



Australian Government

Assessment Requirements for NWPTRT011 Assess and improve chemical dosing process

Release: 1

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Modification History

Release	Comments
1	<p>These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.</p> <ul style="list-style-type: none">• Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- conducting investigations and reporting on operational and control system problems
- coordinating sampling and testing including at least one of:
 - jar testing
 - flocculation growth
 - mixing energy
 - UV absorbance
 - pH
 - colour
 - turbidity
 - residual inorganic compounds
 - alkalinity
 - conductivity
- assessing quality of treatment chemicals by conducting a full range of jar tests
- performing mathematical calculations to provide data for the analysis and development of options and solutions
- investigating chemical dosing
- interpreting a range of complex and technical documents, including at least one of:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies

- articulating complex ideas
- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- identifying and responding to risks and hazards
- identifying opportunities for improved water treatment
- reviewing existing process performance with reference to historical data, differences in raw water quality and plant configuration including at least one of:
 - pH
 - turbidity
 - colour
 - presence of algae
 - temperature
- identifying data deficiencies and plan additional data collection through appropriate sampling and testing
- assessing fault reports and investigating the current operational status of plant components
- investigating current and potential chemical addition practices
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- the role of chemical addition in water treatment
- the principles of chemical addition, including enhanced coagulation
- chemical addition plant and equipment and system layout including:
 - mixing equipment
 - streaming current detector
 - dosing pumps
 - chemical injection equipment
 - turbidity meter
 - particle counter
 - flow meters
- chemical concepts and reactions relevant to chemical addition processes, including pH and alkalinity
- range and characteristics of chemicals used in chemical addition processes including:
 - polyaluminium chloride (PACL)
 - aluminium sulphate
 - aluminium chlorohydrate (ACH)
 - ferric chloride
 - ferric sulphate

- polyDADMAC
- polyacrylamide
- sulphuric acid
- hydrated lime
- caustic soda
- functions of various chemicals in chemical addition processes
- factors influencing the effectiveness of chemicals in chemical addition processes
- factors affecting the selection of chemicals in chemical addition processes
- range of appropriate measuring and testing procedures
- investigation procedures
- risk management principles
- locating chemical dosing points including at least one of:
 - mixing or reaction detention times
 - type of mixer or impeller
- customer expectations and requirements
- dosing pump capacity and calibration chart including:
 - detention times
 - mixing intensity for flash or rapid mixing and flocculation

Assessment Conditions

Consideration must be given to holistic assessment for this unit. Refer to advice in the companion volumes.

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Some components of this unit require assessment in a workplace environment therefore the unit is not suitable for fully external or electronic based assessment.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -

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

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