

Wastewater Treatment Technician

Unit WWTTC02 Sewage Pumping Station 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 sewage pumping station 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?

Wastewater treatment technicians need to be able to:

- SPS1 Control sewage pumping station* operations in order to minimise negative impacts on receiving treatment works
- SPS2 Optimise sewage pumping station* operations on the basis of downstream process performance, test results and analysis of trends
- SPS3 Restore sewage pumping station* operations to normal operation through identification of the root cause of faults arising with the process

* This includes intermediate pumping on a wastewater treatment works

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. SHEA water or equivalent
2. Process control systems

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 the control measures required
- P4. Maintain accurate and up to date records
- P5. Report information and data to the designated person

Task Specific - Sewage Pumping Station Operation

- P6. Safely carry out operational and first line maintenance tasks in line with legal and company requirements relating to the pumps and pumping station including removing blockages and fault finding
- P7. Identify all mechanical, electrical and instrumentation assets which monitor and control the pumping stations via the information system e.g. SCADA / HMI
- P8. Maintain control parameters and standard operating procedures associated with the pumping stations
- P9. Maintain set-points applicable to the pumping stations
- P10. Respond to alarms correctly
- P11. Evaluate trend data from the information system e.g. SCADA / HMI and/or process performance to identify:
 - a) Normal trends or cycles for the pumping station, and
 - b) Atypical trends or changes and the underlying or root causes for the change
- P12. Optimise the pumping station operations to efficiently achieve the required parameters
- P13. Instigate corrective actions to restore the pumping station 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 in relation to working with wastewater

- K2. The organisation's safety rules, policies and procedures relating to working with wastewater
- K3. The hazards associated with working with wastewater and the correct way to respond to them
- K4. How to select, inspect and use PPE when working with wastewater
- 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 - Sewage Pumping Station Operation

- K9. The role of pumping stations
- K10. Legislation and permits controlling sewerage and pumping station operations
- K11. The configuration, operation and performance requirements of pumping stations
- K12. The different types of sewerage systems and pumping stations
- K13. The main generic different types of pumps and associated ancillary equipment used and the design considerations associated with these
- K14. The correct design and operation of sewerage systems and pumping stations and the consequences of sub-optimal performance
- K15. Key process parameters and variables associated with sewerage systems and pumping station design
- K16. How to optimise the pumping station operations to efficiently achieve the required parameters
- K17. How to safely carry out operational and first line maintenance tasks taking into account any systems of work and operating procedures
- K18. How to interrogate the information system e.g. SCADA / HMI to:
 - a) Identify and monitor items of mechanical, electrical and instrumentation equipment
 - b) Evaluate trend data differentiating normal operational cycles from fault conditions / inefficient operation
- K19. The range of instrumentation used to monitor and control the process and their calibration requirements
- K20. The consequences of sub-optimal pumping station operations on the subsequent process streams
- K21. Alarms, action levels, authorisation levels and consequences associated with the process
- K22. How to identify the root cause of pumping station problems. Understand the sequence of actions required to restore the processes to compliant conditions, taking account of all process variables and process lag times
- K23. The tools used in first line maintenance tasks, their uses and limitations
- K24. Data collection, recording, reporting and 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

