



Australian Government

Assessment Requirements for NWPTRT050

Assess and improve anaerobic digestion processes

Release: 1

Assessment Requirements for NWPTRT050 Assess and improve anaerobic digestion processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing fault reports and investigating the current operational status of anaerobic treatment process plant components
- evaluating system performance
- facilitating anaerobic treatment process inspection, sampling and testing and interpreting tests results
- identifying and responding to risks and hazards
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating current and potential chemical addition practices
- operating an anaerobic treatment process
- performing mathematical calculations to provide data for the analysis and development of options and solutions for at least one of the following:
 - chemical oxygen demand (COD) removal
 - solids retention time
 - volatile solids reductions
- planning trials to test the performance of the determined anaerobic treatment process optimisation options
- preparing reports with recommendations
- reviewing existing anaerobic treatment process performance with reference to historical data, differences in feed water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- anaerobic microbiology
- anaerobic treatment process variations including:
 - anaerobic digesters
 - bulk volume fermenters (BVF)
 - fluidised bed reactors
 - high rate anaerobic lagoons (HRAL)
 - up flow anaerobic sludge blanket reactors (UASB)
- chemical and nutrient dosing processes
- gas production and characterisation including:
 - carbon dioxide
 - hydrogen sulphide
 - methane
 - sulphur dioxide
- inhibitory substances
- macro and micronutrient requirements
- pH range and alkalinity
- principles of anaerobic system maintenance and troubleshooting
- principles of anaerobic treatment processes including:
 - design parameters
 - feed water quality
- relevant legislation, industry standards and workplace policies and procedures
- relevant operational protocols
- risk and hazard management principles relating to anaerobic treatment processes
- sampling and testing requirements
- strategies to evaluate system performance
- system layout
- volatile fatty acids (VFA)/to alkalinity ratio
- workplace data recording and reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so;

where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>