



As of 1 August 2022, the English and maths requirements for on-programme and new apprentices undertaking level 2 apprenticeships have changed and are detailed as part of the [apprenticeship funding rules](#). These requirements supersede the current wording in this apprenticeship standard and EPA plan.



End-point assessment plan for Water process operative apprenticeship standard

Apprenticeship standard number	Apprenticeship standard level	Integrated end-point assessment
ST0876	2	No

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Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Water process operative apprenticeship standard. It explains how EPA for this apprenticeship must operate.

It provides the EPA design requirements for end-point assessment organisations (EPAOs) for this apprenticeship standard. It will also be useful for apprentices undertaking this apprenticeship, their employers and training providers.

EPA must be conducted by an EPAO approved to deliver EPA for this apprenticeship standard. Each employer should select an approved EPAO from the Education & Skills Funding Agency's Register of end-point assessment organisations (RoEPAO).

Water process operative is a core and options apprenticeship standard. Apprentices must be trained and assessed against the core and one option:

1. Clean water process operative.
2. Waste water process operative.

Full-time apprentices will typically spend 18 months on-programme (before the gateway) working towards this occupational standard. All apprentices must spend a minimum of 12 months on-programme. All apprentices must spend a minimum of 20% of on-programme time undertaking off-the-job training.

Before starting EPA, an apprentice must meet the gateway requirements. For this apprenticeship they are:

- the employer must be content that the apprentice is working at or above the occupational standard
- apprentices must have compiled and submitted a portfolio of evidence to underpin the interview
- For level 2 apprenticeships, apprentices must achieve level 1 English and mathematics and take the tests for level 2 prior to taking their EPA.¹

The EPAO must confirm that all required gateway evidence has been provided and accepted as meeting the gateway requirements. The EPAO is responsible for confirming gateway eligibility. Once this has been confirmed, the EPA period starts.

This EPA should then be completed within an EPA period lasting typically for three months.

This EPA consists of three discrete assessment methods.

¹ For those with an education, health and care plan or a legacy statement, the apprenticeship's English and Mathematics minimum requirement is Entry Level 3. British Sign Language (BSL) qualifications are an alternative to English qualifications for those who have BSL as their primary language.

It will be possible to achieve the following grades in each assessment method:

Assessment method 1: Observation with questions

- fail
- pass
- distinction

Assessment method 2: Interview underpinned by portfolio

- fail
- pass
- distinction

Assessment method 3: Multiple-choice test

- fail
- pass

Performance in these assessment methods will determine the overall apprenticeship standard grade of:

- fail
- pass
- distinction

EPA summary table

<p>On-programme (typically, 18 months)</p>	<p>Training to develop the knowledge, skills and behaviours (KSBs) of the occupational standard and the option relevant to their workplace</p> <p>Training towards English and mathematics Level 1 and 2, if required</p> <p>Compiling a portfolio of evidence</p>
<p>End-point assessment gateway</p>	<p>The employer must be content that the apprentice is working at or above the occupational standard and the option relevant to their workplace</p> <p>Apprentices must have achieved English and mathematics Level 1 and taken the tests for Level 2</p> <p>Apprentices must submit a portfolio of evidence to underpin the interview</p>
<p>End-point assessment (typically, three months)</p>	<p>Assessment method 1: Observation with questions</p> <ul style="list-style-type: none"> • fail • pass • distinction <p>Assessment method 2: Interview underpinned by portfolio of evidence</p> <ul style="list-style-type: none"> • fail • pass • distinction <p>Assessment method 3: Multiple-choice test</p> <ul style="list-style-type: none"> • fail • pass <p>Performance in these assessment methods will determine the overall apprenticeship standard grade of:</p> <ul style="list-style-type: none"> • fail • pass • distinction

Length of end-point assessment period

The EPA will be completed within an EPA period lasting typically three months, starting when the EPAO has confirmed that all gateway requirements have been met.

Order of end-point assessment methods

The assessment methods can be delivered in any order.

The result of one assessment method does not need to be known before starting the next.

EPA Gateway

The apprentice should only enter the gateway once the employer is content that the apprentice is working at or above the occupational standard. In making this decision, the employer may take advice from the apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

The EPAO determines when all other gateway requirements have been met, and the EPA period will only commence once the EPAO has confirmed this.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the apprentice must have completed the following gateway requirements prior to beginning EPA:

- Achieved English and mathematics at Level 1 and taken the tests for Level 2
For those with an education, health and care plan or a legacy statement, the apprenticeship's English and Mathematics minimum requirement is Entry Level 3.
British Sign Language (BSL) qualifications are an alternative to English qualifications for those who have BSL as their primary language.

