ENERGY & UTILITY SKILLS

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Supporting Documents for

EUIAS Level 3 End-point Assessment for Water Treatment Technician
(Water Treatment Technician; Water Treatment Equipment Technician; Legionella Risk Assessor; Water Treatment Operations Supervisor)

QAN 610/3491/5

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Updates to the supporting documents

Since the first publication of the EUIAS Water Treatment Technician (WTT) Supporting Documents – Water Treatment Technician; Water Treatment Equipment Technician; Legionella Risk Assessor; Water Treatment Operations Supervisor, the following updates have been made.

Version	Date first published	Section updated	Page(s)
V1.3	February 2025	Examples for S12 corrected	51, 56, 61
v1.2	August 2024	Practice multiple-choice test updated	11-24
v1.1	August 2024	Number removed from a bullet point	53
v1.0	March 2024	First published	All

Appendix A: Glossary

Amplification – provides more detail on how individual knowledge, skills or behaviours statements should be interpreted. Where the KSB statements, themselves are deemed self-explanatory, no amplification is provided. Assessment may include questions on anything identified in the amplification

Behaviours (as part of KSBs) – specific mindsets, attitudes or approaches identified as part of the apprenticeship standard that must be evidenced during end-point assessment

Elements – are the knowledge, skills and behaviours and what is needed to competently undertake the duties required for an occupational standard

Gateway - the stage of the apprenticeship where the apprentice, employer and training provider determine whether the apprentice is ready to undertake end-point assessment

Guidance – is only provided where it is required to support interpretation of the KSB statements

Knowledge (as part of KSBs) – specific information, technical detail, and 'know-how' identified as part of the apprenticeship standard that must be evidenced during end-point assessment

Pathways – a specialist route within an apprenticeship standard that builds on the occupational competence for a new entrant to the occupation

Skills (as part of KSBs) – the practical application of knowledge identified as part of the apprenticeship standard that must be evidenced during end-point assessment

Standard – An occupational standard is a description of an occupation. It contains occupational profile, and describes KSBs needed for someone to be competent in the occupation's duties. Occupational standards are developed by employers for occupations that meet the Institute for Apprenticeships and Technical Education current occupation criteria

Topic - is a collection of elements grouped into a theme e.g. Health and Safety

Appendix B: Gateway Eligibility Form

(Standard Version: ST0453 version 1.0; Assessment Plan Version: ST0453/AP01)

Apprentice's name:	Apprentice's job title:
Name of Employer:	Name of Training provider:
Employer representatives present:	Training provider representatives present:
Apprenticeship start date:	Apprenticeship on-programme end date:
Gateway meeting date:	
Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?	Y / N
If "Yes" please give details:	

Apprentice's details

Eligibility requirements:

The apprentice must confirm their achievement of the following:

Eligibility requirement	Achieved by the apprentice? Y/N	Evidence (Scans of certificates MUST be included)
Achieved Level 2 English or higher		
Achieved Level 2 Maths or higher		
Compiled and submitted a portfolio of evidence that meets the specification requirements, on which the professional discussion will be based		

Gateway Eligibility Declaration

1. The apprentice, the employer and the training provider must sign this form to confirm that they understand and agree to the following:
2. The apprentice has completed the required on-programme elements of the apprenticeship and is ready for end-point assessment with EUIAS.
3. EUIAS has been informed about any reasonable adjustment and/or special considerations requests.
4. The apprentice will only submit their own work as part of end-point assessment.
5. All parties agree that end-point assessment evidence may be recorded and stored by EUIAS for quality assurance purposes.
6. The apprentice has been on-programme for a minimum duration of 365 days.
7. The apprentice has achieved English and maths Level 2 or higher as detailed in this document.
8. The apprentice has compiled and submitted a competent portfolio of evidence, on which the professional discussion will be based.
9. The apprentice, if successful, gives permission for EUIAS to request the apprenticeship. certificate from the ESFA who issue the certificate on behalf of the Secretary of State.
10. The apprentice has been directed to the EUIAS Appeals Policy and Complaints Policy.
11. The employer/training provider has given the EUIAS at least three months' notice of requesting this EPA for this apprentice.
12. If the Gateway Eligibility Report is not completed in full, meeting all requirements, and submitted to EUIAS, the end-point assessment cannot take place.

Signed on behalf of the employer (print name):	Signature:	Date:
Signed on behalf of the training provider (print name):	Signature:	Date:
Apprentice's name (print):	Signature:	Date:
EUIAS use only:		
EUIAS Sign off:		
Comments/actions:		

Appendix C: Practice Multiple-choice Test

Level: 3

Water Treatment Technician

Supporting Document: Practice Paper

This practice paper reflects the type of questions in the live multiple-choice test, which can be taken as an online test or paper-based test.

This examination consists of 30 multiple-choice questions.

A Fail is awarded if the apprentice has not achieved at least one mark in each section and/or has achieved 17 or less correct answers.
The Pass mark is 18 correct answers.
The Distinction mark is 25 correct answers. .

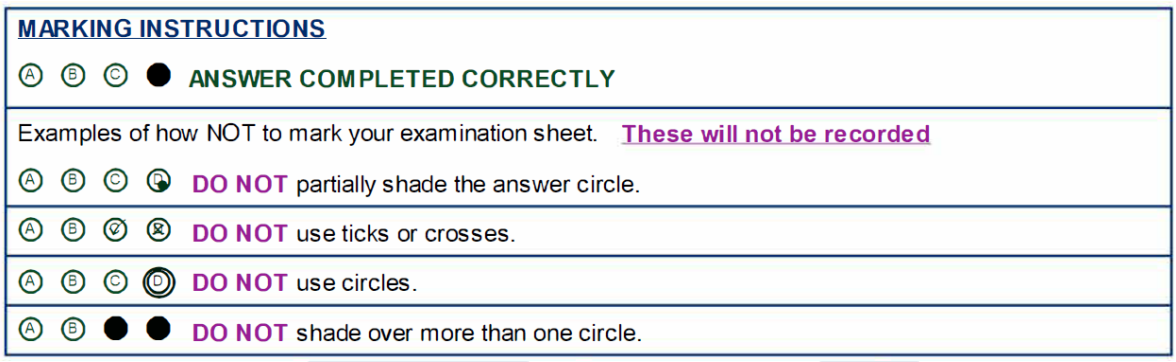
The duration of this examination is 60 minutes.
You must use a **pencil** to complete the answer sheet - pens must NOT be used.
When completed, please leave the examination answer sheet and question paper on the desk.

For this paper:

- access to reference books or materials is NOT allowed
- access to the internet or intranet is NOT allowed

For each question, fill in ONE answer ONLY.
If you make a mistake, ensure you erase it thoroughly.

You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:



You may use this page for rough work. This page must not be removed.

Section 1: Chemical reactions involved in the corrosion and scaling processes in water systems

Question 1	
What chemical reaction occurs at the anode of a galvanic cell where two different metals are in contact with an electrolyte?	
Possible answers	
a)	Reduction
b)	Oxidation
c)	Hydrolysis
d)	Neutralisation

Question 2	
Galvanic corrosion cells can be caused by two different metals in contact with an electrolyte. Which ONE of the following metals would corrode the quickest in contact with stainless steel?	
Possible answers	
a)	Copper
b)	Cast iron
c)	Steel
d)	Aluminium

Question 3	
Identify ONE non-electrochemical corrosion process which can affect pump impellers.	
Possible answers	
a)	Differential aeration
b)	Microbiologically influenced corrosion
c)	Cavitation
d)	Differential metals

Question 4	
Which ONE of the following reactions represents the formation of an aragonite scale?	
Possible answers	
a)	$Ca(HCO_3)_2 > CaCO_3 + CO_2 + H_2O$
b)	$2NaHCO_3 > Na_2CO_3 + CO_2 + H_2O$
c)	$2OH^- + 10Ca^{2+} + 6PO4^{3-} > Ca_{10}(PO4)_6(OH)_2$
d)	$Na_2CO_3 + H_2O > NaOH + CO_2$

Question 5	
Which ONE of the following conditions causes carbon dioxide solubility to decrease?	
Possible answers	
a)	Increasing temperature
b)	Decreasing temperature
c)	Increasing pressure
d)	Decreasing flow

Section 2: Inhibition methods for the reduction of corrosion of different metals

Question 6	
What is the effect on dissolved oxygen levels in a vented calorifier storing water at temperatures above 60°C?	
Possible answers	
a)	Levels of dissolved oxygen are not affected
b)	Levels of dissolved oxygen are reduced to 0ppm
c)	Levels of dissolved oxygen rise to a minimum of 90%
d)	Levels of dissolved oxygen decrease

Question 7	
Which ONE of the following is an anodic corrosion inhibitor in steel closed cooling systems?	
Possible answers	
a)	Calcium carbonate
b)	Zinc
c)	Tolytriazole
d)	Sodium nitrite

Question 8	
Corrosion can be caused by two different metals in contact. Which ONE of the following metals would cause corrosion of copper when connected to it?	
Possible answers	
a)	Steel
b)	Brass
c)	Stainless steel
d)	Aluminium

Question 9	
What is the minimum pH of water in closed systems containing aluminium or aluminium alloy components to avoid corrosion?	
Possible answers	
a)	4.5
b)	7
c)	8.5
d)	10

Section 3: Inhibition methods for the reduction of different scale types in specific water systems

Question 10	
Threshold scale inhibitors can be described as agents that:	
Possible answers	
a)	affect the process of crystal growth at very low concentrations without being consumed in the reaction
b)	absorb onto the surface of particles using charges to repel interaction and prevent scale
c)	prevent the formation of scale deposits by reacting with Calcium Carbonate at a ratio around 1:5
d)	decrease the surface tension or interfacial tension between a liquid and a solid preventing scale

Question 11	
In large, hard water-fed, cooling systems why might strong acids be dosed continuously?	
Possible answers	
a)	The continuous addition of acid reacts with calcium and magnesium to form a compound that prevents scale formation
b)	The continuous addition of acid can be used to modify the LSI and minimise scale deposition
c)	The continuous addition of acid prevents the growth of bacteria like Legionella
d)	The continuous addition of acid acts as a threshold scale inhibitor minimising scale deposition

Question 12	
Which ONE of the following situations would facilitate the use of chelating agents in high pressure boilers?	
Possible answers	
a)	Very low hardness and a lack of oxygen allows careful and controlled stoichiometric dosing
b)	Poor oxygen scavenging will not affect chelant requirements
c)	The presence of chlorides will improve the performance of chelants
d)	The presence of high dissolved iron will reduce the amount of chelant required

Question 13	
Describe the action of sodium hexa-metaphosphate in the wholesome water scale control process.	
Possible answers	
a)	It increases dissolved carbon dioxide levels to reduce the LSI (Langellier Saturation Index)
b)	It is a pH modifying agent for control of calcium carbonate precipitation
c)	It is a threshold scale inhibitor for control of calcium carbonate precipitation
d)	It is a dispersant to mobilise calcium carbonate particles

Section 4: Cell structure of waterborne microbes and the interactions with biocidal products used to control them

Question 14	
What is the term used to describe a free-floating microorganism in suspension in water systems?	
Possible answers	
a)	Planktonic
b)	Sessile
c)	Eukaryote
d)	Prokaryote

Question 15	
Prokaryotic bacteria:	
Possible answers	
a)	contain DNA in a nucleus
b)	contain mitochondria and chloroplasts
c)	are larger than eukaryotic cells
d)	are unicellular

Question 16	
What system pH is ideal for the rapid growth of most bacteria found within water systems?	
Possible answers	
a)	<4
b)	4 - 6
c)	6.5 - 7.5
d)	>9

Question 17	
Which ONE of the following is an oxidising biocide?	
Possible answers	
a)	Glutaraldehyde
b)	Bronopol
c)	Chlorine dioxide
d)	Isothiazolinones

Question 18	
Identify ONE system problem that can occur due to the presence of a biofilm.	
Possible answers	
a)	Increase in corrosion inhibitor levels
b)	Under-deposit corrosion
c)	Increase in flow through system pipework
d)	Increase in efficiency at heat exchange surfaces

Section 5: The concepts of flow and heat transfer in water systems and how they affect water treatment processes

Question 19	
Which ONE of the following Reynolds numbers would indicate fully turbulent flow?	
Possible answers	
a)	0 Re
b)	0 Re to 2,000 Re
c)	2,000 Re to 4,000 Re
d)	>4000 Re

Question 20	
Which ONE of the following conditions would predominantly encourage the formation of biofilms in pipework?	
Possible answers	
a)	Varying flow
b)	Turbulent flow
c)	No flow
d)	Transitional flow

Question 21	
How is heat energy predominantly removed from an evaporative cooling system?	
Possible answers	
a)	Convection
b)	Latent heat loss
c)	Radiation
d)	Conduction

Question 22	
Which ONE of the following is a result of increasing temperature in a vented calorifier?	
Possible answers	
a)	Reduced levels of dissolved carbon dioxide
b)	Increased levels of dissolved oxygen
c)	Reduced levels of dissolved sodium
d)	Reduced levels of dissolved chloride

Section 6: Ion transfer technologies, including resin and membrane-based systems, used to change water quality

Question 23	
What type of ion exchange resin is contained in a conventional water softener?	
Possible answers	
a)	Anion resin
b)	Cation resin
c)	Mixed bed resin
d)	Epoxy resin

Question 24	
In a twin bed demineralisation process a strong cation exchange resin is normally regenerated using which ONE of the following?	
Possible answers	
a)	Citric acid
b)	Oxalic acid
c)	Sulphuric acid
d)	Phosphoric acid

Question 25	
Which ONE of the following dissolved molecules will **NOT** be removed by reverse osmosis?	
Possible answers	
a)	Sodium chloride
b)	Carbon dioxide
c)	Calcium bicarbonate
d)	Magnesium chloride

Question 26	
Which ONE of the following processes would be used to remove remaining total dissolved solids following reverse osmosis?	
Possible answers	
a)	Base exchange softening
b)	Activated carbon filtration
c)	Electrodeionisation (EDI)
d)	Anion exchange resin

Section 7: The use of specialised analytical equipment for the testing in field of water samples

Question 27	
The standard that provides the minimum performance requirements for onsite analysis of water in closed heating and cooling systems is known as:	
Possible answers	
a)	HSG274
b)	BS 7592
c)	BS 8552
d)	BS ISO 5667-5

Question 28	
How often would a technician expect to calibrate pH meters that are used intermittently?	
Possible answers	
a)	Calibrate before each use
b)	Calibrate weekly
c)	Calibrate monthly
d)	Calibrate annually

Question 29	
Which ONE of the following test methodologies can be used to measure total alkalinity?	
Possible answers	
a)	Drop test kit
b)	pH meter
c)	Thermometer
d)	Refractometer

Question 30	
Why is it important that dipslides are not shaken after immersion in the sample?	
Possible answers	
a)	To avoid contamination of media by air
b)	To ensure the correct amount of fluid is retained on the media
c)	To avoid media drying out in the incubator
d)	To enable incubator temperature to be maintained

End of Questions

Practice Multiple-choice Test

Answer scheme

Question	Answer	Question	Answer	Question	Answer
1	B	11	B	21	B
2	D	12	A	22	A
3	C	13	C	23	B
4	A	14	A	24	C
5	A	15	D	25	B
6	D	16	C	26	C
7	D	17	C	27	C
8	C	18	B	28	A
9	A	19	D	29	A
10	A	20	C	30	B

Appendix D: Portfolio Mapping Document

This document must be placed at the front of the portfolio and submitted to EUIAS with the portfolio of evidence.

