

Water Treatment Technician

Portfolio and Grading Guidance

Overview

It is a requirement of the water process technician apprenticeship that each apprentice compiles a portfolio of evidence during the on-programme period of his or her apprenticeship. The portfolio, which may be in a paper and / or electronic format, will contain a work log of evidence of the range of water treatment experience and work carried out by the apprentice in the workplace and typically compiled during the last two years of their apprenticeship.

End-point assessment will take place during the final three months of their apprenticeship.

This evidence is essential in confirming that an apprentice is eligible to enter end-point assessment.

In addition, to be eligible to enter end-point assessment, the apprentice must:

- Achieve as a minimum Level 2 English Language and mathematics (Functional Skills or GCSE grade A* - C)
- Complete a satisfactory final progress review
- Not be subject to a company disciplinary procedure

Overall Grading

The grading is determined within the published assessment plan and can be viewed at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/463164/Water_Process_Technician.pdf

Portfolio %	Points	Grade	Knowledge Assessment %	Points	Grade
<69	0	Fail	<69	0	Fail
70	1	Pass	70-79	1	Pass
71-74	2	Pass	80-89	2	Pass
75-79	3	Pass	90-100	3	Distinction
80 - 84	4	Pass			
85-89	5	Distinction			
90-94	6	Distinction			
95-100	7	Distinction			

A points system will determine if the apprentice has achieved a pass or distinction and is described below:

Pass Minimum 2 Points (1 Point Portfolio + 1 Point Knowledge Assessment)

Distinction Minimum 8 Points and Maximum 10 Points

Minimum Combinations:

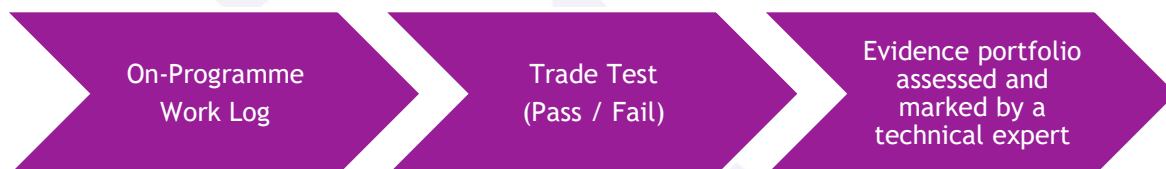
- Portfolio 5 Points + 3 Points Knowledge Assessment = 8 Points
- Portfolio 6 points + 2 Points Knowledge Assessment = 8 Points
- Portfolio 7 Points + 1 Point Knowledge Assessment = 8 Points

Portfolio Requirements

The evidence collectively must demonstrate competence against all aspects of the apprenticeship standard in terms of the required skills, knowledge and behaviours. Suitable and sufficient evidence must be gathered during the on-programme period to evidence the knowledge, skills and behaviours required to meet the published standard:

<https://www.gov.uk/government/publications/apprenticeship-standard-water-process-technician>

Summary of Evidence Portfolio Process



The portfolio assessment must meet the following requirements:

1. **The portfolio carries a weighting of 70% of the total apprenticeship**
2. The portfolio's summative assessment must be carried out by a technical expert (*see definition below*) who has not directly worked with the apprentice or participated in their learning and training
3. Technical experts must be approved by the EUIAS
4. The technical expert will use the standardised assessment criteria and documentation provided by the EUIAS to award a preliminary mark out of 100 and record the outcome of the portfolio assessment (Annex 2)
5. The portfolio will be attributed points as defined in the published assessment plan and outlined in the overview
6. An apprentice who achieves a portfolio assessment mark of 69 or below, or fails the trade test must not be allowed to proceed to the end-point assessment knowledge test, but must receive a remedial action plan clearly indicating the work to be undertaken before being considered for re-assessment

7. Only the final decision panel appointed by the EUIAS can confirm the final grade
8. Once a final grade has been confirmed by the final decision panel, the EUIAS will then apply for the final apprentice certificate

Technical Expert

The term technical expert is defined in the published assessment plan as:

- *Nominated by the apprentice's employer; they may come from within their own organisation or brought in if required from other employers or an assessment organisation. They will not have directly worked with the apprentice or participated in their learning and training. Technical experts must be able to demonstrate an appropriate level of competence i.e. training and experience to undertake the role and / or hold or be working towards an assessor qualification. **They must be 'approved' by the assessment organisation for the purposes of conducting the end-point assessment.***

Technical Expert Approval

The EUIAS will conduct a desktop evaluation of the proposed technical expert CV and assign a risk rating of low, medium and high. This risk rating will determine the EUIAS approach to audit during the end-point period, with 20% of technical experts subject to an EUIAS observation of end-point assessment in action by a particular expert. Experts will be notified by the EUIAS if they are selected for audit. Any assessment infringements will be subject to automatic audit in subsequent cohorts. (For more information, please view the EUIAS "Risk Rating of Technical Experts and Assessors").