For observation with questions

- no specific requirements

For the interview the apprentice will be required to submit:

- portfolio of evidence

For multiple-choice test

- no specific requirements

Portfolio of evidence requirements:

- apprentices must compile a portfolio of evidence during the on-programme period of the apprenticeship
- it must contain evidence related to the KSBs that will be assessed by the interview
- the portfolio of evidence will typically contain ten discrete pieces of evidence
- evidence must be mapped against the KSBs assessed by the interview
- evidence may be used to demonstrate more than one KSB; a qualitative as opposed to quantitative approach is suggested
- evidence sources may include:
 - workplace documentation, for example workplace policies/procedures, records
 - witness statements
 - annotated photographs
 - video clips (maximum total duration 10 minutes); the apprentice must be in view and identifiable at all times

This is not a definitive list; other evidence sources are possible.

- it should not include any methods of self-assessment
- any employer contributions should focus on direct observation of performance (for example witness statements) rather than opinions
- the evidence provided must be valid and attributable to the apprentice; the portfolio of evidence must contain a statement from the employer and apprentice confirming this
- the portfolio of evidence must be submitted to the EPAO at the gateway

The portfolio is not directly assessed. It underpins the interview and therefore should not be marked by the EPAO. EPAOs should review the portfolio of evidence in preparation for the interview but are not required to provide feedback after this review of the portfolio of evidence.

End-point assessment methods

End-point assessment method 1: Observation with questions

Overview

This assessment method has one component.

An observation with questions involves an independent assessor observing and questioning an apprentice undertaking work as part of their normal duties, in the workplace. This allows for a demonstration of the KSBs through naturally occurring evidence. The observation must be of an apprentice completing their usual work and simulation is not permitted. Apprentices must be observed by the independent assessor completing work under normal working conditions. The independent assessor will ask questions in relation to underpinning knowledge or where an opportunity to observe an activity has not naturally occurred.

The rationale for this assessment method is:

- this is a practical role, best demonstrated through completing tasks in a real workplace
- observation makes use of employer resources and equipment, which will be familiar to the apprentice and thus allow them to perform at their best
- tasks completed during the observation should contribute to workplace productivity and are valid
- it is a holistic assessment method

Delivery

The observation with questions must take four hours (assessment time). The time for questioning is included in the overall assessment time.

The observation with questions may not be split, other than to allow comfort breaks as necessary or to allow the apprentice to move from one location to another as required.

Where breaks occur, they will not count towards the total assessment time.

EPAOs must manage invigilation of apprentices during breaks in order to maintain security of the assessment in line with their malpractice policy.

The independent assessor has the discretion to increase the time of the observation with questions by up to 10% to allow the apprentice to complete a task or respond to a question.

An independent assessor may observe only one apprentice at any one time, to ensure quality and rigour.

Apprentices must be provided with information on the format of the observation with questions, including the timescales they will be working to, before the start of the observation with questions. The time taken to give this information is exclusive of the assessment time.

The following activities should be observed during the observation:

- Work preparation:
 - complete dynamic risk assessment and identify control measures (written or visual)
 - select tools and equipment
- Take, test and record water - a minimum of three different types of samples from across the process, checking and recording compliance levels
- Apply minimum of two water processes
- Conduct a minimum of two types of first line operation maintenance on water assets

The specialism is determined by the option taken by the apprentice: clean water or waste water.

The observation should be conducted in the following way, to take account of the occupational context in which the apprentice operates.

Apprentices may be assessed completing the duties over one or more sites.

The independent assessor must be unobtrusive whilst conducting the observation.

Questions must be asked to assess breadth and depth of competence against the KSBs.

The independent assessor must ask a minimum of eight open questions, across the tasks.

As only naturally occurring work is observed, those KSBs that the apprentice did not have the opportunity to demonstrate can be assessed via questioning, although these should be kept to a minimum.

Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately.

Independent assessors are responsible for generating suitable follow-up questions in line with the EPAOs training and standardisation process.

They may ask follow-up questions where clarification is required.

The questions can be asked by the independent assessor both during and after work completion. In order to remain as unobtrusive as possible, independent assessors should ask questions during natural stops between tasks and/or after completion of work rather than disrupting the apprentice's flow.

The performance observed and responses to questions must be assessed holistically using the grading criteria for this assessment method.

KSBs observed, and answers to questions, must be recorded by the independent assessor.

The independent assessor will make all grading decisions.

Assessment location

The observation with questions should take place in a water utility site operated by the apprentice's employer, which the apprentice is familiar with.

The employer is responsible for ensuring that all necessary tools and equipment required for the observation are available and are in good working order.

Question and resource development

EPAOs will create and set open questions to assess related underpinning KSBs. They must develop 'question banks' of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure the questions they contain are fit for purpose. The questions relating to underpinning KSBs must be varied, yet allow assessment of the relevant KSBs.

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

EPAOs will produce the following material to support this assessment method:

- independent assessor training materials
- grading guidance
- question banks
- outline of the assessment method's requirements
- marking materials
- guidance document for employers and apprentices on the process / timescales for the observation with questions as well as a description of the purpose
- guidance document for independent assessors on how to carry out the assessment

End-point assessment method 2: Interview underpinned by portfolio of evidence

Overview

This assessment method has one component.

