services and other statutory authorities as necessary	KSA
NPMC15	Organise additional resources to facilitate repairs as required	TI
NPMC16	Respond to reported pipeline gas emergencies	KSA

	Network pipelines maintenance craftsperson – knowledge	EPA
NPMC17	The health and safety requirements when conducting operations on gas pipeline systems	KSA
NPMC18	Understand how to test and confirm the suitability and effectiveness of corrosion control measures	KSA
NPMC19	The requirements for the testing and inspection of pipelines in accordance with the Pipeline safety and Pressure systems safety regulations	KSA
NPMC20	The permitry requirements when entering or working on gas operational sites	KSA
NPMC21	The company specific requirements for the inspection of pipeline systems and associated systems and equipment, including the frequency of such inspection	KSA
NPMC22	The implications of and assessment of damage sustained to pipelines by third party persons	KSA
NPMC23	The hazards and permitry requirements associated with working on or in proximity of pipelines that contain pressurised gas	KSA
NPMC24	The implications of the pressure systems safety regulations when assessing the suitability of equipment to be used	KSA
NPMC25	Understand how to apply company specific procedures when responding to reported pipeline gas emergencies	KSA

NPMC26	The New Roads and Street Works Act requirements for the provision of signing, lighting and guarding when working in or adjacent to the public highways	KSA

Skills and knowledge – Emergency response craftsperson

	Emergency response craftsperson – skills	EPA
NERC1	Respond to public reported upstream gas emergencies, including damage to or failure of gas mains and services that supply a consumer's premises	TI
NERC2	Respond to public reported downstream gas emergencies, including reported gas escapes inside customers properties and reports of carbon monoxide	TI
NERC3	Carry out site investigations in relation to gas emergencies, in line with company procedures	TI
NERC4	Use gas detection equipment to identify gas concentrations	TI
NERC5	Interpret gas readings to determine the safety of the site	TI
NERC6	Apply evacuation procedures where required	TI
NERC7	Apply the industry unsafe situations procedures	TI
NERC8	Install and exchange gas meters and pressure regulators	TI
NERC9	Install domestic pipework	TI
NERC10	Tightness test, purge, commission and de-commission domestic gas pipework	TI
NERC11	Tightness test, purge, commission and de-commission non-domestic gas pipework	TI

Requirements

NERC12	Locate and avoid underground plant and equipment whilst undertaking activities in the highway	KSA
NERC13	Liaise with emergency services and other statutory authorities as necessary	KSA
NERC14	Organise additional resources to facilitate repairs as required	TI

	Emergency Response Craftsperson – Knowledge	EPA
NERC15	The safety actions to be applied where critical gas level concentrations are encountered when dealing with reported gas emergencies	KSA
NERC16	The requirements of the Gas Safety (Management) Regulations when dealing with reported gas emergencies	KSA
NERC17	The requirements of the relevant British Standards in relation to the safe installation of gas appliances, pipework and meters	KSA
NERC18	Understand how to identify gas appliances and installations that are not compliant with industry standards and may be deemed as unsafe	TI
NERC19	Understand how to comply with the requirements of the Gas Industry Unsafe Situations Procedure, including RIDDOR reporting requirements	TI
NERC20	Understand how to recognise the signs and symptoms of suspected carbon monoxide poisoning	KSA
NERC21	Describe the requirements for the application of gas tightness testing procedures	T I
NERC22	The New Roads and Street Works Act requirements for the provision of signing, lighting and guarding when working in or adjacent to the public highways	KSA

NERC23	Understand how to apply suitable control measures for the location and avoidance of supply apparatus and sub-structures prior to and whilst working on gas network assets	KSA
NERC24	Understand when to liaise with emergency services and other statutory authorities as necessary	TI