

Water Treatment Technician

Unit WTT009 Waste Streams

This training specification has been developed from the water process technician standard. The specification details the **minimum** training specification, as agreed by industry employers, to deliver the skills and knowledge required to control and optimise waste streams generated by the water treatment process in the water sector.

The specification details the critical requirement of the activity to carry out the work outlined and does not preclude employers from adding to the skills and knowledge detailed by the specification in their own training programmes.

All work must be carried out to approved procedures and practices and in accordance with statutory health, safety and environmental requirements.

What does this specification look like?

Water treatment technicians need to be able to:

WS1 Control waste stream processes on water treatment works

WS2 Optimise waste stream processes on the basis of test results and analysis of trends

WS3 Restore waste stream processes to normal operation through identification of the root cause of faults arising with the process

What do I need to take this module?

Candidates to be **assessed** as competent in this area should have successfully completed the modules shown below or have evidence demonstrating an equivalent level of competence.

1. COSHH
2. National Water Hygiene Scheme

Performance Criteria

To achieve this unit, you will need to be able to:

General Requirements

- P1. Identify the work area to be accessed using company documentation, systems and work instructions
- P2. Select, inspect and wear required PPE in line with company procedures
- P3. Carry out a site specific risk assessment of the work area, identifying the hazards and control measures required
- P4. Maintain accurate and up to date records
- P5. Report information and data to the designated person

Task Specific – Water Treatment Processes – Waste Streams

- P6. Identify and locate the waste stream processes and associated equipment on the information system (e.g. SCADA) and on the works
- P7. Identify all mechanical, electrical and instrumentation assets which monitor and control waste stream processes on the information system (e.g. SCADA) and on the works
- P8. Control the waste stream processes within operational parameters
- P9. Calibrate, monitor and check waste stream processes on the works, completing associated calculations
- P10. Evaluate trend data from the information system and test results to identify:
 - a) Normal trends or cycles for the works, and
 - b) Atypical trends or changes and the underlying or root causes for the change
- P11. Optimise waste stream processes based on test results and trend data
- P12. Instigate corrective action to return the processes to compliant conditions, taking account of process lag time

Knowledge and Understanding

To achieve this unit, you will need to know and understand:

General Requirements

- K1. The principles of Health, Safety and Environmental legislation when working with water treatment processes
- K2. The organisation's safety rules, policies and procedures when working with water treatment processes
- K3. The hazards associated with working with water treatment processes and the correct way to respond to them

- K4. How to select, inspect and use PPE when working with water treatment processes
- K5. How to carry out a site specific risk assessment and identify workplace hazards
- K6. How to respond in the event of an emergency situation in the workplace environment
- K7. How to leave the work area in a safe and secure condition
- K8. The company recording and reporting process

Task Specific – Water Treatment Processes – Waste Streams

- K9. The process streams which produce waste on water treatment works and the typical composition of wastes produced
- K10. The objectives of water treatment waste stream processes and consequences of sub-optimal performance
- K11. The main generic different types of tanks, pumps and associated ancillary equipment used to process waste streams and the design considerations associated with these:
 - a) Thickening
 - b) Dewatering
 - c) Clarification
- K12. Key process parameters and variables associated with waste processes, including:
 - a) Design limitations of works
 - b) Disposal routes and schematics
 - c) Desludging and flow rates
 - d) Supernatant return
- K13. The rules governing the utilisation of returning wash water to the head of the works and its impact or influence on the operation of the works
- K14. How to interrogate the information system to:
 - a) Identify and control items of mechanical, electrical and instrumentation equipment
 - b) Evaluate trend data differentiating normal operational cycles from developing fault conditions
- K15. How to confirm the configuration, operation and performance of waste water processes corresponds to the information system
- K16. The types of coagulants and coagulant aids used and the factors that influence their selection, to include:
 - a) Use
 - b) Interaction
 - c) Sequence of addition
- K17. The range of instrumentation and activities used to monitor and control waste stream processes and their calibration requirements
- K18. The range of plant used to store, mix and pump chemicals and the methods of operation available
- K19. The safe handling and use of chemicals associated with the works

- K20. How to optimise de-sludging systems to ensure the efficiency of downstream processes
- K21. Alarms, action levels, authorisation levels and consequences associated with the process or processes including legislative
- K22. How to complete tests to specification and any limitations, including analysis of results
- K23. How to identify the root cause of waste stream process problems and the sequence of actions required to restore the process to compliant conditions, taking account of all process variables and process lag times
- K24. The methods of disposal of waste streams available and the legislative requirements relating to these
- K25. Maintenance requirements of key equipment and processes needs

How will it be assessed?

To achieve this unit, you will need to be able to provide evidence of the performance criteria and the knowledge and understanding requirements listed above.

Assessment types:

1. External assessment – an external accrediting body will assess against a national minimum standard
2. Internal assessment process – a company led on-going assessment against requirements
3. End-point assessment – see assessment plan for further details here (will be Energy & Utility Skills defined)

What type of evidence will be expected?

To achieve this unit, you will need to be able to provide evidence of the performance criteria and the knowledge and understanding requirements listed above.

Evidence types:

1. On-going local assessments
 - a) Assessment plan, review, feedback, standard assessment sheets
2. Knowledge based learning
 - a) Classroom, exams, assignments, Q&A sessions, e-learning modules
3. Evidence portfolios
 - a) Learning logs, photos, observation sheets

Assessment types and process

