Water Treatment Technician
Unit WTTO08 Membrane Filtration Processes

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 membrane filtration processes 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:

MF1 Control membrane filtration processes on water treatment works

MF2 Optimise membrane filtration processes on the basis of test results and analysis of trends

MF3 Restore the membrane filtration to normal operation through identification of the root cause of faults arising with the process

MF4 Understand the key principles of membrane 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 - Membrane Filtration Processes

P6. Identify and locate the membrane filtration plant on the information system (e.g. SCADA) and on the works
P7. Identify all mechanical, electrical and instrumentation assets which monitors and controls the membrane filtration process on the information system (e.g. SCADA) and on the works
P8. Control the membrane filtration process
P9. Calibrate, monitor and check membrane filtration on the works, completing associated calculations, or utilising look-up tables
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 membrane filtration processes based on test results and trend data
P12. Instigate corrective action to return the membrane filtration process to compliant conditions

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 – Membrane Filtration Processes

K9. The objectives of the membrane filtration processes and consequences of sub-optimal performance
K10. Key process parameters and variables associated with membrane filtration, including the influence of variable water quality, design limitations of works and cleaning
K11. Key regulatory requirements relating to the membrane filtration process
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 membrane filtration plant corresponds to the information system
K14. Types of membrane filters used and the factors that influence their selection and use
K15. The range of instrumentation used to monitor and control the membrane filtration process and their calibration requirements
K16. The range of plant used to clean membrane filters and the available methods of operation
K17. Alarms, action levels, authorisation levels and consequences associated with the process or processes
K18. How to identify the root cause of membrane 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

Local assessment	Assessment plan developed	Quarterly assessments	Portfolio reviewed	Feedback to learner
Workplace training	Theory based learning	Assignments	Observation and Q&A	Exams
End-point assessment	Portfolio submission	Industry Context trade tests	Knowledge exam	Observation