Introduction

Throughout the on-programme part of the apprenticeship, the apprentice will need to keep compile a portfolio of evidence to support the requirements of the professional discussion.

Use this document to map the portfolio of evidence to the KSBs assessed during the professional discussion.

The portfolio mapping document below consists of

- pages 29-32 covering mapping for core requirements
- pages 33-36 covering mapping for the Water Treatment Technician option
- pages 37-40 covering mapping for the Water Treatment Equipment Technician option
- pages 41-44 covering mapping for the Legionella Risk Assessor option
- pages 45-48 covering mapping for the Water Treatment Operations Supervisor option

Apprentices should use the mapping for the core and the option they are following.

Apprentice's next steps

1. Complete all the details on the first page and include employer details of where relevant competencies from their experience at work was gained
2. Ensure each piece of evidence signed off by their tutor/supervisor/mentor and training provider. The apprentice can use a number of different types of evidence to demonstrate their competence as described in Section 6 of the Specification – 'What to include in the portfolio'. For further guidance, the apprentice must seek advice from their tutor/supervisor/mentor and training provider
3. Map evidence to the criteria in the following pages using a referencing system indicating where the evidence for the criteria is located in the portfolio e.g., work based evidence Job 1 (J1) page 5 paragraph 2. This will allow the

independent assessor to locate the section or specific piece of evidence being discussed and referred to during the professional discussion

4. Place the portfolio mapping document at the front of the portfolio of evidence.

The apprentice's training provider must make arrangements for EUIAS to have access to the apprentice's portfolio including the portfolio mapping document at Gateway. For those using e-portfolios such as ONEFILE or SMARTASSESSOR, the reference used must simply be the file or folder name you used when uploading the evidence to such systems.

Professional Discussion Grading with Portfolio Mapping

Mapping Sign off on Portfolio Completion:

Apprentice Name (Print)	Apprentice Signature	Training Provider (Company)	Training Provider Signatory	Date of Sign Off

Pathway	

GROUP 1: (Core) Health, Safety and the Environment

Pass Criteria

Comply with company practices, processes and procedures associated with safety.

Demonstrate where they have contributed to the development of an operational solution to a health and safety issue.

Identify the main Health and Safety and compliance requirements of a Water Treatment Technician e.g. Health &Safety at Work Act, L8, BS 2486, BS 8552 etc

Distinction Criteria

Demonstrate an understanding of where to improve Health and Safety within their workplace, including actions taken e.g. where reduced hazards minimised the risk to health or improved the system integrity

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS4	They should be able to contribute to the development of operational solutions and improvements e.g. safer working practices			

GROUP 2: (Core) Workplace attitude

Pass Criteria

Describe when they have operated as an effective team member and taken responsibility, e.g. when they have made independent decisions and suggested workplace improvements.

Describe the company's policy on ethics, equality and diversity, explaining why this is important, and illustrate this with an example of how they have effectively maintained a good relationship with either a colleague, client, supplier or member of the public.

Demonstrate they have been receptive to feedback, willing to learn new skills and adapted to change.

Demonstrate how they have assessed personal training needs in order to maintain a satisfactory level of competence in their job role e.g. when they have requested external OEM training or specific H&S training e.g. confined spaces

Distinction Criteria

Demonstrate a clear development plan, outlining choices and opportunities available beyond the completion of the apprenticeship. e.g. personal review/assessment of their career progression potential with current employer and within the industry as a whole and what is required to achieve those goals

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS16	Maintain level of competence commensurate with job role. Identify and recognise personal training needs and undertake suitable training when required. Complete and record CPD necessary to maintain and enhance competence			
CB3	Display a self-disciplined, self-motivated, proactive approach to work, willing to make independent decisions and develop solutions and improvements to work practices			
CB5	Be prepared to work effectively and efficiently maintaining good relationships with colleagues, clients, suppliers and the public			

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CB6	Be receptive to feedback, willing to learn new skills and adjust to change			
CB7	Demonstrate adherence to corporate policies on ethics, equality and diversity			

GROUP 3: (Core) Resource Management

Pass Criteria

Explain how their work process, use of resources and management of time is effective. e.g. WTT explain their sample collection and drop off scheduling e.g. WTE describe their equipment parts procurement procedure and work planning e.g. LRA describes the necessary site communication channels for access arrangements e.g. WTS explains the team selection criteria used and the reasons for the organisation of labour on site for the operation

Distinction Criteria

Show an understanding of the importance of effective time and resource management and the implications to themselves and their employer. e.g. cost to the employer of aborted site visits, missing materials and call backs

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS5	Gather system data to enable the correct selection of operational resources that may be required e.g. access equipment (ladders, scaffold or cherry picker)			
CS14	Use resources effectively including their own time management, the appropriate competence of staff chosen for the operation involved, the efficient use of staff resources and management of equipment required for specific work tasks			

GROUP 4: (WTT) Water system surveys, water system requirements and treatment programme design

Pass Criteria

Describe the information to be obtained during a water system survey to enable a water treatment programme to be designed e.g. water make up type, water usage, system operation

Demonstrate how they have correctly applied an understanding of the water treatment requirements for a specific water system. e.g. by explaining programme design calculations and conclusions

Demonstrate how they use the information gathered to design a water treatment programme to meet the requirements, specification or guidance provided, e.g. by explaining the programme design calculations and conclusions

Distinction Criteria

Explain the risks and implications of failure to follow the correct design principles and the likely problems that will occur. e.g. corrosion/scale reducing plant efficiency and lifespan

Describe the maintenance and monitoring programme that can be employed to ensure the continued suitability of the treatment programme. e.g. corrosion monitoring of high risk metals within the system

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTT K1	Understand the water treatment requirements of specific water systems e.g. steam boilers, cooling towers etc			
WTT S1	Design, specify and recommend chemical water treatment programmes taking account of water supply quality and system operating conditions			

GROUP 5: (WTT) Evaluate the water treatment programme options for an application

Pass Criteria

Describe the chemical treatment options available for a specific water treatment application e.g. nitrite versus molybdate as a corrosion inhibitor

Describe the physical treatment options available for a specific water treatment application e.g. hard water versus softened water make up for a cooling system

Demonstrate how they have assessed the suitability of the chemical water treatment options in order to solve a technical problem they have encountered e.g. by explanation of the programme design calculations and conclusions

Demonstrate how they have assessed the suitability of the physical water treatment options in order to solve a technical problem they have encountered e.g. by explanation of the programme design calculations and conclusions

Distinction Criteria

Demonstrate how they have evaluated the benefits and drawbacks of different treatment programme options
and
Demonstrate an understanding of the commercial cost implications of treatment options. e.g. through explanation of the comparison of cost benefits of the options in a quotation

Explain the implications of selecting an unsuitable treatment option and how this could be rectified. e.g. incorrect biocide for a closed water system

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTT K2	Understand the treatment options available for specific water systems e.g. pre-treatment plant, chemical treatment etc			
WTT S2a	Evaluate the suitability of alternative physical water treatment programmes for specific water systems and applications			
WTT S2b	Evaluate the suitability of alternative chemical water treatment programmes for specific water systems and applications			

GROUP 6: (WTT) Water treatment programme operational performance and assessment

Pass Criteria

Describe the correct performance criteria for the programme type, the tests to be completed and the correct equipment to be used when performing this task e.g. calcium balance to monitor scale inhibition

Demonstrate the evaluation and implementation process that has been completed and explain the conclusions/recommendations arrived at. e.g. by explanation of the customer service report

Distinction Criteria

Explain the risks and implications of poor treatment programme performance. e.g. corrosion/scale reducing plant efficiency and lifespan

Demonstrate an understanding of the potential improvements that could be made to the programme and evaluate the benefits of those improvements e.g. changing from non-oxidising biocide programme to oxidising biocide

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS9	Assessment of relevant test parameters and sampling plan for specific water systems			
CS10	Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment			
CS13	Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery			
WTT K3a	Acquire the knowledge required to assess the performance of water treatment programmes			
WTT K3b	Acquire the knowledge required to recommend improvements to water treatment programmes			
WTT S4	Assess the performance of a water system treatment programmes and provide recommendations for improvement			

GROUP 4: (WTE) Water system surveys, water system requirements and treatment programme design

Pass Criteria

Describe the information to be obtained during a water system survey to enable a water equipment installation to be designed e.g. water make up type, water usage, quality requirements

Demonstrate how they have correctly applied an understanding of the water treatment requirements for a specific water system e.g. by explaining programme design calculations and conclusions

Demonstrate how they use the information gathered to design a water treatment installation. e.g. by explaining programme design calculations and conclusions

Demonstrate the knowledge required to install specific water treatment equipment e.g. electrical requirements for a softener installation, or the service parts required

Describe how they have installed and commissioned items of equipment.

Distinction Criteria

Explain the risks and implications of failure to follow the correct design principles and the likely problems that will occur e.g. poor water quality causing deterioration of final product

Describe the maintenance and monitoring programme that can be employed to ensure the continued suitability of the treatment programme. e.g. regenerant usage profile and cost reduction

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTE K1	Understand the water treatment requirements of specific water applications and processes e.g. water used for pharmaceutical manufacturing, chemical treatment dosing			
WTE K3a	Acquire the knowledge required to install specific items of equipment relevant to their job role			
WTE S1	Complete water system surveys and produce system diagrams appropriate to the presentation of system data e.g. layout of the treatment plant within the system location			

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTE S3a	Install and commission water treatment equipment			

GROUP 5: (WTE) Evaluate the water treatment programme options for an application

Pass Criteria

Describe the treatment options available for a specific water treatment application and

Demonstrate how they have assessed the suitability of the treatment options e.g. by explanation of the programme design calculations and conclusions

Distinction Criteria

Demonstrate how they have evaluated the benefits and drawbacks of different equipment options

and

Demonstrate an understanding of the commercial cost implications of treatment options e.g. through explanation of the comparison of cost benefits of the options in a quotation

Explain the implications of selecting an unsuitable treatment option and how this could be rectified. e.g. softened water for a sodium sensitive chemical blending plant

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTE K2	Understand the equipment options available and their relevant benefits			
WTE S2	Evaluate and design appropriate water treatment equipment installations			

GROUP 6: (WTE) Water treatment programme operational performance and assessment

Pass Criteria

Describe the correct performance criteria for the equipment type, the tests to be completed and the correct equipment to be used when performing this task e.g. recovery rate at specific conductivities for Reverse Osmosis plant

Demonstrate the evaluation and implementation process that has been completed and explain the conclusions/recommendations arrived at. e.g. by explanation of the equipment service report

Describe the servicing requirements for a specific item of water treatment equipment e.g. membrane cleaning of a Reverse Osmosis plant

Describe the maintenance requirements for a specific item of water treatment equipment e.g. routine calibration of a pH monitoring system

Distinction Criteria

Explain the risks and implications of poor treatment equipment performance. e.g. poor water quality causing deterioration of customer's final product

Demonstrate an understanding of the potential improvements that could be made to the programme and evaluate the benefits of those improvements e.g. mixed bed polishing unit after Reverse Osmosis for ultrapure water supply

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS9	Assessment of relevant test parameters and sampling plan for specific water systems			
CS10	Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment			
CS13	Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery			
WTE K3b	Acquire the knowledge required to service specific items of equipment relevant to their job role			

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTE K3c	Acquire the knowledge required to maintain specific items of equipment relevant to their job role			

GROUP 7: (WTE) Health, Safety and the Environment

Pass Criteria

Apply a safety first approach for themselves and colleagues keeping themselves and others safe

Undertake and document work place risk assessments and hazard reviews in accordance with company procedures

Describe how to supervise the health and safety of a team e.g. ensure all members of the team have the appropriate PPE for the task to be performed

Distinction Criteria

Challenge unsafe practice outside of their immediate control or responsibility and is proactive in resolving those practices e.g. transport of equipment from point of delivery to the site of installation

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTE S5				

GROUP 4: (LRA) Water system surveys, water system requirements and treatment programme design

Pass Criteria

Describe the major elements of a water system and their design e.g. storage tanks, calorifiers, thermostatic mixer valves in a hot water system

Describe how they prepare water system diagrams. e.g. schematic drawings produced by computer aided design software

Distinction Criteria

Explain the risks and implications of failure to follow the correct design principles and the likely problems that will occur .e.g. implications of health scare to customers business

Describe the monitoring programme that can be employed to ensure the continued suitability of the risk assessment. e.g. the effectiveness of remedial engineering actions taken

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
LRA K4	Understand the principles of design for water systems and water treatment equipment e.g. water tanks, calorifiers, softeners etc			
LRA S2	Prepare water system diagrams and drawings			

GROUP 5: (LRA) Evaluate the water treatment programme options for an application

Pass Criteria

Demonstrate the understanding of the application of a water treatment programme e.g. chlorine dioxide dosing to a cold water supply system

Demonstrate the identification of remedial, improvement and management actions. e.g. by explanation of the recommendations given in a risk assessment

Distinction Criteria

Explain the implications of selecting an unsuitable treatment option and how this could be rectified .e.g. continuous dosing of a silver stabilised peroxide to a potable water system

Demonstrate an understanding of the cost implications of recommended remedial actions e.g. comparative cost of tank refurbishment versus replacement

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
LRA K3	Understand the application of water treatment programmes for specific water systems			
LRA K5	Acquire the knowledge required to recommend remedial actions, optional system improvements and management requirements			
LRA S4	Identify remedial, improvement and management actions required to minimise any risk presented			

GROUP 6: (LRA) Water treatment programme operational performance and assessment

Pass Criteria

Describe the correct performance criteria for the system type, the tests that may be completed to assess this and the correct equipment to be used when performing this task e.g. legionella testing of a hot water system

Describe the risk assessment principles that they use e.g. risk values weighted by local population of site e.g. by explanation of the risk assessment report findings and recommendations

Demonstrate the evaluation and implementation process that has been completed and explain the conclusions/recommendations arrived at. e.g. by explanation of the risk assessment report

Distinction Criteria

Explain the risks and implications of poor treatment programme performance. e.g. the commercial implications of health scare to the customer's business

Demonstrate an understanding of the potential improvements that could be made to the programme and evaluate the benefits of those improvements e.g. continuous biocide dosing to hot and cold water systems where legionella are prevalent

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS9	Assessment of relevant test parameters and sampling plan for specific water systems			
CS10	Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment			
CS13	Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery			
LRA K2	Understand the principles of risk assessment and the identification of hazards in water systems			

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
LRA S3	Assess the comparative risk of Legionellosis presented by specific water systems			