Internal Standardisation

The employer must hold a standardisation meeting to internally review the portfolio score, with the decision verified by a technical expert who is not involved in the marking of the trade test or initial portfolio review. In the event that there is no agreement on the score, the portfolio will be reviewed by an additional technical expert for a majority decision. A standardised decision form will record the score and the rationale for the judgement for submission to the final decision panel.

Following the assessment and preliminary grading of the apprentice's portfolio, the portfolio and grading grid (Annex 2) will be made available to the final decision panel along with the knowledge assessment outcome.

Annex 1

Portfolio Grading Criteria within the Published Assessment Plan

To achieve a Pass the apprentice will demonstrate complete competence across the whole standard. To achieve Distinction the apprentice will demonstrate exemplary performance that provides evidence of performance over and above the standard. The following table outlines the scoring criteria that must be applied; detailed guidance will be developed by the assessment organisations (Annex 2).

End-point Element	Fail Criteria	Pass Criteria	Distinction Criteria
Portfolio	<p>Fail ≤69</p> <p>Portfolio lacks sufficient evidence and structure to demonstrate knowledge, skills and competency through the work log, progress reviews and progressive authorisation assessments across the standard</p> <p>Fail in the final trade test</p> <p>Poor application of knowledge in the work place</p> <p>Poor reasoning skills displayed on practical tasks</p> <p>Negative team working and interpersonal skills</p> <p>Subject to a company disciplinary procedure</p>	<p>Pass (70-84)</p> <p>Portfolio well-structured and contains sufficient and robust evidence to demonstrate knowledge, skills and competency across the standard through the work log, progress reviews and progressive authorisation assessments</p> <p>Pass in the final trade test</p> <p>Good application of knowledge in the work place</p> <p>Good critical reasoning skills displayed on practical tasks</p> <p>Good team working and interpersonal skills and ability to respect the opinion of others</p>	<p>Distinction (85-100)</p> <p>The portfolio demonstrates evidence which is over and above the requirements of the standard through the work log, progress reviews and progressive authorisation assessments</p> <p>Pass in the final trade test</p> <p>Outstanding application of knowledge in the work place</p> <p>High level of critical reasoning skills displayed on practical tasks</p> <p>Outstanding team and interpersonal skills and the ability to respect the opinion of others</p>

Annex 2

Water Treatment Technician End-point Assessment – Portfolio Grading Guidance

Portfolio Evidence			
Core Requirements – Knowledge and Skills			
1. Knowledge and application of relevant health and safety, environmental and industry standards and regulations, policies and procedures			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Training / certificates / attendance at training courses relating to H&S, environmental, regulatory and HR requirements (e.g. Toolbox talks, induction) • Knowledge of where to access H&S, environmental and industry information • Being responsible for their own H&S and that of others • Knowledge and compliance with company standards and procedures as 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Voluntarily engaging with employer to make contributions to health and safety improvements and initiatives • Understanding of the wider ranging consequences of not following standards, regulations, policies and procedures • Continuously updating knowledge regarding health, safety, environmental and industry



Portfolio Evidence			
		<p>applicable. E.g. COSHH, lone worker, isolation of plant and equipment, working at height, HR policies and procedures e.g. absence, holiday request, grievance etc.</p> <ul style="list-style-type: none"> • Compliance with environmental regulations and standards e.g. correct disposal of wastes • Ensuring safety equipment is maintained, checked and available to use and keeping records • Using, and storing safety equipment correctly at all times including PPE • Reporting any faults, loss or issues with equipment • Working to job description and following company terms and conditions • Identifying hazards and risks and completing risk assessments • Suggesting and implementing appropriate control measures • Identifying changing situations in the workplace and taking the appropriate action 	<p>standards and procedures</p> <ul style="list-style-type: none"> • Understanding of wider ranging consequences of not working safely and carrying out risk assessments • Explaining the need to maintain and store PPE and other safety equipment • Explaining the wider ranging consequences of not working appropriately with (including storage and disposal of) chemicals • Monitoring safety equipment use and compliance in others • Voluntarily taking an active role in completing safety compliance checks for others
2. Knowledge and application of water industry operations and			