An interview consists of an independent assessor asking an apprentice a series of questions to assess their competence against the KSBs. The independent assessor leads this process to obtain information from the apprentice to enable a structured assessment decision-making process.

The rationale for this assessment method is:

- it allows for assessment of KSBs that may not naturally occur during the observation with questions
- it allows for testing of responses where there are a range of potential answers that can't be tested through the multiple-choice test
- it is a cost effective, as whilst seeking assurance of competence across a range of KSBs, it does not require the independent assessor to directly observe all of them thus reducing their time cost

Delivery

The independent assessors will conduct and assess the interview underpinned by portfolio of evidence.

The interview must last for 60 minutes. The independent assessor has the discretion to increase the time of the interview by up to 10% to allow the apprentice to complete their last answer.

The interview will have a minimum of nine open questions. During this method, the independent assessor must combine questions from the EPAO's question bank and those generated by themselves.

The purpose of the questions will be to cover the following topics:

- water process operative role
- chemicals: delivery and storage
- identifying trends
- fault-finding
- stock
- team player
- customer focus
- specialism operating parameters
- specialism treatment work assets and equipment; consequences of asset failure on specialism water process

The specialism is determined by the option taken by the apprentice: clean water or waste water.

The interview, underpinned by portfolio of evidence, will be conducted as follows.

EPAOs must make arrangements for the interview with the apprentice's employer.

Apprentices must be given at least two-weeks' notice of the date and time of the interview.

Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately, following a review of the portfolio of evidence. Independent assessors are responsible for generating suitable questions in line with the EPAO's training and standardisation process. Additional follow up questions are allowed, to seek clarification and to make a judgement against the grading descriptors.

The independent assessor should have a minimum of five working days to review the portfolio of evidence.

Apprentices must have access to their portfolio of evidence during the interview.

Apprentices can refer to and illustrate their answers with evidence from their portfolio of evidence, however the portfolio of evidence is not directly assessed.

Apprentices are expected to understand and use relevant occupational language that would be typical of a competent person in this occupation.

Evidence from the interview must be assessed using the grading criteria for this assessment method.

KSBs met and answers to questions, must be recorded by the independent assessor.

The independent assessor will make all grading decisions.

Assessment location

The interview underpinned by portfolio of evidence should take place in a quiet room, free from distractions and influence.

The interview can take place in any of the following:

- employer's premises
- a suitable venue selected by the EPAO, for example a training provider's premises

Video conferencing can be used to conduct the interview but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

Question and resource development

A 'question bank' must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The questions relating to the underpinning KSBs, must be varied yet allow assessment of the relevant KSBs.

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

EPAOs will produce the following material to support this assessment method:

- question bank
- structured specification
- independent assessor training materials
- grading guidance
- marking materials
- outline of the assessment method's requirements
- guidance document for employers and apprentices on the process / timescales for the interview underpinned by portfolio of evidence as well as a description of the purpose
- guidance document for independent assessors on how to carry out the assessment

End-point assessment method 3: Multiple-choice test

Overview

This assessment method has one component.

A multiple-choice test is a controlled assessment which consists of a series of questions in which apprentices are asked to provide a response.

The rationale for this assessment method is:

- it allows for the efficient testing of knowledge where there is a right or wrong answer
- it allows for flexibility in terms of when, where and how it is taken
- it allows larger volumes of apprentices to be assessed at one time

Delivery

Multiple-choice test format

The multiple-choice test can be:

- computer based
- paper based

It must consist of 40 questions; 40% should cover the core knowledge and 60% should cover the option knowledge.

These questions will consist of multiple-choice questions. The multiple-choice questions will have four options of which one will be correct. The questions must be varied, to avoid the multiple-choice test becoming too predictable, yet allow assessment of the relevant KSBs.

Multiple-choice test administration

Apprentices must have 60 minutes to complete the multiple-choice test.

The multiple-choice test is closed which means that the apprentice cannot refer to reference books or materials.

The following equipment is permitted during the test: non-scientific calculator.

Assessment

Tests must be marked by independent assessors or markers employed by the EPAO following a marking guide produced by the EPAO. Alternatively, marking by computer is permissible where questions types allow this.

A correct response will be assigned one mark.

Any incorrect or missing answers must be assigned zero marks.

Grading boundaries

The following grade boundaries apply to the multiple-choice test:

Grade	Minimum mark	Maximum mark
Fail	0	27
Pass	28	40

Assessment location

Apprentices must take the multiple-choice test in a suitably controlled environment that is a quiet space, free from distractions and influence, in the presence of an invigilator. The invigilator may be any independent person appointed by the EPAO. The EPAO is required to have an invigilation policy that will set out how the multiple-choice test is to be carried out. This will include specifying the most appropriate ratio of apprentices to invigilators to best take into account the setting and security required in administering the multiple-choice test.