GROUP 7: (LRA) Health, Safety and the Environment

Pass Criteria
Identify the main Health and Safety and compliance requirements relevant to the production of a legionella risk assessment

Distinction Criteria
Challenge unsafe practice outside of their immediate control or responsibility and is proactive in resolving those practices e.g. identifies health risks associated with a water system not directly linked to the legionella risk assessment process and brings this to the attention of the client

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
LRA K1	Know and understand any regulatory requirements and guidance appropriate to the water systems being assessed			

GROUP 4: (WTS) Water system surveys, water system requirements and treatment programme design

Pass Criteria

Describe the information to be obtained during a water system survey to enable a water system cleaning programme to be planned e.g. system access points, drainage, power supply

Demonstrate how they have correctly applied an understanding of the water treatment requirements for a specific water system. e.g. from the system condition report, operative reports, analytical reports

Distinction Criteria

Explain the implications of selecting an unsuitable treatment option and how this could be rectified e.g. non-dynamic flushing of a multiple floor heating system

Explain the benefits for the customer of completing the cleaning procedure e.g. improvement in heat transfer processes derived from a cleaning procedure

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTS K1	Understand the water treatment requirements of specific water systems e.g. drinking water systems, process water systems etc.			
WTS S2	Understand and apply chemical cleaning and disinfection programmes for specific water systems			

GROUP 5: (WTS) Evaluate the water treatment programme options for an application

Pass Criteria
Describe the treatment options available for a specific water treatment cleaning application e.g. removal of suspended solids from a closed system

Describe the treatment options available for a specific water system disinfection application e.g. sodium hypochlorite versus hydrogen peroxide for mains disinfection

Distinction Criteria
Explain the risks and implications of failure to follow the correct cleaning programme and the likely problems that will occur. e.g. incorrect cleaning programme closing down production process and consequent losses to both the customer and the employer

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTS K2a	Understand chemical cleaning programme options for specific water systems and processes			
WTS K2b	Understand disinfection programme options for specific water systems and processes			

GROUP 6: (WTS) Water treatment programme operational performance and assessment

Pass Criteria

Describe the correct performance criteria for the operation type, the tests to be completed and the correct equipment to be used when performing this task e.g. iron levels during a dynamic flushing operation

Describe how they have installed and commissioned operational equipment

Demonstrate the evaluation and implementation process that has been completed and explain the conclusions arrived at e.g. by explanation of the job completion report

Distinction Criteria

Explain the risks and implications of poor cleaning operation performance. e.g. incorrect cleaning programme closing down production process and consequent losses

Demonstrate an understanding of the potential improvements that could be made to the water treatment programme on a cleaned system e.g. side stream filtration to remove suspended solids

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
CS9	Assessment of relevant test parameters and sampling plan for specific water systems			
CS10	Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment			
CS13	Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery			
WTS K3	Acquire the knowledge required to assess the performance of water treatment cleaning/disinfection operation			

WTS S3a	Install and commission temporary operations equipment required to complete the project e.g. flushing pump stations, side stream filtration, cooling tower packing			
WTS S4	Assess the performance and progress of a water treatment cleaning/disinfection operation by sample analysis and make adjustments to the programme as required			

GROUP 7: (WTS) Health, Safety and the Environment

Pass Criteria
Apply a safety first approach for themselves and colleagues keeping themselves and others safe.

Undertake and document work place risk assessments and hazard reviews in accordance with company procedures.

Distinction Criteria
Challenge unsafe practice outside of their immediate control or responsibility and is proactive in resolving those practices e.g., produces a risk based chemical handling and transport procedure for delivery of chemicals to site

Ref.	Apprenticeship Standard Criteria	PORTFOLIO EVIDENCE REFERENCE (Apprentice Input)		
		1	2	3
WTS K4	Understand the risks involved, the relevant Health and Safety regulations associated with the project and specific requirements of the project site			
WTS S6	Produce a method statement and control scheme to manage the health, safety and environment during the various phases of a project			

Appendix E: Observation Planning Forms

Instructions

This form has two purposes:

1. To help you plan a practice Observation for your apprentices
2. To inform EUIAS of the proposed task(s) for the live assessment

The apprentice is assessed:

- in their normal place of work, under normal working conditions
- A total of 2 hours + or – 12 minutes is permitted for the practical skills observation with questioning
- Equipment and resources needed for the assessment must be in good and safe working condition

The activities should be designed to assess a broad range of the skills, knowledge and behaviours developed over the period of the apprenticeship. However, as a minimum the practical skills observation must cover the activities and KSBs listed in the Planning Form below.

EUIAS offers a service to review the employer/training provider's Observation task brief.
Task variations: If you have more than one apprentice being assessed, use the 'Practical Task variations' section of the form to indicate what the task variations that will be put in place so that apprentices are not asked to complete identical tasks.

Complete the 'Observation Planning Form' and submit it to the Service Delivery team via enquiries@euias.co.uk, for **review at least 1 month before the start** of the end-point assessment.

Water Treatment Technician pathway

Observation Planning Form

Employer name and site address	
Training provider (if applicable)	
Standard	Water Treatment Technician
Pathway	Water treatment technician
Level	3
Location of observation	
Contact Details: Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	

Use the boxes below to describe the task(s). Details for the individual KSBs can be found in the reference table at the end of this form.

The **water treatment technician** apprentice must be observed presenting the results and recommendations of a water analysis to the customer:

The task should allow the apprentice to demonstrate:

1. following the relevant organisational safety requirements for their self and others
2. completing a risk assessment
3. producing a work plan/method statement
4. checking the requirement and correct operation of resources/equipment required
5. identifying suitable test or application points within the system
6. applying the treatment programme for the system involved
7. interpreting the test results
8. assessing the implications of the results for the treatment programme
9. if necessary, reporting a risk or concern in the workplace to the correct individual in the organisation
10. giving a presentation / demonstration of treatment recommendations or programme controls to a customer

Please describe the water treatment operation
Please identify the type of water system:
Please confirm that the task will be completed under normal working conditions

Please state how the apprentice will have the opportunity to achieve the following elements
Health and Safety
☐ Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way ☐ Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved ☐ Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation S1, S2, S3, S6, B2, B4 **Statement:**

Please state how the apprentice will have the opportunity to achieve the following elements

Communication Skills

☐ Communicate effectively with the customer/site personnel and other organisational staff involved with the task

☐ Provide clear and accurate recommendations to customer/site personnel. by discussion of the job completion report

☐ Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal

☐ Demonstrate the presentation or demonstration of treatment recommendations or programme controls to a customer

☐ Demonstrate how they organise and carry out a review meeting with a customer and that they have imparted the correct information to the relevant people e.g. identify the relevant attendees and produce an agenda for the meeting

S15, WTT S3, WTT S5, B1

Statement:

Please state how the apprentice will have the opportunity to achieve the following elements

Complete Operational Tasks ()

☐ Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. flushing pumps are in serviceable condition

☐ Identify suitable test or application points within the system. e.g. identifies access point for external flushing pump connection

☐ Correctly apply the treatment programme for the system involved. e.g. supervises a closed system chemical flushing operation

S7, S8, S11

Statement:

Performance Testing (S12)

☐ Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for a low treatment level in a closed system

S12

Statement:

Site access / Special requirements (for example: access arrangements/PPE):
Resources (for example: equipment/tools required): Note: Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable
Please state time for the practical task(s)
Note: Total duration of practical task(s) must be 2 hours + or – 12 minutes.

Observation – practical task(s): Include relevant photographs to illustrate task(s)

EUIAS Office use only

Date received	
Date signed off	

Water Treatment Equipment Technician pathway

Observation Planning Form

Employer name and site address	
Training provider (if applicable)	
Standard	Water Treatment Technician
Pathway	Water treatment equipment technician
Level	3
Location of observation	
Contact Details: Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	

Use the boxes below to describe the task(s). Details for the individual KSBs can be found in the reference table at the end of this form.

The **water treatment equipment technician** apprentice must be observed servicing a piece of water treatment equipment.

The task should allow the apprentice to demonstrate:

1. preparing for operation
2. checking equipment and conditions
3. identifying the water treatment equipment
4. carrying out operations safely
5. recording operations

Please identify the water treatment operations
Please identify the type of water system:
Please confirm that the task will be completed under normal working conditions

Please state how the apprentice will have the opportunity to achieve the following elements
Health and Safety
☐ Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way ☐ Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved ☐ Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation S1, S2, S3, S6, B2, B4 **Statement:**

Please state how the apprentice will have the opportunity to achieve the following elements

Communication Skills

☐ Communicate effectively with the customer/site personnel and other organisational staff involved with the task.

☐ Provide clear and accurate recommendations to customer/site personnel. by discussion of the job completion report

☐ Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal.

S15, B1

Statement:

Please state how the apprentice will have the opportunity to achieve the following elements

Complete Operational Tasks ()
☐ Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. flushing pumps are in serviceable condition ☐ Identify suitable test or application points within the system. e.g. identifies access point for external flushing pump connection ☐ Correctly apply the treatment programme for the system involved. e.g. supervises a closed system chemical flushing operation ☐ Successfully complete the servicing of a piece of water treatment equipment in accordance with company procedures and relevant equipment specifications. S7, S8, S11, WTE S3 **Statement:**

Performance Testing (S12)
☐ Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for hardness slippage through a softener ☐ Service a piece of water treatment equipment e.g. dosing pump in accordance with company procedures and relevant equipment specifications and test for correct operation S12, WTE S3b, WTE S4 **Statement:**

Site access / Special requirements (for example: access arrangements/PPE):
Resources (for example: equipment/tools required): Note: Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable
Please state time for the practical task(s)
Note: Total duration of practical task(s) must be 2 hours + or – 12 minutes.

Observation – practical task(s): Include relevant photographs to illustrate task(s)

EUIAS Office use only

Date received	
Date signed off	

Legionella Risk Assessor pathway

Observation Planning Form

Employer name and site address	
Training provider (if applicable)	
Standard	Water Treatment Technician
Pathway	Legionella risk assessor
Level	3
Location of observation	
Contact Details: Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	

Use the boxes below to describe the task(s). Details for the individual KSBs can be found in the reference table at the end of this form.

The **legionella risk assessor** apprentice must be observed carrying out a tank inspection

The task should allow the apprentice to demonstrate:

1. Confirming the scope of the assessment/review
2. Preparing or assessment/review
3. Identifying equipment / plant items to be inspected
4. Reviewing current conditions
5. Assessment of risk
6. Completing report and verbal discussions

Please identify the water treatment operations
Please identify the type of water system:
Please confirm that the task will be completed under normal working conditions

Please state how the apprentice will have the opportunity to achieve the following elements
Health and Safety
☐ Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way ☐ Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved ☐ Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation S1, S2, S3, S6, B2, B4 **Statement:**

Please state how the apprentice will have the opportunity to achieve the following elements

Communication Skills

- ☐ Communicate effectively with the customer/site personnel and other organisational staff involved with the task.
- ☐ Provide clear and accurate recommendations to customer/site personnel. by discussion of the job completion report
- ☐ Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal
- ☐ Demonstrate how they prepare and present report findings to the customer personnel and how they discuss with the customer how recommended remedial actions and changes to management controls identified in the risk assessment can be implemented

S15, LRA S5, LRA S6, B1

Statement:

Please state how the apprentice will have the opportunity to achieve the following elements

Complete Operational Tasks ()

☐ Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. flushing pumps are in serviceable condition

☐ Identify suitable test or application points within the system. e.g. identifies access point for external flushing pump connection

☐ Correctly apply the treatment programme for the system involved. e.g. supervises a closed system chemical flushing operation

S7, S8, S11

Statement:

Performance Testing (S12)

☐ Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for low hot water temperature

☐ Carry out water storage tank investigation/survey in accordance with company procedures

S12, LRA S1

Statement:

Site access / Special requirements (for example: access arrangements/PPE):
Resources (for example: equipment/tools required): Note: Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable

Please state time for the practical task(s)	
Note: Total duration of practical task(s) must be 2 hours + or – 12 minutes.	

Observation – practical task(s): Include relevant photographs to illustrate task(s)

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Date received	
Date signed off	

Water Treatment Operations Supervisor pathway

Observation Planning Form

Employer name and site address	
Training provider (if applicable)	
Standard	Water Treatment Technician
Pathway	Water treatment operations supervisor
Level	3
Location of observation	
Contact Details: Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	

Use the boxes below to describe the task(s). Details for the individual KSBs can be found in the reference table at the end of this form.

The **water treatment operations supervisor** apprentice must be observed supervising a team carrying out a water treatment operation

The task should allow the apprentice to demonstrate:

1. supervising health and safety for a group
2. ensuring the competence of staff for a work task
3. managing a site operation
4. leading work tasks

Please confirm that the apprentice will be supervising a team carrying out a water treatment operation	☐
Size of team* *minimum size of team includes the apprentice plus one other person	

Please identify the water treatment operations

☐Cleaning and disinfection

☐Chemical cleaning (Pre-commissioning, flushing, remedial)

☐Other (please identify below)

Please identify the type of water system:

Please confirm that the task will be completed under normal working conditions

Please state how the apprentice will have the opportunity to achieve the following elements

Health and Safety

☐ Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way

☐ Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved

☐ Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation

S1, S2, S3, S6, B2, B4

Statement:

Please state how the apprentice will have the opportunity to achieve the following elements
Communication Skills
☐ Communicate effectively with the customer/site personnel and other organisational staff involved with the task ☐ Provide clear and accurate recommendations to customer/site personnel. by discussion of the job completion report ☐ Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal S15, B1
Statement:

Please state how the apprentice will have the opportunity to achieve the following elements

Complete Operational Tasks ()

☐ Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. flushing pumps are in serviceable condition

☐ Identify suitable test or application points within the system. e.g. identifies access point for external flushing pump connection

☐ Correctly apply the treatment programme for the system involved. e.g. supervises a closed system chemical flushing operation

☐ Produce suitable diagrams to direct and manage the task involved e.g. system diagram identifying sample points

☐ Service temporary equipment required for the task in accordance with company procedures and relevant equipment specifications e.g. service an external flushing pump

☐ Correctly supervise a team of water treatment operatives

S7, S8, S11, WTS S1, WTS S3b, WTS S5

Statement:

Performance Testing (S12)

☐ Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for chlorine levels during a system disinfection

S12

Statement:

Site access / Special requirements (for example: access arrangements/PPE):
Resources (for example: equipment/tools required): Note: Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable
Please state time for the practical task(s)
Note: Total duration of practical task(s) must be 2 hours + or – 12 minutes.

Observation – practical task(s): Include relevant photographs to illustrate task(s)

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Date received	
Date signed off	

Observation KSB Reference

This reference table will assist the employer and/or training provider identify the KSB.