Portfolio Evidence			
maintenance practices, processes and procedures in water treatment			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Knowledge of company operations and maintenance policies and procedures e.g. sampling procedures, flow monitoring • Knowledge of where to access company policies and procedures • Completing work in accordance with job description • Working safely with due consideration to others and the environment • Training / certificates / attendance at training courses relating to operations and maintenance practices, processes and procedures 	As Pass criteria
3. Use theory and principles to undertake fault finding, testing and analysis on specific equipment, instruments and IT systems and			

Portfolio Evidence			
interpret the results to implement effective solutions			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Training / certificates / attendance at courses relating to specific equipment, instruments and IT systems • Knowledge and use of the operation of flow monitoring equipment • Testing and maintaining H&S equipment • Testing, calibrating and maintaining monitoring instruments and equipment • Verifying IT systems are working correctly • Identifying faults and alarms • Understanding alarms, priorities, consequences and responses • Consulting and working with others to investigate, identify and resolve the root cause of problems • Implementing and monitoring solutions for effectiveness • Making adjustments where necessary 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Independently conducting fault or route cause analysis to successful conclusion without guidance • Presenting and sharing findings in a logical and consistent manner • Technical understanding of process equipment options and practical assessment and application of their suitability for use • Suggesting improvements in alarm management

Portfolio Evidence			
		<ul style="list-style-type: none"> Company recording and reporting procedures being followed 	
4. Drive vehicles equipped with tools and materials to other sites as required			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> Full driving licence Additional driving category training as required Complying with company driving policies and procedures on a regular basis e.g. vehicle checks completed on a regular basis Safe loading of vehicles Keeping company vehicles maintained and cleaned to a high standard 	As Pass criteria
5. Complete reports and ensure records are maintained for audit and reporting purposes			

Portfolio Evidence			
		<p>To achieve a Pass the apprentice must have evidence of</p> <ul style="list-style-type: none"> • Reporting and recording information accurately following company procedures • Records and reports site audit information e.g. emergency lighting checks, fire procedures, legionella 	<p>As Pass criteria</p>
<p>6. Work with focus and clear purpose in all weather conditions, covering 24/7 operations, sometimes working alone and safely adapt working methods to reflect changes in working environments</p>			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Completing planned work activities accurately and on time in all weather conditions • Completion of tasks when on their own • Completion of tasks out of hours 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Consistent dynamic risk assessments on a variety of jobs • Willingly assisting in emergency situations outside of normal working hours

Portfolio Evidence			
		<ul style="list-style-type: none"> • Dynamic risk assessments being completed • Compliance with company working time directives 	
Pathway Specific Skills and Knowledge			
<p>7. Control and monitor the operations on your sites:</p> <p>a) using knowledge of design specifications</p> <p>b) to ensure Drinking Water Quality Standards are met</p> <p>c) to ensure compliance with H&S policies including work in confined spaces, risk assessments and checking method statements</p> <p>d) Environmental compliance</p>			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Knowledge of the design criteria for treatment works e.g. flow, 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Linking design specifications to



Portfolio Evidence			
		<p>compliance targets and key parameters</p> <ul style="list-style-type: none">• Knowledge of relevant environmental standards and permits• Knowledge of and compliance with company action limits• Controlling and monitoring the treatment works based on water quality compliance, best practice and company standards• Identifying trends and potential faults and treatment problems based on monitoring• Work with others to identify the root cause of problems and resolve issues• Implementing process changes and monitoring these for effectiveness• Taking actions appropriate to their level of authority• Training in high risk environments including if applicable, confined spaces, permit to work, use of safety equipment, working at height, managing contractors• Adhering to company standards whilst working on water treatment processes	<p>practical tasks and suggesting improvements</p> <ul style="list-style-type: none">• Independent optimisation of processes showing opex savings or process efficiencies• Independently solving problems via root cause analysis and resolving issues• Checking and controlling the compliance of others on site e.g. contractors, colleagues and visitors to sites• Willingness to upskill and take additional responsibility for the safety of others

Portfolio Evidence			
		<ul style="list-style-type: none"> Company recording and reporting procedures being followed 	
8. Monitor and maintain water treatment processes e.g. chemical dosing, filtration and disinfection			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> Knowledge of target operating regimes for different processes Knowledge of and compliance with company action limits Understanding of site flow sheets and the interdependencies of the processes Monitoring and maintaining treatment processes to company standards Demonstrating a clear understanding of the effects of their actions on other treatment processes upstream and downstream Identifying trends and faults and solving potential treatment problems based on monitoring 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> Independent optimisation of processes showing opex or process efficiencies Independently solving problems via root cause analysis and resolving issues Long term trend analysis to consider future water quality issues e.g. plate counts on reservoir, raw water quality deterioration Instigating collaboration with other departments regarding process changes