The EPAO is responsible for ensuring the security of any multiple-choice tests they administer to ensure the multiple-choice test remains valid and reliable (this includes any arrangements made using online tools). The EPAO is responsible for verifying the identity of the person taking the multiple-choice test. The EPAO must also verify the suitability of the venue for multiple-choice test-taking.

Question and resource development

Questions must be written by EPAOs and must be relevant to the occupation and assess knowledge and skills mapped to this assessment method. It is recommended that this be done in consultation with employers of this occupation. EPAOs should maintain the security and confidentiality of their questions when consulting employers. EPAOs must develop 'multiple-choice test specifications' and 'question banks' of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they, and the questions they contain, are fit for purpose. The specifications, including questions relating to underpinning KSBs must be varied, yet allow assessment of the relevant KSBs.

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

EPAOs will produce the following material to support this assessment method:

- a multiple-choice test specification
- sample multiple-choice test and mark scheme
- live multiple-choice tests and mark schemes
- analysis reports which show areas of weakness for completed multiple-choice tests and an invigilation policy

Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making reasonable adjustments to the assessment methods for the EPA for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this assessment plan.

Overall EPA grading

All assessment methods are weighted equally in their contribution to the overall EPA grade.

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

Independent assessors must individually grade the observation with questions and interview underpinned by portfolio of evidence, according to the requirements set out in this plan. A person appointed by the EPAO must grade the multiple-choice test. Alternatively, marking by computer is permissible where question type allows for this.

EPAOs must combine the individual assessment method grades to determine the overall EPA grade.

Apprentices who fail one or more assessment method will be awarded an overall EPA fail.

In order to gain an overall EPA pass, apprentices must achieve a pass in all the assessment methods.

In order to achieve an overall EPA distinction, apprentices must achieve a distinction in the observation with questions, a distinction in the interview underpinned by portfolio of evidence and a pass in the test.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Assessment method 1 – Observation with questions	Assessment method 2 – Interview underpinned by portfolio of evidence	Assessment method 3 – Multiple-choice test	Overall grading
Any grade	Any grade	Fail	Fail
Any grade	Fail	Any grade	Fail
Fail	Any grade	Any grade	Fail
Pass	Pass	Pass	Pass
Distinction	Pass	Pass	Pass
Pass	Distinction	Pass	Pass
Distinction	Distinction	Pass	Distinction

Any grade = fail, pass, or distinction

Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take at the employer's discretion. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for a re-sit or a re-take.

An apprentice who fails one or more assessment methods, and therefore the EPA in the first instance, will be required to re-sit or re-take the failed assessment method(s) only.

The timescale for a re-sit/re-take is agreed between the employer and EPAO. A re-sit is typically taken within two months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within four months of the EPA outcome notification.

All assessment methods must be taken within a six-month period, otherwise the entire EPA will need to be re-sat/re-taken.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

Roles and responsibilities

Role	Responsibility
Apprentice	<p>As a minimum, apprentices should:</p> <ul style="list-style-type: none"> • participate in and complete on-programme training to meet the KSBs as outlined in the occupational standard for a minimum of 12 months • undertake 20% off-the-job training as arranged by the employer and training provider • understand the purpose and importance of EPA • undertake the EPA including meeting all gateway requirements
Employer	<p>As a minimum, employers should:</p> <ul style="list-style-type: none"> • work with the training provider (where applicable) to support the apprentice in the workplace to provide the opportunities for the apprentice to develop the KSBs • arrange and support a minimum of 20% off-the-job training to be undertaken by the apprentice • decide when the apprentice is working at or above the occupational standard and so is ready for EPA • select the EPAO • ensure that all supporting evidence required at the gateway is submitted in accordance with this EPA plan • remain independent from the delivery of the EPA • confirm arrangements with the EPAO for the EPA (who, when, where) in a timely manner (including providing access to any employer specific documentations as required, for example company policies) • ensure that the EPA is scheduled with the EPAO for a date and time which allow appropriate opportunity for the KSBs to be met • ensure the apprentice is well prepared for the EPA • ensure the apprentice is given sufficient time away from regular duties to prepare for and

	<p>complete all post-gateway elements of the EPA, and that any required supervision during this time (as stated within this EPA plan) is in place</p> <ul style="list-style-type: none"> • where the apprentice is assessed in the workplace, ensure that the apprentice has access to the resources used on a daily basis
EPAO	<p>As a minimum, EPAOs should:</p> <ul style="list-style-type: none"> • make all necessary contractual arrangements, including agreeing the price of the EPA • understand the occupational standard • appoint administrators (and invigilators where required) to administer the EPA as appropriate • provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading • provide adequate information, advice and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA • arrange for the EPA to take place, in consultation with the employer • conform to the requirements of this EPA plan and deliver its requirements in a timely manner • develop and provide appropriate assessment recording documentation to ensure a clear and auditable process is in place for providing assessment decisions and feedback to all relevant stakeholders • have no direct connection with the apprentice, their employer or training provider. In all instances including when the EPAO is the training provider (i.e. HEI) there must be no conflict of interest • have policies and procedures for internal quality assurance (IQA), and maintain records of regular and robust IQA activity and moderation for external quality assurance (EQA) purposes • conform to the requirements of the nominated external quality assurance provider (EQAP) • conform to the requirements of the Register of End-Point Assessment Organisations (RoEPAO)