Core Skills
S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken.
S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals.
S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications.
S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved.
S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment.
S8. Identification of suitable sampling and application points in a water system
S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.
S12. Interpretation of test results and development of treatment programme improvements and recommendations
S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
Water Treatment Technician Specific Skills
WTT S3. Give presentations and demonstrations to customer/site personnel regarding treatment recommendations and control requirements
WTT S5. Organise, construct, manage and report review meetings with customers/site personnel
Water Treatment Equipment Technician Specific Skills
WTE S3. b. Service a piece of water treatment equipment
WTE S4. Assess the performance of a water system treatment programme
Legionella Risk Assessor Specific Skills
LRA S1. Carry out site/system investigations and surveys

LRA S5. Prepare and present the assessment report findings to customer/site personnel
LRA S6. Review the implementation of remedial actions recommended in the risk assessment e.g. pipework changes, insulation and review the employment of management controls e.g. temperature monitoring programmes, system analysis results
Water Treatment Operations Supervisor Specific Skills
WTS S1. Complete water system surveys and produce system diagrams appropriate for the direction and management of a cleaning/disinfection project
WTS S3. b. Service temporary operations equipment required to complete the project e.g. flushing pump stations, side stream filtration, cooling tower packing
WTS S5. Supervise a team of Water Treatment Operatives and any associated subcontractors.
Core Behaviours
B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development.
B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity.
B4. Be prepared to work reliably and safely and supervise the safe and effective operation of others.

Appendix F - Observation Framework Briefs

Instructions

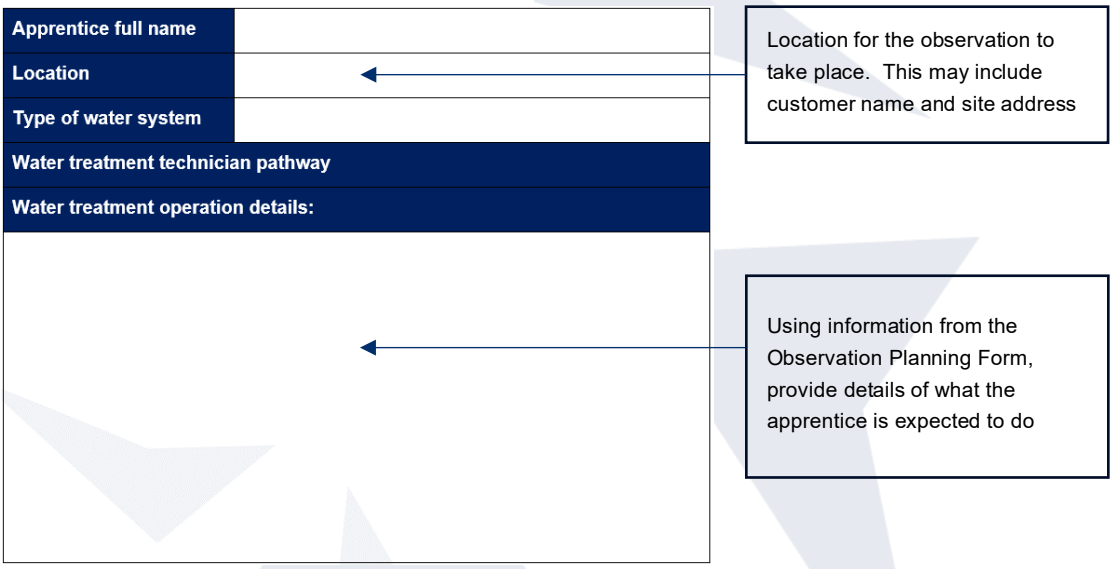
Employers/training providers should use the relevant Framework Brief to provide information to the apprentice about the task(s) they will be completing for their observation assessment.

Each brief has 4 sections:

- Apprentice Information. Detail of the overarching requirements for the observation
- Assessment Requirements. Detail of the grading descriptors used to assess performance in the observation
- Underpinning Skills and Behaviours Assessed in the Observation. Detail of the individual criteria used to assess performance in the observation
- Task Details and Instructions. Outline structure of the activities that may expected to be seen in the task(s). The detail of the task should be provided by the employer. This should be taken from detail, in the Observation Planning Form (Appendix E), submitted to EUIAS

It is important to ensure that the table illustrated below is completed by the employer

Quick Tip – How to complete the form:



Observation requirements:	
Assessment	You will be observed by an independent assessor on a one-to-one basis completing a task where you will be **presenting the results and recommendations of a water analysis to the customer**
Location	Usual place of work where you can work unhindered and under normal working conditions. Please see 'Task Details and Instructions' for further details. Site access for the assessor and any specific requirements must be advised in advance.
Questioning Requirements	During or after the task completion, 3 open questions will be asked to assess related underpinning knowledge and assess knowledge, skills and behaviours (KSBs) that did not naturally occur during the observation. Follow-up questions may be asked where clarification is required. See 'Underpinning skills and behaviours assessed in the observation' below, for details of the KSBs assessed in the observation.
Time Limits	Maximum total assessment time: 2 hours (+/- 12 minutes) The whole observation must take place within one day. Typically, the observation will be covered in one task, but may be covered over two separate tasks if required. Breaks may be taken during the observation, to allow you to move from one location to another. The clock will be paused during these breaks. Questioning will be completed within the total time allowed for the assessment.

Observation requirements:	
Grading	Pass or Fail
Feedback policy	The assessor is not allowed to give you feedback at any point. So unfortunately, they will not be able to give you any indication of your grade and whether you have passed or failed at the end.
Resources	Equipment requirements to complete the task will be dependent on the activities for the task and pathway. Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable, must be available for viewing such as calibration certificates, PAT tests, ladder inspections and Scafftags. Relevant documents such as work instructions, manuals and risk assessments must be made available in hard copy or electronically to the assessor. Additional resources required to carry out the task, will be task dependent. The following provides examples but is not exhaustive: • Personal Protective Equipment (PPE) • Company documentation • Identification • Test equipment such as pH, conductivity, redox meters and photometers/comparators • Test reagents, date checked • Dip slides for microbiological testing • Thermometers • Timing device • Test materials • Sampling equipment (bottles/containers) • Recording sheets/system

Observation requirements:	
	• Access equipment such as ladders and scaffolding • Tools such as valve keys, spanners, tubing, binder probe, bucket, torch/light and camera Any specific equipment requirements to complete the task should be detailed in the company Method Statements and made available in hard copy or electronically to the assessor.

Assessment Requirements

The observation will be graded according to the following specific Pass descriptors. You must meet all the descriptors, detailed below, to achieve a Pass.

Health & Safety (S1, S2, S3, S6, B2, B4)*

- Follow the organisational safety requirements for yourself and others, maintaining a safe working environment and completing the task in a safe, competent way
- Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved
- Demonstrate how you report a risk or concern in the workplace to the correct individual in the organisation

Communication Skills (S15, B1, WTT S3, WTT S5)

- Communicate effectively with the customer/site personnel and other organisational staff involved with the task
- Provide clear and accurate recommendations to customer/site personnel. e.g. by discussion of the service report produced
- Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal
- Demonstrate the presentation or demonstration of treatment recommendations or programme controls to a customer

- Demonstrate how you organise and carry out a review meeting with a customer and that you have imparted the correct information to the relevant people e.g. identify the relevant attendees and produce an agenda for the meeting

Complete Operational Tasks (S7, S8, S11)

- Demonstrate how you check the requirement and correct operation of resources/equipment required for the task. E.g. test equipment is calibrated and reagents are in date
- Identify suitable test or application points within the system. E.g. identify sample point for closed water system
- Correctly apply the treatment programme for the system involved. E.g. identify the most suitable bleed point for a cooling system

Performance Testing (S12)

- Correctly interpret the test results and assess the implications of the results for the treatment programme. E.g. identify the most suitable recommendations for a low treatment level in a closed system

*Underpinning skills and behaviours assessed in the observation

Further guidance on each of the criteria, detailed below, is provided in the Water Treatment Technician Specification, pages 20-43.

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
Core	S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
Core	S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
Core	S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment
Core	S8. Identification of suitable sampling and application points in a water system
Core	S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.
Core	S12. Interpretation of test results and development of treatment programme improvements and recommendations
Core	S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
Core	B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development
Core	B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
Core	B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others
WTT	WTT S3. Give presentations and demonstrations to customer/site personnel regarding treatment recommendations and control requirements
WTT	WTT S5. Organise, construct, manage and report review meetings with customers/site personnel

Task Details and Instructions

It is your responsibility to read the assignment carefully and to understand what is required. You can seek clarification from the Independent Assessor if unsure of the requirements.

You will be required to demonstrate the ability and take responsibility for the following activities, where appropriate:

- Supervision of health and safety of the team and other personnel who may be affected by the task
- Communicating health and safety requirements to the team
- Ensure the competence of the team for the work task e.g. training records.
- Plan and communicate the site operation to the team
- Checking and maintaining equipment, resources and working conditions during the operation
- Leading the work task and providing support to the team
- Ensure that work task risk assessments and company method statements are adhered to
- Deal promptly and effectively with problems that may arise and report any issues to the relevant people
- Complete company documentation in accordance with company operating procedures and provide the documentation to the relevant people
- Ensure the workplace is left as originally found. Supervise cleaning and storage of equipment and supervise the safe collection and disposal of any waste produced

You should prepare the following information in readiness to be provided to the assessor in advance of the observation:

- Site access / Special requirements information e.g. access arrangements/PPE
- Relevant company documentation e.g. company procedures, processes, practises, RAMS, handbooks and policies

The following detail is to be completed by the employer/training provider:

Apprentice full name	
Location	
Type of water system	
Water treatment technician pathway	
Water treatment operation details:	

Observation requirements:	
Assessment	You will be observed by an independent assessor on a one-to-one basis completing a task where you will be servicing a piece of water treatment equipment
Location	Usual place of work where you can work unhindered and under normal working conditions. Please see 'Task Details and Instructions' for further details. Site access for the assessor and any specific requirements must be advised in advance.
Questioning Requirements	During or after the task completion, 3 open questions will be asked to assess related underpinning knowledge and assess knowledge, skills and behaviours (KSBs) that did not naturally occur during the observation. Follow-up questions may be asked where clarification is required. See 'Underpinning skills and behaviours assessed in the observation' below, for details of the KSBs assessed in the observation.
Time Limits	Maximum total assessment time: 2 hours (+/- 12 minutes) The whole observation must take place within one day. Typically, the observation will be covered in one task, but may be covered over two separate tasks if required. Breaks may be taken during the observation, to allow you to move from one location to another. The clock will be paused during these breaks. Questioning will be completed within the total time allowed for the assessment.

Observation requirements:	
Grading	Pass or Fail
Feedback policy	The assessor is not allowed to give you feedback at any point. So unfortunately, they will not be able to give you any indication of your grade and whether you have passed or failed at the end.
Resources	Equipment requirements to complete the task will be dependent on the activities for the task and pathway. Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable, must be available for viewing such as calibration certificates, PAT tests, ladder inspections and Scafftags. Relevant documents such as work instructions, manuals and risk assessments must be made available in hard copy or electronically to the assessor. Additional resources required to carry out the task, will be task dependent. The following provides examples but is not exhaustive: • Personal Protective Equipment (PPE) • Company documentation • Identification • Test equipment such as pH, conductivity, redox meters and photometers/comparators • Test reagents, date checked • Dip slides for microbiological testing • Thermometers • Timing device • Test materials • Sampling equipment (bottles/containers) • Recording sheets/system

Observation requirements:	
	• Access equipment such as ladders and scaffolding • Tools such as valve keys, spanners, tubing, binder probe, bucket, torch/light and camera Any specific equipment requirements to complete the task should be detailed in the company Method Statements and made available in hard copy or electronically to the assessor.

Assessment Requirements

The observation will be graded according to the following specific Pass descriptors. You must meet all the descriptors, detailed below, to achieve a Pass.

Health & Safety (S1, S2, S3, S6, B2, B4)*

- Follow the organisational safety requirements for yourself and others, maintaining a safe working environment and completing the task in a safe, competent way
- Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved
- Demonstrate how you report a risk or concern in the workplace to the correct individual in the organisation

Communication Skills (S15, B1)

- Communicate effectively with the customer/site personnel and other organisational staff involved with the task
- Provide clear and accurate recommendations to customer/site personnel. e.g. by discussion of the service report produced
- Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal

Complete Operational Tasks (S7, S8, S11, WTE S3)

- Demonstrate how you check the requirement and correct operation of resources/equipment required for the task. E.g. have the correct equipment manual and spare parts for the task
- Identify suitable test or application points within the system. E.g. identify suitable access point for a softener installation
- Correctly apply the treatment programme for the system involved. E.g. install the most suitable dosing pump for a chemical application
- Successfully complete the servicing of a piece of water treatment equipment in accordance with company procedures and relevant equipment specifications

Performance Testing (S12, WTE S3b, WTE S4)

- Correctly interpret the test results and assess the implications of the results for the treatment programme. E.g. identify the most suitable recommendations for hardness slippage through a softener
- Service a piece of water treatment equipment e.g. dosing pump in accordance with company procedures and relevant equipment specifications and test for correct operation

*Underpinning skills and behaviours assessed in the observation

Further guidance on each of the criteria, detailed below, is provided in the Water Treatment Technician Specification, pages 20-43.

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
Core	S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
Core	S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
Core	S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment
Core	S8. Identification of suitable sampling and application points in a water system
Core	S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.
Core	S12. Interpretation of test results and development of treatment programme improvements and recommendations
Core	S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
Core	B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development
Core	B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
Core	B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others
WTE	WTE S3. b. Service a piece of water treatment equipment
WTE	WTE S4. Assess the performance of a water system treatment programme

Task Details and Instructions

It is your responsibility to read the assignment carefully and to understand what is required. You can seek clarification from the Independent Assessor if unsure of the requirements.

You will be required to demonstrate the ability and take responsibility for the following activities, where appropriate:

- Prepare for operation
- Check equipment and conditions
- Identify the water treatment equipment
- Carry out operations safely
- Record operations

You should prepare the following information in readiness to be provided to the assessor in advance of the observation:

- Site access / Special requirements information e.g. access arrangements/PPE
- Relevant company documentation e.g. company procedures, processes, practises, RAMS, handbooks and policies

The following detail is to be completed by the employer/training provider:

Apprentice full name	
Location	
Type of water system	
Water treatment equipment technician pathway	
Water treatment operation details:	

Observation requirements:	
Assessment	You will be observed by an independent assessor on a one-to-one basis completing a task where you will be **carrying out a tank inspection.**
Location	Usual place of work where you can work unhindered and under normal working conditions. Please see 'Task Details and Instructions' for further details. Site access for the assessor and any specific requirements must be advised in advance.
Questioning Requirements	During or after the task completion, 3 open questions will be asked to assess related underpinning knowledge and assess knowledge, skills and behaviours (KSBs) that did not naturally occur during the observation. Follow-up questions may be asked where clarification is required. See 'Underpinning skills and behaviours assessed in the observation' below, for details of the KSBs assessed in the observation.
Time Limits	Maximum total assessment time: 2 hours (+/- 12 minutes) The whole observation must take place within one day. Typically, the observation will be covered in one task, but may be covered over two separate tasks if required. Breaks may be taken during the observation, to allow you to move from one location to another. The clock will be paused during these breaks. Questioning will be completed within the total time allowed for the assessment.