Portfolio Evidence			
		<ul style="list-style-type: none"> • Work with others to identify the root cause of problems and resolve issues • Implementing and monitoring solutions for effectiveness • Making adjustments where necessary • Taking actions appropriate to their level of authority • Company recording and reporting procedures being followed 	
9. Operate, control and maintain process control equipment and instrumentation			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Navigation and use of company information systems • Maintaining and altering set points and interpreting alarms • Identifying trends from data • Identifying problems with monitoring equipment • Company recording and reporting procedures being followed 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Suggesting and implementing improvements to process control systems which contribute to opex or process improvements / efficiencies • Long term trend analysis to consider future water quality issues e.g. plate counts on reservoir,

Portfolio Evidence			
			raw water quality deterioration
10. Use water treatment theories and principles to ensure processes are maintained at optimum performance			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Knowledge of water treatment theories and principles for different processes • Application of knowledge to optimise treatment performance • Monitoring and maintaining treatment processes to company standards • Identifying trends and potential faults and treatment problems based on monitoring • Work with others to identify the root cause of problems and resolve issues • Taking actions appropriate to their level of authority 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Detailed knowledge of water treatment theories and principles e.g. hypochlorous acid production, chemistry of flocculation, influence of contaminants in raw water etc. • Demonstrating good understanding by sharing knowledge with others e.g. carries out site tours, coaching etc. • Suggesting and implementing improvements to processes which contribute to opex or

Portfolio Evidence			
		<ul style="list-style-type: none"> Company recording and reporting procedures being followed 	<p>process improvements / efficiencies</p>
<p>11. Implements emergency procedures and carries out process stream and full treatment works shutdown as required by routine planned maintenance, other situations and emergencies</p>			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> Isolation of process units and streams (and full treatment works if viable) following company procedures Isolation of process streams due to: <ul style="list-style-type: none"> Emergencies Maintenance Refurbishment / long term shutdown Checking, observing, recording and reporting of isolations and shut downs Compliance with company reporting procedures relating to: 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> Involvement in decommissioning and / or recommissioning plant / process stream Active involvement with contractors regarding shut downs / upgrades Advising others of emergency procedures for the treatment works Taking on additional responsibility regarding emergency procedures and

Portfolio Evidence			
		<ul style="list-style-type: none"> ○ Water Quality ○ Environmental compliance ○ Health and Safety 	situations e.g. fire marshal, first aider etc.
12. Organise and control maintenance operations on treatment works equipment			
		<p>To achieve a Pass the apprentice must have evidence of:</p> <ul style="list-style-type: none"> • Identifying maintenance tasks • Raise and prioritise work requests correctly based on known information • Completion of company records • Isolation and preparation of equipment for maintenance activities • Communicates actions to colleagues as required 	<p>To achieve Distinction the apprentice must achieve the Pass criteria plus evidence of:</p> <ul style="list-style-type: none"> • Identifying and communicating additional and relevant information pertaining to faults identified e.g. part numbers, accessibility issues • Implementing a contingency to ensure water quality compliance • Identifying alternative solutions or improvements

Behaviours			
<p>13. The 11 behaviours can be found in the WPT standard. The apprentice who achieves “meets requirements” in all the behaviours will achieve a Pass in the portfolio and “outstanding performance” will achieve a Distinction.</p>		<p>The most recent copy of the company performance management process paperwork should be included in the portfolio</p>	
		<p>Behaviour Topic Areas:</p> <ul style="list-style-type: none"> • Accept ownership and responsibility for your work whilst maintaining self-discipline, motivation and working in a professional manner at all times • Work well with other people to accomplish activities safely and on time and meet customer requirements • Be polite, courteous and professional • Be risk aware showing the desire to reduce risks through monitoring and checking information and strict compliance with appropriate rules, demonstrating: <ul style="list-style-type: none"> ○ Situational awareness ○ Concentration on task • Continuous personal development • Out of hours / emergency working • Effective and efficient use of resources • Accepting supervision and supervising others • Diversity and Equality • Undertake work in a way that contributes to sustainable development • Exercise responsibilities in an ethical manner <p>The full description of the behaviours for the WPT Apprenticeship standard can be found at: Water Process Technician apprenticeship standard</p>	