	<ul style="list-style-type: none"> • deliver induction training for independent assessors, and for invigilators and markers where used • undertake standardisation activity on this apprenticeship standard for all independent assessors before they conduct an EPA for the first time, if the EPA is updated and periodically as appropriate (a minimum of annually) • manage invigilation of apprentices in order to maintain security of the assessment in line with their malpractice policy • verify the identity of the apprentice being assessed • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard • request certification via the Apprenticeship Service upon successful achievement of the EPA • develop and produce assessment materials including specifications and marking materials (for example mark schemes, practice materials, training material) • appoint suitably qualified and competent independent assessors • provide details of the independent assessor's name and contact details to the employer • have and apply appropriately an EPA appeals process
Independent assessor	<p>As a minimum, an independent assessor should:</p> <ul style="list-style-type: none"> • have the competence to assess the apprentice at this level and hold any required qualifications and experience in line with the requirements of the independent assessor as detailed in the IQA section of this EPA plan • understand the occupational standard and the requirements of this EPA • have, maintain and be able to evidence up to date knowledge and expertise of the subject matter • deliver the end-point assessment in-line with the EPA plan • comply with the IQA requirements of the EPAO

	<ul style="list-style-type: none"> • have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances including when the EPAO is the training provider (i.e. HEI) • attend induction training • attend standardisation events when they begin working for the EPAO, before they conduct an EPA for the first time and a minimum of annually on this apprenticeship standard • assess each assessment method, as determined by the EPA plan, and without extending the EPA unnecessarily • assess against the KSBs assigned to each assessment method, as shown in the mapping of assessment methods and as determined by the EPAO, and without extending the EPA unnecessarily • make all grading decisions • record and report all assessment outcome decisions, for each apprentice, following instructions and using assessment recording documentation provided by the EPAO, in a timely manner • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard
Training provider	<p>As a minimum, the training provider should:</p> <ul style="list-style-type: none"> • work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the knowledge, skills and behaviours as listed in the occupational standard • conduct training covering any knowledge, skill or behaviour requirement agreed as part of the Commitment Statement (often known as the Individual Learning Plan). • monitor the apprentice's progress during any training provider led on-programme learning • advise the employer, upon request, on the apprentice's readiness for EPA • remain independent from delivery of the EPA. Where the training provider is the EPA (i.e. a

	HEI) there must be procedures in place to mitigate against any conflict of interest
Marker	<p>As a minimum, the marker should:</p> <ul style="list-style-type: none"> • attend induction training • have no direct connection or conflict of interest with the apprentice, their employer or training provider in all instances including when the EPAO is the training provider (i.e. HEI) • mark multiple-choice test answers accurately according to the EPAO's mark scheme and procedures
Invigilators	<p>As a minimum, invigilators should:</p> <ul style="list-style-type: none"> • attend induction training as directed by the EPAO • have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances, including when the EPAO is the training provider (i.e. HEI) • invigilate and supervise apprentices during tests and in breaks during assessment methods to prevent malpractice in accordance with the EPAO's invigilation procedures

Internal Quality Assurance (IQA)

Internal quality assurance refers to the strategies, policies and procedures that EPA organisations must have in place to ensure valid, consistent and reliable end-point assessment decisions. EPAOs for this EPA must adhere to all requirements within the Roles and Responsibilities section and:

- have effective and rigorous quality assurance systems and procedures that ensure fair, reliable and consistent assessment across employers, places, times and independent assessors
- appoint independent assessors who are competent to deliver the end-point assessment and who meet the following minimum requirements:
 - recent relevant experience of the occupation/sector gained in the last three years or significant experience of the occupation/sector and evidence of continued professional development
 - experience of the occupation in the option specialism they are assessing: clean water or waste water
 - a level of competence at the same level as the apprenticeship standard as a minimum
- operate induction training for independent assessors, markers and invigilators
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- where appropriate:
 - provide on-going training for markers
 - provide on-going training for invigilators
- undertake standardisation activity on this apprenticeship standard for all independent assessors:
 - before they conduct an EPA for the first time
 - if the EPA is updated
 - periodically as appropriate (a minimum of annually)
- conduct effective moderation of assessment decisions and grades
- conduct appeals where required, according to the EPAO's appeals procedure, reviewing and making final decisions on assessment decisions and grades