Observation requirements:	
Grading	Pass or Fail
Feedback policy	The assessor is not allowed to give you feedback at any point. So unfortunately, they will not be able to give you any indication of your grade and whether you have passed or failed at the end.
Resources	Equipment requirements to complete the task will be dependent on the activities for the task and pathway. Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable, must be available for viewing such as calibration certificates, PAT tests, ladder inspections and Scafftags. Relevant documents such as work instructions, manuals and risk assessments must be made available in hard copy or electronically to the assessor. Additional resources required to carry out the task, will be task dependent. The following provides examples but is not exhaustive: • Personal Protective Equipment (PPE) • Company documentation • Identification • Test equipment such as pH, conductivity, redox meters and photometers/comparators • Test reagents, date checked • Dip slides for microbiological testing • Thermometers • Timing device • Test materials • Sampling equipment (bottles/containers) • Recording sheets/system

Observation requirements:	
	• Access equipment such as ladders and scaffolding • Tools such as valve keys, spanners, tubing, binder probe, bucket, torch/light and camera Any specific equipment requirements to complete the task should be detailed in the company Method Statements and made available in hard copy or electronically to the assessor.

Assessment Requirements

The observation will be graded according to the following specific Pass descriptors. You must meet all the descriptors, detailed below, to achieve a Pass.

Health & Safety (S1, S2, S3, S6, B2, B4)*

- Follow the organisational safety requirements for yourself and others, maintaining a safe working environment and completing the task in a safe, competent way
- Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved
- Demonstrate how you report a risk or concern in the workplace to the correct individual in the organisation

Communication Skills (S15, B1, LRA S5, LRA S6)

- Communicate effectively with the customer/site personnel and other organisational staff involved with the task
- Provide clear and accurate recommendations to customer/site personnel. e.g. through discussion of the risk assessment report
- Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal

- Demonstrate how you prepare and present findings to the customer personnel and how you discuss with the customer how recommended remedial actions and changes to management controls identified in the risk assessment can be implemented

Complete Operational Tasks (S7, S8, S11)

- Demonstrate how you check the requirement and correct operation of resources/equipment required for the task. E.g. know if step ladders are required for access and have access to them if required
- Identify suitable test or application points within the system. E.g. identify suitable point in system to take a microbiological sample
- Correctly apply the treatment programme for the system involved. E.g. can identify the suitable temperature monitoring points within a system

Performance Testing (S12, LRA S1)

- Correctly interpret the test results and assess the implications of the results for the treatment programme. E.g. identify the most suitable recommendations for low hot water temperature
- Carry out water storage tank investigation/survey in accordance with company procedures

*Underpinning skills and behaviours assessed in the observation

Further guidance on each of the criteria, detailed below, is provided in the Water Treatment Technician Specification, pages 20-43.

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
Core	S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications
Core	S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
Core	S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment
Core	S8. Identification of suitable sampling and application points in a water system
Core	S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.
Core	S12. Interpretation of test results and development of treatment programme improvements and recommendations
Core	S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
Core	B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development
Core	B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
Core	B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others
LRA	LRA S1. Carry out site/system investigations and surveys
LRA	LRA S5. Prepare and present the assessment report findings to customer/site personnel

Core/ Pathway Specific	Skills / Behaviour Statements
LRA	LRA S6. Review the implementation of remedial actions recommended in the risk assessment e.g. pipework changes, insulation and review the employment of management controls e.g. temperature monitoring programmes, system analysis results

Task Details and Instructions

It is your responsibility to read the assignment carefully and to understand what is required. You can seek clarification from the Independent Assessor if unsure of the requirements.

You will be required to demonstrate the ability and take responsibility for the following activities, where appropriate:

- Confirm the scope of the assessment/review
- Prepare for assessment/review
- Initially identify equipment / plant items to be inspected, and re-check against site method statement.
- Safely follow the task method statement and report findings
- Review current conditions
- Carry out assessment of risk
- Complete report and verbal discussions

You should prepare the following information in readiness to be provided to the assessor in advance of the observation:

- Site access / Special requirements information e.g. access arrangements/PPE
- Relevant company documentation e.g. company procedures, processes, practises, RAMS, handbooks and policies

The following detail is to be completed by the employer/training provider:

Apprentice full name	
Location	
Type of water system	
Legionella risk assessor pathway	
Water treatment operation details:	

Observation requirements:	
Assessment	You will be observed by an independent assessor on a one-to-one basis completing a task where you will be supervising a team carrying out a water treatment operation.
Location	Usual place of work where you can work unhindered and under normal working conditions. Please see 'Task Details and Instructions' for further details. Site access for the assessor and any specific requirements must be advised in advance.
Questioning Requirements	During or after the task completion, 3 open questions will be asked to assess related underpinning knowledge and assess knowledge, skills and behaviours (KSBs) that did not naturally occur during the observation. Follow-up questions may be asked where clarification is required. See 'Underpinning skills and behaviours assessed in the observation' below, for details of the KSBs assessed in the observation.
Time Limits	Maximum total assessment time: 2 hours (+/- 12 minutes) The whole observation must take place within one day. Typically, the observation will be covered in one task, but may be covered over two separate tasks if required. Breaks may be taken during the observation, to allow you to move from one location to another. The clock will be paused during these breaks.

Observation requirements:	
	Questioning will be completed within the total time allowed for the assessment.
Grading	Pass or Fail
Feedback policy	The assessor is not allowed to give you feedback at any point. So unfortunately, they will not be able to give you any indication of your grade and whether you have passed or failed at the end.
Resources	Equipment requirements to complete the task will be dependent on the activities for the task and pathway. Provision of all equipment and resources are the responsibility of the employer and must be suitable for the task, in good safe working condition and certification where applicable, must be available for viewing such as calibration certificates, PAT tests, ladder inspections and Scafftags. Relevant documents such as work instructions, manuals and risk assessments must be made available in hard copy or electronically to the assessor. Additional resources required to carry out the task, will be task dependent. The following provides examples but is not exhaustive: • Personal Protective Equipment (PPE) • Company documentation • Identification • Test equipment such as pH, conductivity, redox meters and photometers/comparators • Test reagents, date checked • Dip slides for microbiological testing • Thermometers • Timing device • Test materials

Observation requirements:	
	• Sampling equipment (bottles/containers) • Recording sheets/system • Access equipment such as ladders and scaffolding • Tools such as valve keys, spanners, tubing, binder probe, bucket, torch/light and camera Any specific equipment requirements to complete the task should be detailed in the company Method Statements and made available in hard copy or electronically to the assessor.

Assessment Requirements

The observation will be graded according to the following specific Pass descriptors. You must meet all the descriptors, detailed below, to achieve a Pass.

Health & Safety (S1, S2, S3, S6, B2, B4)*

- Follow the organisational safety requirements for yourself and others, maintaining a safe working environment and completing the task in a safe, competent way
- Complete a work task risk assessment and produce a work plan/method statement for the task(s) involved
- Demonstrate how you report a risk or concern in the workplace to the correct individual in the organisation

Communication Skills (S15, B1)

- Communicate effectively with the customer/site personnel and other organisational staff involved with the task
- Provide clear and accurate recommendations to customer/site personnel. e.g. by discussion of the job completion report
- Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the

task on the local environment and people, minimising waste produced and using the correct routes for waste disposal
- Demonstrate the presentation or demonstration of treatment recommendations or programme controls to a customer
- Demonstrate how you organise and carry out a review meeting with a customer and that you have imparted the correct information to the relevant people e.g. identify the relevant attendees and produce an agenda for the meeting

Complete Operational Tasks (S7, S8, S11, WTS S1, WTS S3b, WTS S5)

- Demonstrate how you check the requirement and correct operation of resources/equipment required for the task. E.g. flushing pumps are in serviceable condition
- Identify suitable test or application points within the system. E.g. identify access point for external flushing pump connection
- Correctly apply the treatment programme for the system involved. E.g. supervise a closed system chemical flushing operation
- Produce suitable diagrams to direct and manage the task involved e.g. system diagram identifying sample points
- Service temporary equipment required for the task in accordance with company procedures and relevant equipment specifications e.g. service an external flushing pump
- Correctly supervise a team of water treatment operatives

Performance Testing (S12)

- Correctly interpret the test results and assess the implications of the results for the treatment programme. E.g. identify the most suitable recommendations for chlorine levels during a system disinfection

*Underpinning skills and behaviours assessed in the observation

Further guidance on each of the criteria, detailed below, is provided in the Water Treatment Technician Specification, pages 20-43.

Core/ Pathway Specific	Skills / Behaviour Statements
Core	S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
Core	S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
Core	S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications
Core	S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
Core	S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment
Core	S8. Identification of suitable sampling and application points in a water system
Core	S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.
Core	S12. Interpretation of test results and development of treatment programme improvements and recommendations
Core	S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
Core	B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development
Core	B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity

Core/ Pathway Specific	Skills / Behaviour Statements
Core	B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others
WTS	WTS S1. Complete water system surveys and produce system diagrams appropriate for the direction and management of a cleaning/disinfection project
WTS	WTS S3. b. Service temporary operations equipment required to complete the project e.g. flushing pump stations, side stream filtration, cooling tower packing
WTS	WTS S5. Supervise a team of Water Treatment Operatives and any associated subcontractors

Task Details and Instructions

It is your responsibility to read the assignment carefully and to understand what is required. You can seek clarification from the Independent Assessor if unsure of the requirements.

You should prepare the following information in readiness to be provided to the assessor in advance of the observation:

- Supervise health and safety for a group
- Ensure the competence of staff for a work task
- Manage a site operation
- Lead work tasks

You should prepare the following information in readiness to be provided to the assessor in advance of the observation:

- Site access / Special requirements information e.g. access arrangements/PPE
- Relevant company documentation e.g. company procedures, processes, practises, RAMS, handbooks and policies

The following detail is to be completed by the employer/training provider:

Apprentice full name	
Location	
Type of water system	
Water treatment operations supervisor pathway	
Water treatment operation details:	

Appendix G: Practice Observation Templates

Employers/training providers are recommended to arrange for apprentices to carry out a practice observation prior to end-point assessment.

Instructions

This should be read in conjunction with the WTT Specification.

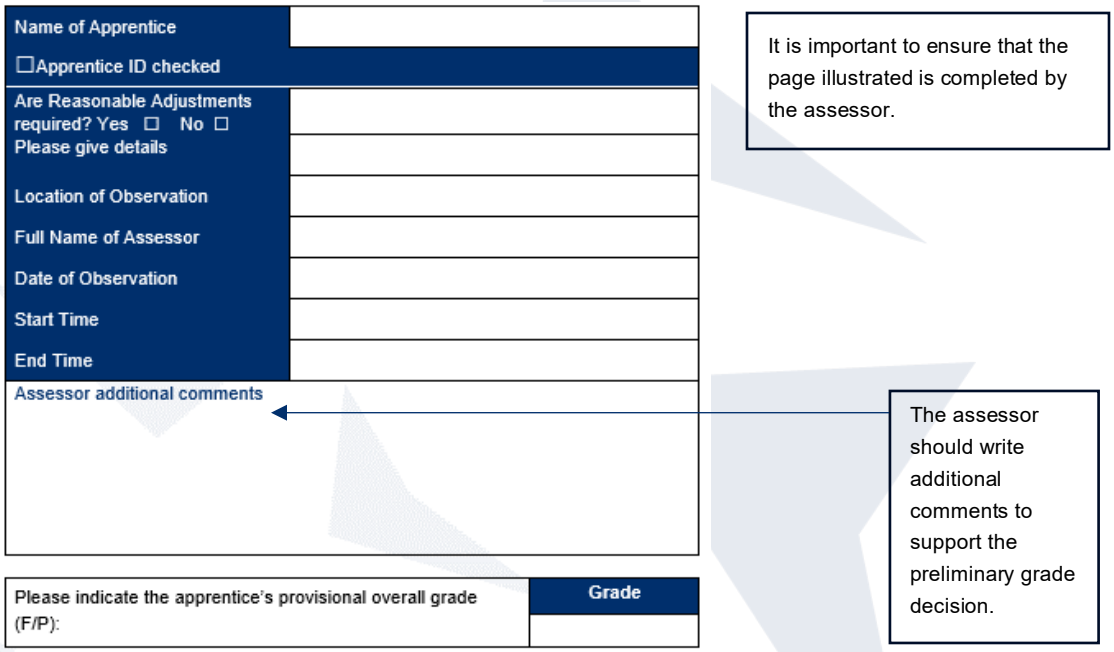
This template has been designed to help the suitable person playing part of the independent assessor and has three purposes:

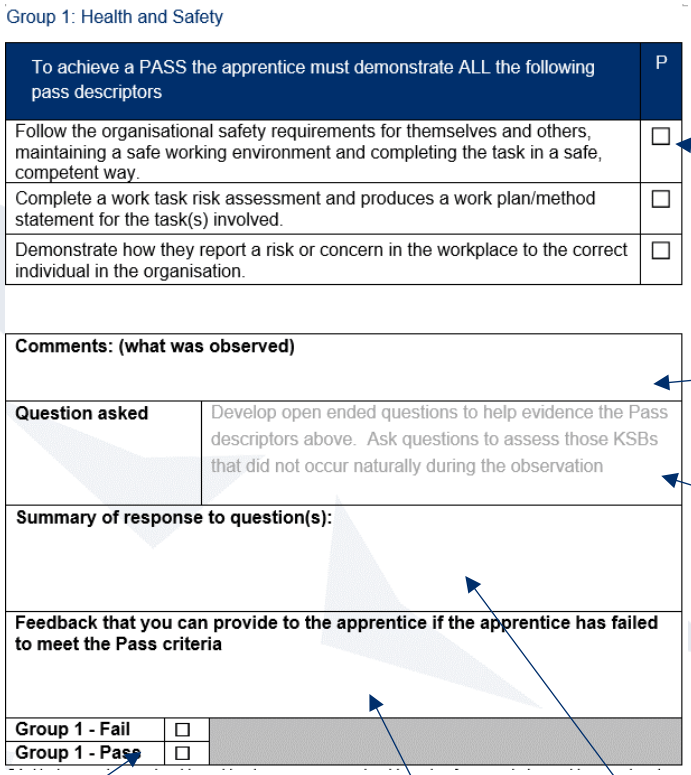
1. To prepare for a practice assessment
2. Designed to holistically assess a broad range of the skills, knowledge and behaviours developed over the period of the apprenticeship by the apprentice
3. To provide feedback to the apprentice in preparation for the live assessment

The assessor should:

- complete the form below which has two parts to assess the apprentice's observation

Quick Tip – How to complete the form below:





Group 1: Health and Safety

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way.	☐
Complete a work task risk assessment and produces a work plan/method statement for the task(s) involved.	☐
Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation.	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	
Group 1 - Fail ☐	
Group 1 - Pass ☐	

Water Treatment Technician
Observation

Name of Apprentice	
☐Apprentice ID checked	
Are Reasonable Adjustments required? Yes ☐ No ☐ Please give details	
Location of Observation	
Full Name of Assessor	
Date of Observation	
Start Time	
End Time	
Assessor additional comments	

Please indicate the apprentice's provisional overall grade (F/P):	**Grade**

Please Note:

To achieve a Pass, the Apprentice must achieve all the pass descriptors.

