

Water Treatment Technician

Unit WTT004 Slow Sand Filtration Operations

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 carry out slow sand filtration operations 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:

- SSF1 Control slow sand filtration processes on water treatment works
- SSF2 Optimise slow sand filtration processes on the basis of test results and analysis of trends
- SSF3 Restore slow sand filtration to normal operation through identification of the root cause of faults arising with the process
- SSF4 Understand the key principles of filtration

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 - Slow Sand Filtration Operations

- P6. Identify and locate the slow sand filtration plant on the information system (e.g. SCADA) and on the works
- P7. Identify all mechanical, electrical and instrumentation assets associated with the slow sand filtration processes on the information system (e.g. SCADA) and on the works
- P8. Calibrate, monitor and check slow sand filtration, completing associated calculations, or utilising look-up tables
- P9. 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
- P10. Optimise the slow sand filtration process based on test results and trend data
- P11. Instigate corrective action to return the slow sand filtration process to compliant conditions, taking account of process lag times

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 Process - Slow Sand Filtration Operations

- K9. The objectives of the slow sand filtration process and consequences of sub-optimal performance
- K10. The design specification and operating cycle for slow sand filtration and its influence on the operation of the works
- K11. Key process parameters and variables associated with slow sand filtration, including the influence of variable water quality, design limitations of works, filter washing and return to service
- K12. 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
- K13. How to confirm the configuration, operation and performance of the actual slow sand filtration plant corresponds to the information system
- K14. Types of media used and the factors that influence their selection, use and performance
- K15. The range of instrumentation used to monitor and control the process and their calibration requirements
- K16. The range of mechanical, electrical and instrumentation plant used to maintain filters and the methods of operation available
- K17. Alarms, action levels, authorisation levels and consequences associated with the process or processes
- K18. How to identify the root cause of slow sand filtration 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
- K19. Maintenance requirements

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

