



Australian Government

MSS025034 Collect and evaluate groundwater data

Release: 1

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Modification History

Release 1. Unit code changed. Application changed. Elements changed. Performance Criteria changed. Foundation Skills populated. Assessment Requirements changed. Supersedes and is not equivalent to MSS025021 Collect and evaluate groundwater data.

Application

This unit describes the skills and knowledge required to collect data on groundwater and interpret results.

This unit applies to environmental technicians and similar roles who are required to obtain, preserve and transport representative samples of groundwater, prevent contamination, measure bore conditions, perform field tests and process data and interpret results.

This unit applies in a range of sectors including but not limited to environmental services (sampling and monitoring of air quality, water, soil and noise); environmental compliance, auditing and inspection; groundwater and clean water (catchments, supply and environmental flows); water treatment, storm and wastewater management; solid and hazardous waste management; management of contaminated sites; site remediation or rehabilitation; geotechnical services and civil engineering; and natural resource management.

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

Competency Field

Environmental monitoring and technology

Unit Sector

Nil

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Confirm groundwater data requirements with supervisor	1.1 Confirm the scope and purpose of sampling and monitoring data requirements 1.2 Read and interpret available site information, including site plan, bore locations, construction and history of sampling and monitoring to identify factors relevant to current work

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Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.3 Confirm the sampling methods, locations, numbers and types of samples, and duration and frequency of sampling from workplace or client's sampling plan 1.4 Check that all sampling and testing procedures are in accordance with client or workplace requirements, standards and guidelines
2. Prepare for groundwater sampling and monitoring	2.1 Identify site and sampling hazards and review work, health and safety (WHS) procedures to determine control measures 2.2 Liaise with relevant personnel to arrange site access and obtain any clearances and/or permits 2.3 Read and interpret field sampling procedures and sample preparation methods required for specific laboratory analyses 2.4 Select purging and sampling equipment and sampling conditions to achieve representative samples and preserve sample integrity during collection, storage and transit 2.5 Obtain and prepare all reagents, solutions, standards and blanks for field use 2.6 Select field test equipment and instruments and check operation and calibration in accordance with methods, procedures and manufacturer instructions 2.7 Assemble all sampling equipment, field test equipment, materials, containers and safety equipment and stow for safe transport 2.8 Arrange suitable transport to, from and around site
3. Establish monitoring well or bore using manual methods	3.1 Confirm location of well or bore and groundwater monitoring requirements using site sampling and monitoring plan 3.2 Examine the well or bore area to identify possible hazards and apply controls 3.3 Check proposed well/bore construction method to identify contamination risks and liaise with supervisor on action to be taken 3.4 Check that casing and any other materials used in the bore are free of contaminants 3.5 Check that tools and sampling equipment are cleaned thoroughly before construction of well or bore commences 3.6 Check that protective casings and screens are kept in their protective coverings prior to installation 3.7 Provide advice and/or guidance to other personnel on action to be

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	taken to prevent and correct contamination issues 3.8 Monitor process to accurately log samples and prevent their contamination
4. Conduct representative sampling of groundwater	4.1 Locate sampling locations and services at the site and identify possible hazards and control measures 4.2 Conduct sufficient measurements to accurately determine water level and bore depth 4.3 Record bore and environmental conditions and any atypical observations made during sampling that may impact on sample representativeness or integrity 4.4 Conduct purging in accordance with defined procedure or method, collect the waste and decontaminate the equipment used 4.5 Collect required representative samples and ensure all controls, blanks and replicate samples are correctly integrated into the sampling process 4.6 Record information and label samples in accordance with chain of custody and traceability requirements 4.7 Filter and prepare samples to preserve their integrity for subsequent analysis 4.8 Secure and transport samples back to base in accordance with workplace procedures and guidelines
5. Conduct field testing of groundwater	5.1 Assemble monitoring instruments, equipment and reagents required for field tests and conduct pre-use checks in accordance with manufacturer instructions 5.2 Retrieve samples for designated field tests or locate established locations for in-situ testing 5.3 Set up, calibrate and operate equipment and instruments in accordance with test methods, procedures and manufacturer instructions 5.4 Take sufficient measurements of groundwater field parameters to obtain reliable data and in accordance with specified methods and procedures 5.5 Record all field observations and data and transfer accurately to workplace information database
6. Process and interpret groundwater data	6.1 Read and interpret test data noting atypical observations 6.2 Check that calculated values are consistent with expectations and

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	recalculate to correct any errors 6.3 Estimate and document uncertainty of measurements in accordance with workplace procedures 6.4 Record and report processed results in accordance with workplace procedures 6.5 Interpret trends in data and results and report out-of-specification or atypical results promptly to relevant personnel 6.6 Determine any obvious procedure or equipment problems which led to atypical data or results 6.7 Compare results with established groundwater quality standards and/or statutory environmental quality concentration limits 6.8 Finalise reporting of results in accordance with workplace requirements
7. Maintain a safe work environment	7.1 Use defined safe work practices and personal protective equipment (PPE) to ensure personal safety and that of others 7.2 Rehabilitate sampling site to render it safe and to minimise environmental impact 7.3 Clean and decontaminate equipment, containers, work area and vehicles according to workplace procedures 7.4 Check serviceability of equipment before storage 7.5 Minimise the generation of wastes and environment impacts 7.6 Liaise with relevant personnel for the safe collection of hazardous wastes for disposal

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret workplace documents
- Writing skills to record and report results
- Oral communication skills to liaise with supervisor and other personnel
- Numeracy skills to interpret results and summary statistics, estimate measurement uncertainty, and perform calculations on data, including algebra (transposition).

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -

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

Assessment Requirements for MSS025034 Collect and evaluate groundwater data

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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 demonstrated the ability to:

- collect and process groundwater samples and interpret the data from at least 3 disparate site locations
- monitor and prevent contamination for establishment of at least one well or bore.

Note that, depending on the context and conditions, the bore or well may constitute one of the 3 site locations.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- terminology used to describe aquifers, drilling and construction of wells and bores, and groundwater sampling and testing procedures
- principles of representative sampling and field testing of common groundwater parameters
- preservation of the integrity of samples
- maintaining identification of samples relative to their source, workplace and legal traceability requirements
- typical values of groundwater parameters, common pollutants and contaminants
- common sources of contamination from drilling of bores or wells and related prevention measures
- links between quality control, quality assurance, quality management systems and sampling procedures
- uncertainty of measurement
- function and operating principles of flow-through pumps and multiprobes
- workplace procedures dealing with legislative requirements for the handling, labelling and transport of hazardous goods
- common site hazards and control measures
- health, safety and environment requirements, including field safety and survival principles and high-risk sites.

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 suitable facilities, equipment and resources, including:
 - sampling equipment, field test equipment, equipment manuals, digital camera, containers, reagents, consumables
 - safe work procedures and safety equipment
 - maps and site plans
- site sampling plans and test methods
- • modelling of industry operating conditions, including:
 - access to site/s.

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

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