Fail: the apprentice does not demonstrate all the pass descriptors.

Introduction
At the start of the practical observation the Assessor will: • Introduce themselves • Confirm their role • Provide apprentice with information on the format of the observation, including the timescales they will be working to. (The Assessor can share the grading guidance with the apprentice as this appears in the assessment plan) The apprentice will: • Give their full name • Their date of birth • Their employer name • Confirm they are prepared for the practical observation; and confirm they can continue with the practical observation. The apprentice will be asked to show their identification to the Assessor prior to beginning the assessment
Important points to inform the apprentice
• If at any point during the practical observation you perform an unsafe act/task which contravenes Health and Safety, I will immediately stop the observation. • Please do not judge anything by me taking notes and you should not infer anything positive or negative from how long the practical observation lasts. • Ensure that your mobile is turned off or placed somewhere where you will not be interrupted during the practical observation.

Assessor Guidance

Delivery

Water Treatment Technician option: the apprentice must be observed presenting the results and recommendations of a water analysis to the customer.
Water Treatment Equipment Technician option: the apprentice must be observed servicing a piece of water treatment equipment.
Legionella Risk Assessor option: the apprentice must be observed carrying out a tank inspection
Water Treatment Operations Supervisor option: the apprentice must be observed supervising a team carrying out a water treatment operation.

The observation with questions must take two hours+/- 12 minutes..

During or after the task completion, 3 open questions must be asked to assess related underpinning knowledge and assess knowledge, skills and behaviours that did not naturally occur during the observation.
Follow-up questions can be asked where clarification is required. The time for questioning is included in the overall assessment time.

Answers to questions, must be documented.

Additional Questions
As only naturally occurring work is observed, those criteria that the apprentice did not have the opportunity to demonstrate can be assessed using relevant questions. Please identify any alternative questions used.

ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

Water Treatment Technician pathway

Group 1: Health and Safety

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way.	☐
Complete a work task risk assessment and produces a work plan/method statement for the task(s) involved.	☐
Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation.	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 1 - Fail	☐	
Group 1 - Pass	☐	

S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications
S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others

Group 2: Communication skills

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Communicate effectively with the customer/site personnel and other organisational staff involved with the task	☐
Provide clear and accurate recommendations to customer/site personnel. e.g. by discussion of the service report produced.	☐
Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal	☐
Demonstrate the presentation or demonstration of treatment recommendations or programme controls to a customer	☐
Demonstrate how they organise and carry out a review meeting with a customer and that they have imparted the correct information to the relevant people e.g. identify the relevant attendees and produce an agenda for the meeting	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 2 - Fail	☐	
Group 2 - Pass	☐	

S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can

include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development.
WTT S3. Give presentations and demonstrations to customer/site personnel regarding treatment recommendations and control requirements
WTT S5. Organise, construct, manage and report review meetings with customers/site personnel

Group 3: Complete operational tasks

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. test equipment is calibrated and reagents are in date.	☐
Identify suitable test or application points within the system. e.g. identifies sample point for closed water system.	☐
Correctly apply the treatment programme for the system involved. e.g. identifies the most suitable bleed point for a cooling system.	☐

Comments: (what was observed)		
Question asked		Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 3 - Fail	☐	
Group 3 - Pass	☐	

S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment.
S8. Identification of suitable sampling and application points in a water system
S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.

Group 4: Performance testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for a low treatment level in a closed system.	☐

Comments: (what was observed)		
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation	
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 4 - Fail	☐	
Group 4 - Pass	☐	

S12. Interpretation of test results and development of treatment programme improvements and recommendations

ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

Water Treatment Equipment Technician pathway

Group 1: Health and Safety

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way.	☐
Complete a work task risk assessment and produces a work plan/method statement for the task(s) involved.	☐
Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation.	☐

Comments: (what was observed)		
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation	
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 1 - Fail	☐	
Group 1 - Pass	☐	

S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications
S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others

Group 2: Communication skills

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Communicate effectively with the customer/site personnel and other organisational staff involved with the task	☐
Provide clear and accurate recommendations to customer/site personnel. e.g. by discussion of the service report produced.	☐
Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 2 - Fail	☐	
Group 2 - Pass	☐	

S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development.

Group 3: Complete operational tasks

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Demonstrate how they check the requirement and correct operation of resources/equipment required for the task e.g. has the correct equipment manual and spare parts for the task.	☐
Identify suitable test or application points within the system. e.g. identifies suitable access point for a softener installation.	☐
Correctly apply the treatment programme for the system involved. e.g. installs the most suitable dosing pump for a chemical application.	☐
Successfully complete the servicing of a piece of water treatment equipment in accordance with company procedures and relevant equipment specifications	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 3 - Fail	☐	
Group 3 - Pass	☐	

S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment.
S8. Identification of suitable sampling and application points in a water system
S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.
WTE S3. Service a piece of water treatment equipment

Group 4: Performance testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for hardness slippage through a softener.	☐
Service a piece of water treatment equipment e.g. dosing pump in accordance with company procedures and relevant equipment specifications and test for correct operation	☐

Comments: (what was observed)		
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation	
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 4 - Fail	☐	
Group 4 - Pass	☐	

S12. Interpretation of test results and development of treatment programme improvements and recommendations
WTE S3. b. Service a piece of water treatment equipment
WTE S4. Assess the performance of a water system treatment programme

ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

Legionella Risk Assessor pathway

Group 1: Health and Safety

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way.	☐
Complete a work task risk assessment and produces a work plan/method statement for the task(s) involved.	☐
Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation.	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 1 - Fail	☐	
Group 1 - Pass	☐	

S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications
S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others

Group 2: Communication skills

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Communicate effectively with the customer/site personnel and other organisational staff involved with the task	☐
Provide clear and accurate recommendations to customer/site personnel. e.g. through discussion of the risk assessment report.	☐
Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal	☐
Demonstrate how they prepare and present report findings to the customer personnel and how they discuss with the customer how recommended remedial actions and changes to management controls identified in the risk assessment can be implemented	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 2 - Fail	☐	
Group 2 - Pass	☐	

S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of

water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports
B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development.
WTT S3. Give presentations and demonstrations to customer/site personnel regarding treatment recommendations and control requirements
WTT S5. Organise, construct, manage and report review meetings with customers/site personnel
LRA S5. Prepare and present the assessment report findings to customer/site personnel
LRA S6. Review the implementation of remedial actions recommended in the risk assessment e.g. pipework changes, insulation and review the employment of management controls e.g. temperature monitoring programmes, system analysis results

Group 3: Complete operational tasks

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. knows if step ladders are required for access and has access to them if required.	☐
Identify suitable test or application points within the system. e.g. identifies suitable point in system to take a microbiological sample.	☐
Correctly apply the treatment programme for the system involved. e.g. can identify the suitable temperature monitoring points within a system.	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 3 - Fail	☐	
Group 3 - Pass	☐	

S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment.
S8. Identification of suitable sampling and application points in a water system
S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.

Group 4: Performance testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for low hot water temperature.	☐
Carry out water storage tank investigation/survey in accordance with company procedures	☐

Comments: (what was observed)		
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation	
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 4 - Fail	☐	
Group 4 - Pass	☐	

S12. Interpretation of test results and development of treatment programme improvements and recommendations
LRA S1. Carry out site/system investigations and surveys

ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

Water Treatment Operations Supervisor pathway

Group 1: Health and Safety

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Follow the organisational safety requirements for themselves and others, maintaining a safe working environment and completing the task in a safe, competent way.	☐
Complete a work task risk assessment and produces a work plan/method statement for the task(s) involved.	☐
Demonstrate how they report a risk or concern in the workplace to the correct individual in the organisation.	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 1 - Fail	☐	
Group 1 - Pass	☐	

S1. Understand, comply with and implement statutory health and safety regulations with regard to the tasks being undertaken
S2. Understand and implement organisational safety requirements for themselves and others, including responsibility and supervision for safe access to water systems and the handling of chemicals
S3. Maintain a safe environment for other building occupants during water treatment operations including any relevant signage and notifications
S6. Complete work task risk assessments and develop work plans and method statements for the task(s) involved
B2. Be risk aware so as to help reduce risks by checking of information, concentration on the task, and awareness of changing circumstances on activity
B4. Be prepared to work reliably and safely, and supervise the safe and effective operation of others

Group 2: Communication skills

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Communicate effectively with the customer/site personnel and other organisational staff involved with the task	☐
Provide clear and accurate recommendations to customer/site personnel. e.g. by discussion of the job completion report	☐
Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development e.g. by behaving responsibly on site, reducing any impact of the task on the local environment and people, minimising waste produced and using the correct routes for waste disposal	☐

Comments: (what was observed)	
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation
Summary of response to question(s):	
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria	

Group 2 - Fail	☐	
Group 2 - Pass	☐	

S15. Communicate effectively. Use oral, written, electronic and IT based methods and systems for the accurate communication of technical information to other staff involved and all levels of site management. Review this information and agree actions with the relevant people involved. This can include the use, management and training with regard to electronic log systems for the storage of water system sampling and analytical results, practical demonstration of testing procedures and presentation of reports

B1. Act professionally demonstrating dependability, determination, honesty and integrity. Respect others, act ethically and contribute to sustainable development.

Group 3: Complete operational tasks

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Demonstrate how they check the requirement and correct operation of resources/equipment required for the task. e.g. flushing pumps are in serviceable condition.	☐
Identify suitable test or application points within the system. e.g. identifies access point for external flushing pump connection.	☐
Correctly apply the treatment programme for the system involved. e.g. supervises a closed system chemical flushing operation.	☐
Produce suitable diagrams to direct and manage the task involved e.g. system diagram identifying sample points	☐
Service temporary equipment required for the task in accordance with company procedures and relevant equipment specifications e.g. service an external flushing pump	☐
Correctly supervise a team of water treatment operatives	☐

Comments: (what was observed)		
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation	
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 3 - Fail	☐	
Group 3 - Pass	☐	

S7. Ensure the suitability and correct operating condition of resources and equipment for the work tasks involved. This can include test equipment, chemical dosing equipment, water pumps and other specialised equipment.
S8. Identification of suitable sampling and application points in a water system
S11. Application of water treatment programmes to specific water system types e.g. cooling towers, steam boilers, heating and chilled systems etc.

Group 4: Performance testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Correctly interpret the test results and assess the implications of the results for the treatment programme. e.g. identifies the most suitable recommendations for chlorine levels during a system disinfection.	☐

Comments: (what was observed)		
Question asked	Develop open ended questions to help evidence the Pass descriptors above. Ask questions to assess those KSBs that did not occur naturally during the observation	
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria		
Group 4 - Fail	☐	
Group 4 - Pass	☐	

S12. Interpretation of test results and development of treatment programme improvements and recommendations

Appendix H: Practice Professional Discussion Templates

Employers/training providers are recommended to arrange for apprentices to carry out a practice Professional Discussion prior to end-point assessment.

Instructions

This should be read in conjunction with the WTT Specification.

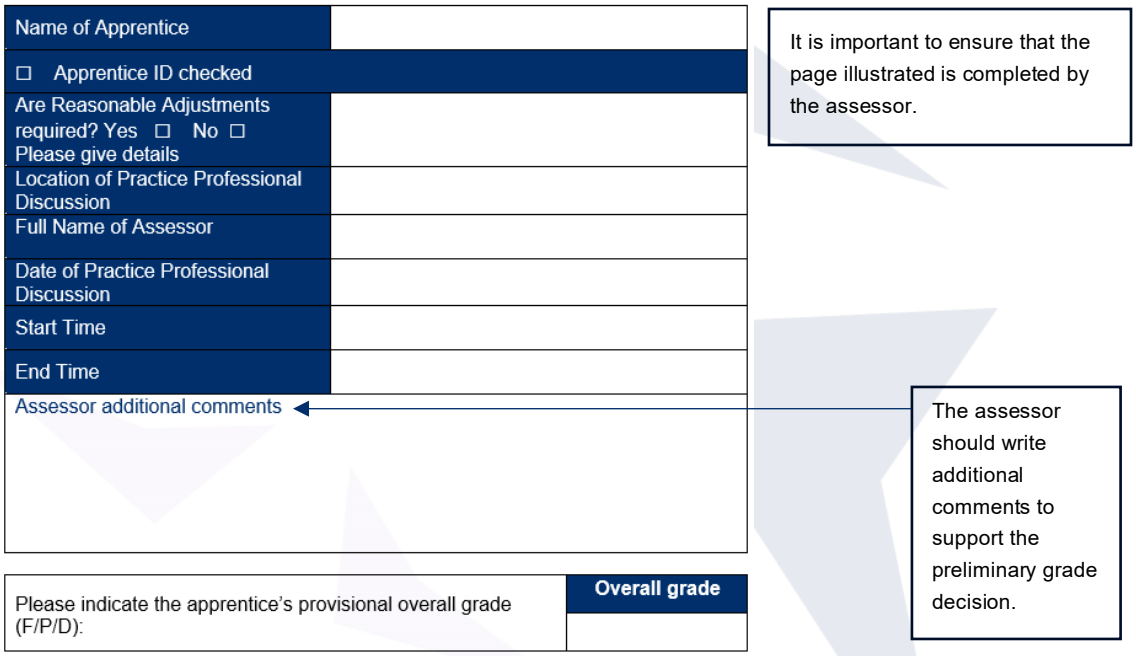
This template has been designed to help the suitable person playing part of the independent assessor and has three purposes:

4. To prepare for a practice assessment
5. Designed to holistically assess a broad range of the skills, knowledge and behaviours developed over the period of the apprenticeship by the apprentice
6. To provide feedback to the apprentice in preparation for the live assessment

The assessor should:

- complete the form below which has two parts to assess the apprentice's Professional Discussion.
- review the apprentice's portfolio of evidence before the practice assessment

Quick Tip – How to complete the form below:



Health, Safety and the Environment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Comply with company practices, processes and procedures associated with safety	☐	Demonstrate an understanding of where to improve Health and Safety within their workplace, including actions taken e.g. where reduced hazards minimised the risk to health or improved the system integrity	☐
Demonstrate where they have contributed to the development of an operational solution to a health and safety issue	☐		
Identify the main Health and Safety and compliance requirements of a Water Treatment Technician e.g., Health & Safety at Work Act, L8, BS 2486, BS 8552 etc	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Health, Safety and the Environment'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Health, Safety and the Environment'			
Fail ☐	**Pass** ☐	**Distinction** ☐	
Summary of responses			
Feedback for the apprentice			

CS4 They should be able to contribute to the development of operational solutions and improvements e.g., safer working practices

Check each pass/distinction box if the apprentice achieved the descriptor

Include the page number of where the evidence has been observed and meets the descriptors

Develop some open ended questions in relation to the KSBs

Check the fail, pass or distinction box to confirm the grade for this group.

Record the time the question is asked.