Value for money

Affordability of the EPA will be aided by using at least some of the following practices:

- use of technology – for example video conferencing the interview underpinned by portfolio of evidence
- location – for example use of employer premises for the interview underpinned by portfolio of evidence and multiple-choice test
- making maximum use of each typical 7.5 hour working day
- observation of naturally occurring evidence in the workplace, the work conducted by the apprentice during the observation will contribute to workplace operations
- the possibility of scheduling assessment methods on the same day
- having multiple apprentices take the multiple-choice test at the same time with the same invigilator

Mapping of knowledge, skills and behaviours (KSBs)

Assessment method 1: Observation with questions

Knowledge
K3: Core. Policy and procedures: operating manual, safety, emergencies, security, isolation – their purpose.
K5: Core. Dynamic risk assessments.
K8: Core. First line operational maintenance: different types - cleaning, greasing, and washing, removing debris and clearing blockages.
K9: Core. Maintenance tools and equipment: rakes, spades, pressure washers, brushes, spanners.
K10: Core. Telemetry and monitoring processes; monitoring variables including flow, quality, turbidity (particles), chemical usage. Limits, consequences of being outside limits.
Clean option
K20: Option 1: Clean water process operative. Clean water sampling requirements: different types of samples, sample points, storage, labelling, safe disposal, recording results, permits and consent parameters.
Waste option
K31: Option 2: Waste water process operative. Waste water sampling requirements: different types of samples, sample points, storage, labelling, safe disposal, recording results, permits and consent parameters.

Skills
S1: Core. Organise and prioritise work.
S2: Core. Identify risks and control measures.
S3: Core. Follow health and safety and environmental legislation, regulations and practice. For example, apply control measures, wear PPE, harness, gas detector and breathing apparatus required for the task.
S4: Core. Read and interpret information/data.
S6: Core. Undertake sensory analysis.
S7: Core. Use measuring equipment.
S9: Core. Determine action and follow procedure.
S10: Core. Undertake first line operational maintenance of assets.

S11: Core. Select and use tools and equipment; check/calibrate equipment.
S12: Core. Undertake first line maintenance of tools and equipment, for example cleaning.
S13: Core. Store tools and equipment.
S14: Core. Maintain housekeeping: tidy, segregate and dispose of waste.
S15: Core. Prepare and use chemicals.
S18: Core. Communicate – verbal.
S19: Core. Use technology.
S20: Core. Record information/complete documentation.
Clean option
S21: Option 1: Clean water process operative. Take clean water sample; process.
S22: Option 1: Clean water process operative. Operate clean water treatment work assets.
S23: Option 1: Clean water process operative. Apply clean water treatment processes.
Waste option
S24: Option 2: Waste water process operative. Take waste water sample; process.
S25: Option 2: Waste water process operative. Operate waste water treatment work assets.
S26: Option 2: Waste water process operative. Apply waste water treatment processes.

Behaviours
B1: Core. Prioritises on health, safety and environment for example, challenges unsafe practice, says 'no' where action could have negative impact.
B2: Core. Takes responsibility for work for example, completes allocated work, takes proactive approach, knows own limitations and asks for help where required.
B3: Core. Professional for example, ethical – does the right thing, trust-worthy; presents positive image of self and company – work attire worn, polite and respectful

Assessment method 2: Interview underpinned by portfolio of evidence

Knowledge
K2: Core. Water process operative role; position in structure, limits of authority; escalation procedures.
K11: Core. Water process fault finding techniques – visual, flow, odour, listening.
K12: Core. Chemicals: delivery and storage requirements - permits, limits.
Clean option
K15: Option 1: Clean water process operative. Clean water operating parameters, consequences of failure, impact of weather conditions on treatment processes.
K16: Option 1: Clean water process operative. Clean water treatment work assets and equipment: pumps, pressure vessels, reservoirs, tanks, valves.
K17: Option 1: Clean water process operative. Consequence of asset failure on clean water process.
Waste option
K26: Option 2: Waste water process operative. Waste water operating parameters, consequences of failure, impact of weather conditions on treatment processes.
K27: Option 2: Waste water process operative. Waste water treatment work assets and equipment: primary settlement tanks, biological filters, activated sludge plants, final settlement tank, digesters. Flow meters, pumps, screens.
K28: Option 2: Waste water process operative. Consequence of waste water asset failure.

Skills
S5: Core. Identify trends.
S8: Core. Apply fault finding techniques.
S16: Core. Audit and request chemical and or consumables stock.
S17: Core. Check chemical deliveries – quality/content.

Behaviours
B4: Core. Team player for example, keeps other informed.
B5: Core. Customer focus for example, polite, courteous.

