



Australian Government

MSS024018 Perform sampling and testing of water

Release: 1

MSS024018 Perform sampling and testing of water

Modification History

Release 1. Updated unit code. Changes to performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Application

This unit describes the skills and knowledge to sample natural, polluted and process water for both chemical and microbiological parameters and perform field measurements on them.

This unit applies to environmental technicians working in a range of industry sectors, including environmental services; clean water; natural resource management; water treatment, storm and wastewater management; environmental compliance, auditing and inspection; solid and hazardous waste management; site remediation; management of contaminated sites; geotechnical services and civil engineering.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Sampling and testing

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Confirm sampling and testing requirements

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| 1.1 | Read the sampling plan to confirm the timing and frequency of sampling and the location, number and type of samples |
| 1.2 | Check that all sampling and testing procedures are in accordance with client or workplace requirements, standards and codes |

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
2	Prepare for water sampling	2.1	Identify site and sampling hazards and safety requirements
		2.2	Liaise with personnel to arrange site access, clearances and permits
		2.3	Select sampling equipment and conditions to achieve representative samples and preserve sample integrity during collection, storage and transit
		2.4	Ensure all reagents, solutions, standards and blanks are obtained and prepared ready for field use
		2.5	Select field test equipment and instruments and check operation and calibration in accordance with procedures and manufacturer instructions
		2.6	Assemble and check all sampling equipment, field test equipment, materials, containers and safety equipment
		2.7	Arrange suitable transport to, from and around site
3	Conduct sampling of water	3.1	Locate sampling sites and services at the site
		3.2	Conduct representative sampling in accordance with sampling plan and defined procedures for field and laboratory testing
		3.3	Ensure all controls, blanks and replicate samples are correctly integrated into the sampling process
		3.4	Record all information and label samples in accordance with traceability requirements
		3.5	Record environmental conditions and any atypical observations made during sampling that may impact on sample representativeness or integrity
		3.6	Transport all samples back to base according to workplace procedures and codes
		3.7	Distribute samples or sub-samples to required destinations for testing, maintaining sample integrity,

Elements describe the essential outcomes.

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traceability and chain of custody requirements

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| 4 | Conduct field testing of water | 4.1 | Obtain sample or sub-sample for designated field test, or locate testing location for in-situ testing |
| | | 4.2 | Check equipment and instrument set-up and reagents and calibrate to ensure safe operation and valid results |
| | | 4.3 | Run quality control (QC) samples to check method validity |
| | | 4.4 | Operate equipment and instruments in accordance with test method requirements |
| | | 4.5 | Perform tests, procedures, observations on all samples, and standards in accordance with specified methods |
| | | 4.6 | Record all field observations and results and ensure that they are accurately transferred to workplace information database |
| | | | |
| 5 | Maintain a safe work environment | 5.1 | Use defined safe work practices and personal protective equipment to ensure personal safety and that of others |
| | | 5.2 | Minimise the generation of waste |
| | | 5.3 | Rehabilitate sampling site to render it safe and minimise environmental impacts |
| | | 5.4 | Clean all equipment, containers, work area and vehicles according to workplace procedures |
| | | 5.5 | Check serviceability of all equipment before storage |
| | | 5.6 | Safely collect all hazardous wastes for disposal |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS024006 Perform sampling and testing of water.

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS024018 Perform sampling and testing of water

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- sampled natural, polluted or process water for both chemical and microbiological parameters
- conducted field tests of at least 2 water samples.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- scientific terminology used in job role covering water chemistry, biology and microbiology
- hydrologic cycle
- fundamentals of aquatic chemistry, including:
 - physical and chemical properties of water
 - chemical equilibria in natural, polluted and process waters
 - biogeochemical processes in freshwater and marine systems
 - water analytical environmental chemistry
 - environmental contaminants in water (fate, transport and bioaccumulation)
- fundamentals of hydrobiology, including:
 - aquatic and benthic flora and fauna
 - aquatic microorganisms
 - marine, estuarine and freshwater ecosystems
 - stratification and eutrophication in water bodies
 - aquatic microbiology
- principles of representative sampling
- principles and procedures for random, systematic and stratified sampling, including consistency of sampling procedures
- laboratory and field test parameters and measurements
- preservation of the integrity of samples
- maintaining identification of samples relative to their source
- workplace and legal traceability requirements
- cost-effectiveness of sampling

- common characteristics of water to be sampled and likely contaminants
- links between quality control, quality assurance, quality management systems and sampling procedures
- workplace procedures dealing with legislative requirements for the handling, labelling and transport of hazardous goods
- hazards for role
- health and safety and site environmental management requirements
- importance of personal and environmental safe work procedures particularly at high risk sites
- field test equipment

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of facilities, equipment and resources, including:
 - vehicle transport, survey or test equipment, water sampling and monitoring equipment, camera, consumables
 - documentation, including work program, maps and field protocols, codes of practice, user manuals, workplace safety procedures and sampling, test or survey methods.

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

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