Provide feedback for the apprentice to show where they could improve their answers and / or portfolio evidence

Summarise the response that the apprentice gave

Name of Apprentice	
☐ Apprentice ID checked	
Are Reasonable Adjustments required? Yes ☐ No ☐ Please give details	
Location of Practice Professional Discussion	
Full Name of Assessor	
Date of Practice Professional Discussion	
Start Time	
End Time	
Assessor additional comments	

	Overall grade
Please indicate the apprentice's provisional overall grade (F/P/D):	

Please Note:

To achieve a Pass, the Apprentice must achieve all the pass descriptors , according to the selected job role.

To achieve a Distinction, the Apprentice must achieve all the pass descriptors plus 4 out of 6 of the distinction descriptors.

Fail: the apprentice does not demonstrate the pass descriptors

Introduction
At the start of the interview the Independent Assessor will: • Introduce themselves • State the date of the interview • Request and confirm ID from the apprentice • Provide apprentice with information on the format of the interview with questions, including the timescales they will be working to. The apprentice will: • Confirm their full name • Confirm their date of birth • Give their employer name • Confirm their location and that no one else is present in the room, if remote apprentice to pan camera 360º • Confirm they are prepared for the interview; and confirm they can continue with the interview • Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the interview. The apprentice will be asked to show their identification to the Independent Assessor prior to beginning the assessment
Important points to inform the apprentice
• Please do not judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts • We are not allowed to give you feedback at any point. So unfortunately, we will not be able to give you any indication of your grade and whether you have passed or failed at the end • Please ensure that your mobile is switched off or somewhere where you will not be interrupted during the interview • Sign placed on the door of the interview room. Interview in progress 'Do not disturb' • This interview will be fully recorded for the purpose of audit and quality assurance

Assessor Guidance
Delivery The interview will last 90 minutes. This is an Assessor led professional discussion. You must be in full control. Time management is key! If the apprentice veers off track, they need to be reined back in You must ask a minimum of 19 questions. You must include distinction questions to give the apprentice the opportunity to demonstrate the KSBs to distinction grade You must ask enough questions to ensure each descriptor is achieved. There must be good evidence for each descriptor The purpose of the questions is to cover the following themes: • Health, Safety and the Environment • Workplace attitude • Resource management The following themes will be assessed in the context of the apprentice's occupational context: • Water system surveys, water system requirements and treatment programme design • Evaluate the water treatment programme options for an application • Water treatment programme operational performance and assessment The **Water Treatment Technician** occupational context does not have any additional occupationally focussed Health, Safety and the Environment questions. The **Water Treatment Equipment** occupational context will have some occupationally focussed Health, Safety and the Environment questions.

Assessor Guidance
The **Water Treatment Operations Supervisor** occupational context will have some occupationally focussed Health, Safety and the Environment questions. The **Water Treatment Operations Supervisor** occupational context will have some occupationally focussed Health, Safety and the Environment questions. Please work through the sections in the order they appear within this document. Answers to questions, must be recorded. Timeline each question to the recording. Only log the time for the start of each question asked. Additional follow-up questions are allowed to seek clarification and to make a judgement against grading descriptors Adapt the questions to the apprentice's circumstances following your review of their portfolio evidence Supply brief written notes where each descriptor has been met If the apprentice does not achieve a descriptor, provide written notes that you can feed back to the apprentice to help the apprentice prepare for the live Professional Discussion. At the end of the interview -Thank the apprentice for their time and wish them good luck

Health, Safety and the Environment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Comply with company practices, processes and procedures associated with safety	☐	Demonstrate an understanding of where to improve Health and Safety within their workplace, including actions taken e.g. where reduced hazards minimised the risk to health or improved the system integrity	☐
Demonstrate where they have contributed to the development of an operational solution to a health and safety issue	☐		
Identify the main Health and Safety and compliance requirements of a Water Treatment Technician e.g., Health & Safety at Work Act, L8, BS 2486, BS 8552 etc	☐		

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Health, Safety and the Environment'

Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Health, Safety and the Environment'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses

Feedback for the apprentice

CS4 They should be able to contribute to the development of operational solutions and improvements e.g., safer working practices

Workplace attitude

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe when they have operated as an effective team member and taken responsibility, e.g., when they have made independent decisions and suggested workplace improvements	☐	Demonstrate a clear development plan, outlining choices and opportunities available beyond the completion of the apprenticeship. e.g., personal review/assessment of their career progression potential with current employer and within the industry as a whole and what is required to achieve those goals	☐
Describe the company's policy on ethics, equality and diversity, explaining why this is important, and illustrate this with an example of how they have effectively maintained a good relationship with either a colleague, client, supplier or member of the public	☐		
Demonstrate they have been receptive to feedback, willing to learn new skills and adapted to change	☐		
Demonstrate how they have assessed personal training needs in order to maintain a satisfactory level of competence in their job role e.g., when they have requested external OEM training or specific H&S training e.g., confined spaces	☐		

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Workplace attitude'

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Workplace attitude'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS16 Maintain level of competence commensurate with job role. Identify and recognise personal training needs and undertake suitable training when required. Complete and record CPD necessary to maintain and enhance competence
CB3 Display a self-disciplined, self-motivated, proactive approach to work, willing to make independent decisions and develop solutions and improvements to work practices
CB5 Be prepared to work effectively and efficiently maintaining good relationships with colleagues, clients, suppliers and the public.
CB6 Be receptive to feedback, willing to learn new skills and adjust to change.
CB7 Demonstrate adherence to corporate policies on ethics, equality and diversity.

Resource Management

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Explain how their work process, use of resources and management of time is effective. e.g., LRA describes the necessary site communication channels for access arrangements		Show an understanding of the importance of effective time and resource management and the implications to themselves and their employer. e.g., cost to the employer of aborted site visits, missing materials and call backs	

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Resource Management'
Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Resource Management'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses

Feedback for the apprentice

CS5 Gather system data to enable the correct selection of operational resources that may be required e.g., access equipment (ladders, scaffold or cherry picker).
CS14 Use resources effectively including their own time management, the appropriate competence of staff chosen for the operation involved, the efficient use of staff resources and management of equipment required for specific work tasks.

Water system surveys, water system requirements and treatment programme design

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the information to be obtained during a water system survey to enable a water treatment programme to be designed e.g., water make up type, water usage, system operation	☐	Explain the risks and implications of failure to follow the correct design principles and the likely problems that will occur. e.g., corrosion/scale reducing plant efficiency and lifespan	☐
Demonstrate how they have correctly applied an understanding of the water treatment requirements for a specific water system. e.g., by explaining programme design calculations and conclusions	☐	Describe the maintenance and monitoring programme that can be employed to ensure the continued suitability of the treatment programme. e.g., corrosion monitoring of high risk metals within the system	☐
Demonstrate how they use the information gathered to design a water treatment programme to meet the requirements, specification or guidance provided, e.g., by explaining the programme design calculations and conclusions	☐		

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Water system surveys, water system requirements and treatment programme design'

Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Water system surveys, water system requirements and treatment programme design'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses
Feedback for the apprentice

WTT K1. Understand the water treatment requirements of specific water systems e.g., steam boilers, cooling towers etc.
WTT S1. Design, specify and recommend chemical water treatment programmes taking account of water supply quality and system operating conditions

Evaluate the water treatment programme options for an application

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the chemical treatment options available for a specific water treatment application e.g., nitrite versus molybdate as a corrosion inhibitor	☐	Demonstrate how they have evaluated the benefits and drawbacks of different treatment programme options **and** Demonstrate an understanding of the commercial cost implications of treatment options. e.g., through explanation of the comparison of cost benefits of the options in a quotation	☐
Describe the physical treatment options available for a specific water treatment application e.g., hard water versus softened water make up for a cooling system	☐		
Demonstrate how they have assessed the suitability of the chemical water treatment options in order to solve a technical problem they have encountered e.g., by explanation of the programme design calculations and conclusions	☐	Explain the implications of selecting an unsuitable treatment option and how this could be rectified. e.g., incorrect biocide for a closed water system	☐
Demonstrate how they have assessed the suitability of the physical water treatment options in order to solve a technical problem they have encountered e.g., by explanation of the programme design calculations and conclusions	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Evaluate the water treatment programme options for an application'			

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Evaluate the water treatment programme options for an application'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

WTT K2 Understand the treatment options available for specific water systems e.g. pre-treatment plant, chemical treatment etc
WTT S2a Evaluate the suitability of alternative physical water treatment programmes for specific water systems and applications
WTT S2b Evaluate the suitability of alternative chemical water treatment programmes for specific water systems and applications

Water treatment programme operational performance and assessment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the correct performance criteria for the programme type, the tests to be completed and the correct equipment to be used when performing this task e.g. calcium balance to monitor scale inhibition	☐	Explain the risks and implications of poor treatment programme performance. e.g., corrosion/scale reducing plant efficiency and lifespan	☐
		Demonstrate an understanding of the potential improvements that could be made to the programme and evaluate the benefits of those improvements e.g., changing from non-oxidising biocide programme to oxidising biocide	☐
Demonstrate the evaluation and implementation process that has been completed and explain the conclusions/recommendations arrived at. e.g. by explanation of the customer service report	☐		

Timeline reference	☐	**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Water treatment programme operational performance and assessment'

Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Water treatment programme operational performance and assessment'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses

Feedback for the apprentice

CS9 Assessment of relevant test parameters and sampling plan for specific water systems
CS10 Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment
CS13 Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery
WTT K3a Acquire the knowledge required to assess the performance of water treatment programmes
WTT K3b Acquire the knowledge required to recommend improvements to water treatment programmes
WTT S4 Assess the performance of a water system treatment programmes and provide recommendations for improvement

Additional follow up questions	Apprentice Response			
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	

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Health, Safety and the Environment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Comply with company practices, processes and procedures associated with safety	☐	Demonstrate an understanding of where to improve Health and Safety within their workplace, including actions taken e.g. where reduced hazards minimised the risk to health or improved the system integrity	☐
Demonstrate where they have contributed to the development of an operational solution to a health and safety issue	☐		
Identify the main Health and Safety and compliance requirements of a Water Treatment Technician e.g., Health & Safety at Work Act, L8, BS 2486, BS 8552 etc	☐	Challenge unsafe practice outside of their immediate control or responsibility and is proactive in resolving those practices e.g., transport of equipment from point of delivery to the site of installation	☐
Apply a safety first approach for themselves and colleagues keeping themselves and others safe	☐		
Undertake and document work place risk assessments and hazard reviews in accordance with company procedures	☐		
Describe how to supervise the health and safety of a team e.g., ensure all members of the team have the appropriate PPE for the task to be performed	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Health, Safety and the Environment'			

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Health, Safety and the Environment'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS4 They should be able to contribute to the development of operational solutions and improvements e.g., safer working practices
WTE S5 Supervise a team and manage the health, safety and environment of a water treatment equipment installation and/or operation

Workplace attitude

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe when they have operated as an effective team member and taken responsibility, e.g., when they have made independent decisions and suggested workplace improvements	☐	Demonstrate a clear development plan, outlining choices and opportunities available beyond the completion of the apprenticeship. e.g., personal review/assessment of their career progression potential with current employer and within the industry as a whole and what is required to achieve those goals	☐
Describe the company's policy on ethics, equality and diversity, explaining why this is important, and illustrate this with an example of how they have effectively maintained a good relationship with either a colleague, client, supplier or member of the public	☐		
Demonstrate they have been receptive to feedback, willing to learn new skills and adapted to change	☐		
Demonstrate how they have assessed personal training needs in order to maintain a satisfactory level of competence in their job role e.g., when they have requested external OEM training or specific H&S training e.g., confined spaces	☐		

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Workplace attitude'

Distinction Questions

Develop open ended questions to help evidence the Distinction descriptor for 'Workplace attitude'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS16 Maintain level of competence commensurate with job role. Identify and recognise personal training needs and undertake suitable training when required. Complete and record CPD necessary to maintain and enhance competence
CB3 Display a self-disciplined, self-motivated, proactive approach to work, willing to make independent decisions and develop solutions and improvements to work practices
CB5 Be prepared to work effectively and efficiently maintaining good relationships with colleagues, clients, suppliers and the public.
CB6 Be receptive to feedback, willing to learn new skills and adjust to change.
CB7 Demonstrate adherence to corporate policies on ethics, equality and diversity.

Resource Management

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Explain how their work process, use of resources and management of time is effective. e.g., LRA describes the necessary site communication channels for access arrangements	☐	Show an understanding of the importance of effective time and resource management and the implications to themselves and their employer. e.g., cost to the employer of aborted site visits, missing materials and call backs	☐

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Resource Management'

Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Resource Management'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses

Feedback for the apprentice

CS5 Gather system data to enable the correct selection of operational resources that may be required e.g., access equipment (ladders, scaffold or cherry picker).
CS14 Use resources effectively including their own time management, the appropriate competence of staff chosen for the operation involved, the efficient use of staff resources and management of equipment required for specific work tasks.

Water system surveys, water system requirements and treatment programme design

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the information to be obtained during a water system survey to enable a water equipment installation to be designed e.g., water make up type, water usage, quality requirements	☐	Explain the risks and implications of failure to follow the correct design principles and the likely problems that will occur e.g., poor water quality causing deterioration of final product	☐
Demonstrate how they have correctly applied an understanding of the water treatment requirements for a specific water system e.g., by explaining programme design calculations and conclusions	☐	Describe the maintenance and monitoring programme that can be employed to ensure the continued suitability of the treatment programme. e.g., regenerant usage profile and cost reduction	☐
Demonstrate how they use the information gathered to design a water treatment installation. e.g., by explaining programme design calculations and conclusions	☐		
Demonstrate the knowledge required to install specific water treatment equipment e.g., electrical requirements for a softener installation, or the service parts required	☐		
Describe how they have installed and commissioned items of equipment.	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Water system surveys, water system requirements and treatment programme design'			

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Water system surveys, water system requirements and treatment programme design'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

WTE K1 Understand the water treatment requirements of specific water applications and processes e.g. water used for pharmaceutical manufacturing, chemical treatment dosing
WTE K3a Acquire the knowledge required to install specific items of equipment relevant to their job role
WTE S1 Complete water system surveys and produce system diagrams appropriate to the presentation of system data e.g. layout of the treatment plant within the system location
WTE S3a Install and commission water treatment equipment

Evaluate the water treatment programme options for an application

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the treatment options available for a specific water treatment application **and** Demonstrate how they have assessed the suitability of the treatment options e.g. by explanation of the programme design calculations and conclusions	☐	Demonstrate how they have evaluated the benefits and drawbacks of different equipment options **and** Demonstrate an understanding of the commercial cost implications of treatment options e.g., through explanation of the comparison of cost benefits of the options in a quotation	☐
		Explain the implications of selecting an unsuitable treatment option and how this could be rectified e.g. softened water for a sodium sensitive chemical blending plant	☐

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Evaluate the water treatment programme options for an application'
Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Evaluate the water treatment programme options for an application'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses
Feedback for the apprentice

WTE K2 Understand the equipment options available and their relevant benefits
WTE S2 Evaluate and design appropriate water treatment equipment installations