Assessment method 3: Multiple-choice test

Knowledge
K1: Core. The water industry: the water cycle and key stakeholders: Regulators (Drinking Water Inspectorate (DWI), Water Services Regulation Authority (OFWAT), Environment Agency (EA) and Health & Safety Executive (HSE), customers; Customer Experience Measure (CMEX).
K4: Core. Health and safety legislation/regulations: Health & Safety at Work, Control of Substances Hazardous to Health (COSHH), manual handling, working in confined spaces, working at height, lone worker.
K6: Core. Health and safety equipment: Personal Protective Equipment (PPE), Harnesses, gas detectors and breathing apparatus. Their purpose, checking and storage requirements.
K7: Core. Environmental legislation and practice. Environmental Protection Act - safe disposal of waste.
K13: Core. Calculations: dilutions/concentrations, flows, conversions.
Clean option
K14: Option 1: Clean water process operative. Different clean water treatment processes and purpose.
K18: Option 1: Clean water process operative. Different types of water sources.
K19: Option 1: Clean water process operative. Water usage diurnal (daily) profile and impact of bursts; water cycle, flooding, drought, industries.
K21: Option 1: Clean water process operative. Chemicals used in clean water process: chlorine, coagulants, disinfectant chemicals, pH correction, orthophosphoric acid, hexafluorosilic acid polymers, ozone; their use, dosage and health and safety risks.
K22: Option 1: Clean water process operative. Water as a food source – importance of wholesomeness, why it is treated.
K23: Option 1: Clean water process operative. Clean water principles/procedures; Water Hygiene – Blue Card, Leptospirosis Card (Weil’s disease).
K24: Option 1: Clean water process operative. Clean water equipment: testing, cleaning, segregation, disinfection process and hygienic storage requirements.
Waste option
K25: Option 2: Waste water process operative. Different waste water treatment processes and purpose. Primary, secondary, tertiary, preliminary, sludge.
K29: Option 2: Waste water process operative. Different types waste: domestic, tanker, trade.
K30: Option 2: Waste water process operative. Flow: volumes, permits, catchment area consent and impact of weather conditions.

K32: Option 2: Waste water process operative. Chemicals used in waste water process: Nutriox, Ferric, Chloride, Sulphate, Ferris Chloride, Polyelectrolytes, Aluminium Sulphate.

K33: Option 2: Waste water process operative. Impact of operational performance on customer and environment - smell, pollution.

K34: Option 2: Waste water process operative. Commercial value of sludge.

K35: Option 2: Waste water process operative. Sludge tank monitoring requirements and dry solids.

K36: Option 2: Waste water process operative. Health hazards from working with waste water.

Grading descriptors

End-point assessment method 1: Observation with questions

Theme KSBs	Pass Apprentices must achieve all the following pass descriptors	Distinction Apprentices must achieve all the pass descriptors and eight out of 12 of the following distinction descriptors
Work preparation S1	Organises tasks in order of priority	Justifies their order of work task priority and explains any grouping of tasks in relation to cost/time saving
Health, safety and environment K5 S2 S3 B1	Conducts dynamic risk assessment (written or visual); identifies any workplace risks and suitable control measures Follows safe working practices and applies control methods; wears PPE, harness, gas detector and breathing apparatus required for the task correctly, follows method statement and ensures health, safety and the environment is prioritised	Explains compliance with health and safety procedures with reference to the impact on individuals, business and the environment
Policy and procedures/determine action K3 S9	Determines appropriate action to be taken based on operational circumstances and follows appropriate policy and procedures	Gives reasons for their choice of action over other options
First line operational maintenance K8 S10	Completes required first line operational maintenance of assets in line with company instructions	Explains the need to undertake operational maintenance that follows company policies/procedures
Tools and equipment K9	Selects, checks, uses and stores appropriate tools and equipment for the task (including calibrating	Justifies their choice of equipment and tools over alternative choices to meet the task

S11 S12 S13	tools/equipment) in accordance with the specification and manufacturer's/company's instructions, completing the first line maintenance if required	requirements Gives reasons for undertaking equipment/tool checks in compliance with manufacturers guidance and company procedures/policies
Housekeeping S14	Maintains housekeeping; keeps work area tidy as they go, segregates and disposes of waste in line with company policy	
Information/IT S18 S19 S20	Provides verbal information and records accurate and full information required for the task; information is suitable for the audience, uses technical terminology accurately and appropriately Uses appropriate IT correctly to support the task	Explains how and why they would adapt the communication when presented with a different audience
Takes responsibility B2	Takes responsibility to complete the tasks, for example completes action within limits of authority without direction; asks for help where required	Identifies how effective their actions have been and where improvements to practice could be made to inform similar tasks in the future
Demonstrate professionalism B3	Behaves professionally, for example presents positive image of self and company – work attire worn correctly, polite and respectful	
Clean water process operative option		
Clean water – samples K20 S21	Uses correct sample method, sample point and collection vessel Processes sample in line with company requirements,	Identifies and explains the reasons why errors can arise in testing, for example sample volume, reagent and

