



Australian Government

NWPGEN009 Perform laboratory testing

Release: 1

NWPGEN009 Perform laboratory testing

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. Supersedes and is equivalent to NWP364B Perform laboratory testing. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • All elements and PC rewritten with occupational outcome of the unit maintained

Application

This unit describes the skills required to perform laboratory tests using standard methods and procedures and with access to readily available advice.

This unit applies to those working in the water industry, but could be used by other sectors.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work under indirect supervision, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

General

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used,

	further information is detailed in the range of conditions section.
1. Prepare samples for testing	1.1 Identify samples to be collected. 1.2 Collect samples ensuring that types, locations and times comply with requirements. 1.3 Maintain integrity of samples during sampling. 1.4 Assess and report abnormal characteristics and apply incident management principles. 1.5 Label, register and record laboratory samples, ensuring that the required information is transcribed accurately and legibly. 1.6 Identify samples to be tested, appropriate test method, equipment and safety requirements.
2. Prepare for laboratory testing	2.1 Set up test equipment and/or reagents in accordance with the specified test method. 2.2 Conduct pre-use and safety checks. 2.3 Identify and report faulty or unsafe equipment to appropriate personnel. 2.4 Check the calibration status of equipment and conduct calibration or report calibration requirements to appropriate personnel.
3. Perform tests on samples	3.1 Preserve the integrity of samples and eliminate the possibility of cross-contamination. 3.2 Identify, prepare, and weigh or measure sample and standards to be tested. 3.3 Follow test methods and perform sequence of tests using safety equipment. 3.4 Perform calculations. 3.5 Shut down equipment. 3.6 Store unused reagents and dispose of wastes as required by relevant regulations and codes. 3.7 Clean and store equipment.
4. Finalise work	4.1 Apply chain of custody principles. 4.2 Record results. 4.3 Identify and report 'out of specification' or atypical results. 4.4 Report observations or measurements requiring further action. 4.5 Clear and restore work area.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

Range of Conditions

Types of sample preparation include:	• sub sampling • dilution • filtration • digestion • mixing/agitation • heating/cooling • neutralisation/ quenching
Off-site/laboratory complex tests for wastewater include:	• chlorine • free ammonia • colour • redox • Sludge Volume Index • alkalinity • settle ability • Mixed Liquor Suspended Solids • Chemical Oxygen Demand, Biochemical Oxygen Demand • total organic carbon • nutrient testing • filamentous organisms • spectrophotometric analysis • potentiometric analysis • colorimetric comparators • volumetric analysis • microscopy

Off-site/laboratory complex tests for drinking water include:	• gravimetric analysis • taste and odour • chlorine • free ammonia • colour redox • UV absorbance and transmittance • nutrient testing • fluoride • iron • manganese • microscopy • Silt Density Index • gravimetric analysis • aluminium • alkalinity • hardness • jar testing • spectrophotometric analysis • potentiometric analysis • colorimetric comparators • volumetric analysis
---	--

Unit Mapping Information

Supersedes and is equivalent to NWP364B Perform laboratory testing.

Links

Companion Volume implementation guides are found in VETNet -

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

Companion Volume implementation guides are found in VETNet -

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

Companion Volume implementation guides are found in VETNet -

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

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for NWPGEN009 Perform laboratory testing

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. To be deemed competent the candidate must be assessed in a minimum of one type of sample preparation and minimum of three of the types of complex tests from either the wastewater or drinking water options listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- comparing sample description with the specification, record results and report discrepancies
- adopting hygienic work practices
- limiting hazards and contamination to self, work area and environment
- producing laboratory reports and logs
- using laboratory safety equipment and personal protective equipment
- interpreting laboratory test methods
- interpreting policies, procedures and standards
- interpreting and recording test results, including calculation of results from test data where required
- using potentiometric, ion selective, spectrophotometric, volumetric and gravimetric laboratory equipment
- performing sub-sample and testing products
- labelling samples for testing
- registering and preserving samples
- selecting the correct equipment and checking equipment performance
- maintaining a safe work environment

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.

Operational knowledge of:

- purpose of tests
- principles of the standard method
- calibration and/or pre-use equipment checks and their basis
- relevant standards and specifications and their interpretation
- source of uncertainty in measurements and methods for control
- importance and appropriate use of certified reference materials
- procedures for recognition of unexpected or unusual results and likely causes
- WHS for sample and testing
- safety data sheets

Assessment Conditions

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.

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>

Companion Volume implementation guides are found in VETNet -

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

Companion Volume implementation guides are found in VETNet -

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

Companion Volume implementation guides are found in VETNet -

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