Water treatment programme operational performance and assessment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the correct performance criteria for the equipment type, the tests to be completed and the correct equipment to be used when performing this task e.g., recovery rate at specific conductivities for Reverse Osmosis plant	☐	Explain the risks and implications of poor treatment equipment performance. e.g., poor water quality causing deterioration of customer's final product	☐
Demonstrate the evaluation and implementation process that has been completed and explain the conclusions/ recommendations arrived at. e.g., by explanation of the equipment service report	☐	Demonstrate an understanding of the potential improvements that could be made to the programme and evaluate the benefits of those improvements e.g., mixed bed polishing unit after Reverse Osmosis for ultrapure water supply	☐
Describe the servicing requirements for a specific item of water treatment equipment e.g., membrane cleaning of a Reverse Osmosis plant	☐		
Describe the maintenance requirements for a specific item of water treatment equipment e.g., routine calibration of a pH monitoring system	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Water treatment programme operational performance and assessment'			

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Water treatment programme operational performance and assessment'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS9 Assessment of relevant test parameters and sampling plan for specific water systems
CS10 Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment
CS13 Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery
WTE K3b Acquire the knowledge required to service specific items of equipment relevant to their job role
WTE K3c Acquire the knowledge required to maintain specific items of equipment relevant to their job role

Additional follow up questions	Apprentice Response			
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	

Legionella Risk Assessor pathway

Health, Safety and the Environment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Comply with company practices, processes and procedures associated with safety	☐	Demonstrate an understanding of where to improve Health and Safety within their workplace, including actions taken e.g. where reduced hazards minimised the risk to health or improved the system integrity	☐
Demonstrate where they have contributed to the development of an operational solution to a health and safety issue	☐		
Identify the main Health and Safety and compliance requirements of a Water Treatment Technician e.g., Health & Safety at Work Act, L8, BS 2486, BS 8552 etc	☐	Challenge unsafe practice outside of their immediate control or responsibility and is proactive in resolving those practices e.g. identifies health risks associated with a water system not directly linked to the legionella risk assessment process and brings this to the attention of the client	☐
Identify the main Health and Safety and compliance requirements relevant to the production of a legionella risk assessment	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Health, Safety and the Environment			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Health, Safety and the Environment			
Fail ☐	**Pass** ☐	**Distinction** ☐	
Summary of responses			

Feedback for the apprentice

CS4 They should be able to contribute to the development of operational solutions and improvements e.g., safer working practices
LRA K1 Know and understand any regulatory requirements and guidance appropriate to the water systems being assessed

Workplace attitude

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe when they have operated as an effective team member and taken responsibility, e.g., when they have made independent decisions and suggested workplace improvements	☐	Demonstrate a clear development plan, outlining choices and opportunities available beyond the completion of the apprenticeship. e.g., personal review/assessment of their career progression potential with current employer and within the industry as a whole and what is required to achieve those goals	☐
Describe the company's policy on ethics, equality and diversity, explaining why this is important, and illustrate this with an example of how they have effectively maintained a good relationship with either a colleague, client, supplier or member of the public	☐		
Demonstrate they have been receptive to feedback, willing to learn new skills and adapted to change	☐		
Demonstrate how they have assessed personal training needs in order to maintain a satisfactory level of competence in their job role e.g., when they have requested external OEM training or specific H&S training e.g., confined spaces	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Workplace attitude'			

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Workplace attitude'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS16 Maintain level of competence commensurate with job role. Identify and recognise personal training needs and undertake suitable training when required. Complete and record CPD necessary to maintain and enhance competence
CB3 Display a self-disciplined, self-motivated, proactive approach to work, willing to make independent decisions and develop solutions and improvements to work practices
CB5 Be prepared to work effectively and efficiently maintaining good relationships with colleagues, clients, suppliers and the public.
CB6 Be receptive to feedback, willing to learn new skills and adjust to change.
CB7 Demonstrate adherence to corporate policies on ethics, equality and diversity.

Resource Management

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Explain how their work process, use of resources and management of time is effective. e.g., LRA describes the necessary site communication channels for access arrangements	☐	Show an understanding of the importance of effective time and resource management and the implications to themselves and their employer. e.g., cost to the employer of aborted site visits, missing materials and call backs	☐

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Resource Management'
Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Resource Management'

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS5 Gather system data to enable the correct selection of operational resources that may be required e.g., access equipment (ladders, scaffold or cherry picker).

CS14 Use resources effectively including their own time management, the appropriate competence of staff chosen for the operation involved, the efficient use of staff resources and management of equipment required for specific work tasks.

Water system surveys, water system requirements and treatment programme design

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the major elements of a water system and their design e.g., storage tanks, calorifiers, thermostatic mixer valves in a hot water system	☐	Explain the risks and implications of failure to follow the correct design principles and the likely problems that will occur. e.g., implications of health scare to customers business	☐
Describe how they prepare water system diagrams. e.g., schematic drawings produced by computer aided design software	☐	Describe the monitoring programme that can be employed to ensure the continued suitability of the risk assessment. e.g., the effectiveness of remedial engineering actions taken	☐
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Evaluate the water treatment programme options for an application'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Water system surveys, water system requirements and treatment programme design'			
Fail ☐	**Pass** ☐	**Distinction** ☐	
Summary of responses			

Feedback for the apprentice

LRA K4 Understand the principles of design for water systems and water treatment equipment e.g. water tanks, calorifiers, softeners etc.
LRA S2 Prepare water system diagrams and drawings

Evaluate the water treatment programme options for an application

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Demonstrate the understanding of the application of a water treatment programme e.g., chlorine dioxide dosing to a cold water supply system	☐	Explain the implications of selecting an unsuitable treatment option and how this could be rectified .e.g., continuous dosing of a silver stabilised peroxide to a potable water system	☐
Demonstrate the identification of remedial, improvement and management actions. e.g., by explanation of the recommendations given in a risk assessment	☐	Demonstrate an understanding of the cost implications of recommended remedial actions e.g., comparative cost of tank refurbishment versus replacement	☐
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Evaluate the water treatment programme options for an application'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Evaluate the water treatment programme options for an application'			
Fail ☐	**Pass** ☐	**Distinction** ☐	
Summary of responses			

Feedback for the apprentice

LRA K3 Understand the application of water treatment programmes for specific water systems
LRA K5 Acquire the knowledge required to recommend remedial actions, optional system improvements and management requirements
LRA S4 Identify remedial, improvement and management actions required to minimise any risk presented

Water treatment programme operational performance and assessment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the correct performance criteria for the system type, the tests that may be completed to assess this and the correct equipment to be used when performing this task e.g., legionella testing of a hot water system	☐	Explain the risks and implications of poor treatment programme performance. e.g., the commercial implications of health scare to the customer's business	☐
Describe the risk assessment principles that they use e.g., risk values weighted by local population of site e.g., by explanation of the risk assessment report findings and recommendations	☐	Demonstrate an understanding of the potential improvements that could be made to the programme and evaluate the benefits of those improvements e.g., continuous biocide dosing to hot and cold water systems where legionella are prevalent	☐
Demonstrate the evaluation and implementation process that has been completed and explain the conclusions/recommendations arrived at. e.g., by explanation of the risk assessment report	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Water treatment programme operational performance and assessment'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Water treatment programme operational performance and assessment'			
Fail ☐	**Pass** ☐	**Distinction** ☐	

Summary of responses
Feedback for the apprentice

CS9 Assessment of relevant test parameters and sampling plan for specific water systems
CS10 Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment
CS13 Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery
LRA K2 Understand the principles of risk assessment and the identification of hazards in water systems
LRA S3 Assess the comparative risk of Legionellosis presented by specific water systems

Additional follow up questions	Apprentice Response			
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	

ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

Water Treatment Operations Supervisor pathway

Health, Safety and the Environment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Comply with company practices, processes and procedures associated with safety	☐	Demonstrate an understanding of where to improve Health and Safety within their workplace, including actions taken e.g. where reduced hazards minimised the risk to health or improved the system integrity	☐
Demonstrate where they have contributed to the development of an operational solution to a health and safety issue	☐		
Identify the main Health and Safety and compliance requirements of a Water Treatment Technician e.g., Health & Safety at Work Act, L8, BS 2486, BS 8552 etc	☐	Challenge unsafe practice outside of their immediate control or responsibility and is proactive in resolving those practices e.g., produces a risk based chemical handling and transport procedure for delivery of chemicals to site	☐
Apply a safety first approach for themselves and colleagues keeping themselves and others safe.	☐		
Undertake and document work place risk assessments and hazard reviews in accordance with company procedures.	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Health, Safety and the Environment'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Health, Safety and the Environment'			
Fail ☐	**Pass** ☐	**Distinction** ☐	

Summary of responses
Feedback for the apprentice

CS4 They should be able to contribute to the development of operational solutions and improvements e.g., safer working practices
WTS K4 Understand the risks involved, the relevant Health and Safety regulations associated with the project and specific requirements of the project site
WTS S6 Produce a method statement and control scheme to manage the health, safety and environment during the various phases of a project

Workplace attitude

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe when they have operated as an effective team member and taken responsibility, e.g., when they have made independent decisions and suggested workplace improvements	☐	Demonstrate a clear development plan, outlining choices and opportunities available beyond the completion of the apprenticeship. e.g., personal review/assessment of their career progression potential with current employer and within the industry as a whole and what is required to achieve those goals	☐
Describe the company's policy on ethics, equality and diversity, explaining why this is important, and illustrate this with an example of how they have effectively maintained a good relationship with either a colleague, client, supplier or member of the public	☐		
Demonstrate they have been receptive to feedback, willing to learn new skills and adapted to change	☐		
Demonstrate how they have assessed personal training needs in order to maintain a satisfactory level of competence in their job role e.g., when they have requested external OEM training or specific H&S training e.g., confined spaces	☐		

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Workplace attitude'

Distinction Questions		
Develop open ended questions to help evidence the Distinction descriptor for 'Workplace attitude'		
Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of responses		
Feedback for the apprentice		

CS16 Maintain level of competence commensurate with job role. Identify and recognise personal training needs and undertake suitable training when required. Complete and record CPD necessary to maintain and enhance competence
CB3 Display a self-disciplined, self-motivated, proactive approach to work, willing to make independent decisions and develop solutions and improvements to work practices
CB5 Be prepared to work effectively and efficiently maintaining good relationships with colleagues, clients, suppliers and the public.
CB6 Be receptive to feedback, willing to learn new skills and adjust to change.
CB7 Demonstrate adherence to corporate policies on ethics, equality and diversity.

Resource Management

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Explain how their work process, use of resources and management of time is effective. e.g., LRA describes the necessary site communication channels for access arrangements	☐	Show an understanding of the importance of effective time and resource management and the implications to themselves and their employer. e.g., cost to the employer of aborted site visits, missing materials and call backs	☐
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Resource Management'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Resource Management'			
Fail ☐	**Pass** ☐	**Distinction** ☐	
Summary of responses			
Feedback for the apprentice			

CS5 Gather system data to enable the correct selection of operational resources that may be required e.g., access equipment (ladders, scaffold or cherry picker).
CS14 Use resources effectively including their own time management, the appropriate competence of staff chosen for the operation involved, the efficient use of staff resources and management of equipment required for specific work tasks.

Water system surveys, water system requirements and treatment programme design

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the information to be obtained during a water system survey to enable a water system cleaning programme to be planned e.g., system access points, drainage, power supply	☐	Explain the implications of selecting an unsuitable treatment option and how this could be rectified e.g., non-dynamic flushing of a multiple floor heating system	☐
Demonstrate how they have correctly applied an understanding of the water treatment requirements for a specific water system. e.g., from the system condition report, operative reports, analytical reports	☐	Explain the benefits for the customer of completing the cleaning procedure e.g., improvement in heat transfer processes derived from a cleaning procedure	☐

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for 'Water system surveys, water system requirements and treatment programme design'

Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for 'Water system surveys, water system requirements and treatment programme design'

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses
Feedback for the apprentice

WTS K1 Understand the water treatment requirements of specific water systems e.g. drinking water systems, process water systems etc
WTS S2 Understand and apply chemical cleaning and disinfection programmes for specific water systems

Evaluate the water treatment programme options for an application

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the treatment options available for a specific water treatment cleaning application e.g., removal of suspended solids from a closed system	☐	Explain the risks and implications of failure to follow the correct cleaning programme and the likely problems that will occur. e.g., incorrect cleaning programme closing down production process and consequent losses to both the customer and the employer	☐
Describe the treatment options available for a specific water system disinfection application e.g., sodium hypochlorite versus hydrogen peroxide for mains disinfection	☐		
Timeline reference		**Portfolio reference**	
Pass Questions			
Develop open ended questions to help evidence the Pass descriptor for 'Evaluate the water treatment programme options for an application'			
Distinction Questions			
Develop open ended questions to help evidence the Distinction descriptor for 'Evaluate the water treatment programme options for an application'			
Fail ☐	**Pass** ☐	**Distinction** ☐	
Summary of responses			

Feedback for the apprentice

WTS K2a Understand chemical cleaning programme options for specific water systems and processes
WTS K2b Understand disinfection programme options for specific water systems and processes

Water treatment programme operational performance and assessment

Pass Apprentices must achieve ALL the following pass descriptors	Achieved	Distinction Apprentices must achieve ALL the pass descriptors plus ALL a minimum of FOUR distinction descriptors	Achieved
Describe the correct performance criteria for the operation type, the tests to be completed and the correct equipment to be used when performing this task e.g., iron levels during a dynamic flushing operation	☐	Explain the risks and implications of poor cleaning operation performance. e.g., incorrect cleaning programme closing down production process and consequent losses	☐
Describe how they have installed and commissioned operational equipment.	☐	Demonstrate an understanding of the potential improvements that could be made to the water treatment programme on a cleaned system e.g. side stream filtration to remove suspended solids	☐
Demonstrate the evaluation and implementation process that has been completed and explain the conclusions arrived at e.g., by explanation of the job completion report	☐		

Timeline reference		**Portfolio reference**	

Pass Questions
Develop open ended questions to help evidence the Pass descriptor for ‘Water treatment programme operational performance and assessment’

Distinction Questions
Develop open ended questions to help evidence the Distinction descriptor for ‘Water treatment programme operational performance and assessment’

Fail ☐	**Pass** ☐	**Distinction** ☐

Summary of responses
Feedback for the apprentice

CS9 Assessment of relevant test parameters and sampling plan for specific water systems
CS10 Performance assessment and evaluation of water system conditions and operations utilising specific monitoring equipment
CS13 Identify, evaluate and resolve practical and technical problems encountered, assess suitability of the chemical and physical water treatment options employed and implement the required improvements to the treatment programme or service delivery
WTS K3 Acquire the knowledge required to assess the performance of water treatment cleaning/disinfection operation
WTS S3a Install and commission temporary operations equipment required to complete the project e.g. flushing pump stations, side stream filtration, cooling tower packing
WTS S4 Assess the performance and progress of a water treatment cleaning/disinfection operation by sample analysis and make adjustments to the programme as required

All pathways

Additional follow up questions	Apprentice Response			
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	
	Timeline reference:		Portfolio reference:	