	<p>for example applies test, records result and disposes of sample correctly, or labels, stores and sends sample for testing</p> <p>Identifies sample requirements in relation to permit and consent parameters</p>	<p>time and how they mitigate against errors</p> <p>Explains the need to follow permit and consent parameters</p> <p>Identifies adverse trends and takes relevant action</p>
<p>Clean water – process</p> <p>K10</p> <p>S4 S6 S7 S15 S22 S23</p>	<p>Reads and interprets information/data, uses measuring equipment and undertakes sensory analysis to correctly determine operating variables</p> <p>Prepares and uses chemicals in line with manufacturer's/company's instructions, ensuring safe use</p> <p>Applies appropriate clean water treatment process in line with company instructions to maintain/address operational performance/parameters within given tolerances</p> <p>Operates (adjusts) clean water treatment work assets in line with company instructions to maintain/address operational performance/parameters within given limits</p>	<p>Identifies opportunities for process efficiencies to reduce the costs of water treatment and/or to optimise performance</p> <p>Explains consequences of process optimisation on upstream and/or downstream processes</p>
Waste water process operative option		
<p>Waste water – samples</p> <p>K31</p> <p>S24</p>	<p>Uses correct sample method, sample point and collection vessel</p> <p>Processes sample in line with company requirements, for example applies test, records result and disposes</p>	<p>Identifies and explains the reasons why errors can arise in testing, for example sample volume, reagent and time and how they mitigate against errors</p>

	<p>of sample correctly, or labels, stores and sends sample for testing</p> <p>Identifies sample requirements in relation to permit and consent parameters</p>	<p>Explains the need to follow permit and consent parameters</p> <p>Identifies adverse trends and takes relevant action</p>
<p>Waste water – process</p> <p>K10</p> <p>S4 S6 S7 S15 S25 S26</p>	<p>Reads and interprets information/data, uses measuring equipment and undertakes sensory analysis to correctly determine operating variables</p> <p>Prepares and uses chemicals in line with manufacturer's/company's instructions, ensuring safe use</p> <p>Applies appropriate waste water treatment process in line with company instructions to maintain/address operational performance/parameters within given tolerances</p> <p>Operates (adjusts) waste water treatment work assets in line with company instructions to maintain/address operational performance/parameters within given limits</p>	<p>Identifies opportunities for process efficiencies to reduce the costs of water treatment and/or to optimise performance</p> <p>Explains consequences of process optimisation on upstream and/or downstream processes</p>
<p>Fail: apprentice does not demonstrate the pass descriptors</p>		

End-point assessment method 2: Interview underpinned by portfolio of evidence

Theme KSBs	Pass Apprentices must achieve all the following pass descriptors	Distinction Apprentices must achieve all the pass descriptors and four out of six of the following distinction descriptors
Water process operative role K2	Describes the water process operative role, position in structure, limits of authority; escalation procedures	Explains the impact of their role on the wider water process operation
Chemicals: delivery and storage K12	Outlines delivery and storage requirements – delivery permits, storage requirements, tank limits and interceptor levels for a given water process chemical	Explains why it is necessary to follow delivery and storage requirements
Identifying trends/Fault-finding K11 S5 S8	Describes how they have identified a decline trend in process performance and applied a fault-finding technique to find the cause	Explains the action they took to resolve the fault, justifying the option taken
Stock S16 S17	Describes how they audit and request chemical and consumables stock; identifying factors that they take into account Describes how they check chemical deliveries for quality and content	Explains how process performance may influence stock usage and how they would manage stock levels
Team player B4	Describes being a team player in the workplace, outlining the situation and the role they played	
Customer focus B5	Describes being customer focused, outlining the situation and the approach they applied	

Clean water process operative option		
Clean water -operating parameters K15	Describes the impact of weather and the failure of an operating parameter on the treatment process	Explains the impact of the weather or failure of an operating parameter on downstream and/or upstream processes
Clean water -treatment work assets and equipment K16 K17	Identifies the purpose of a given clean water asset Describes the consequences of asset failure on clean water process	Explains the consequences of that failure on the water treatment works
Waste water process operative option		
Waste water -operating parameters K26	Describes the impact of weather and the failure of an operating parameter on the treatment process	Explains the impact of the weather or failure of an operating parameter on downstream and/or upstream processes
Waste water -treatment work assets and equipment K27 K28	Identifies the purpose of a given waste water asset Describes the consequences of asset failure on waste water process	Explains the consequences of that failure on the water treatment works
Fail: apprentice does not demonstrate the pass descriptors		

End-point assessment method 3: Multiple-choice test

KSBs	
K1 K4 K6 K7 K13	Apprentices must achieve the pass mark to pass; apprentices who do not achieve the pass mark will fail
Clean water process operative option K14 K18 K19 K21 K22 K23 K24	
Waste water process operative option K25 K29 K30 K32 K33 K34 K35 K36	