



Australian Government

MSS024005 Collect spatial and discrete environmental data

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSS024005A Collect spatial and discrete environmental data

Application

This unit of competency covers the ability to obtain and store spatial and discrete environmental data using handheld global positioning system (GPS) equipment.

This unit of competency is applicable to environmental technicians working in a range of industry sectors, such as environmental monitoring, sampling and field testing (e.g. air, water, soil and noise); geotechnical services; natural resource management; occupational hygiene monitoring (e.g. air, noise and radiation); groundwater and clean water (e.g. catchments, supply and environmental flows); water treatment, storm and wastewater management; site remediation and rehabilitation.

While no specific licensing or certification requirements apply to this unit at the time of publication, environmental monitoring and management operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

Nil

Competency Field

Monitoring

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	Prepare for data collection	1.1	Locate and review relevant legislative/regulatory, workplace requirements and background information for site/project.
		1.2	Locate and interpret specifications for spatial and environmental data collection.

- 1.3 Develop a data collection plan in accordance with specifications and relevant requirements.
 - 1.4 Establish codes for environmental attributes.
 - 1.5 Assemble equipment and check that it is fit for purpose.
 - 1.6 Confirm plan with supervisor, as necessary.
- 2 **Safely collect GPS and environmental data**
 - 2.1 Set up environmental measuring instruments on site and perform pre-use/calibration checks.
 - 2.2 Set up GPS equipment with correct datum and projection settings.
 - 2.3 Operate instruments/equipment in accordance with manufacturer specifications and workplace procedures.
 - 2.4 Determine conditions for obtaining optimum GPS positions.
 - 2.5 Collect point positional data in accordance with data collection plan.
 - 2.6 Attribute environmental data for each location.
 - 2.7 'Ground truth' GPS data using maps, aerial photos and/or satellite imagery.
 - 2.8 Verify environmental data, identify atypical results and review procedures/troubleshoot equipment, as necessary.
- 3 **Report data and finalise documentation**
 - 3.1 Use appropriate GPS software to download and process GPS and environmental data and extract required information
 - 3.2 Use specified quality tests and workplace procedures to check acceptability of environmental data.
 - 3.3 Complete all required documentation.
 - 3.4 Maintain the security and confidentiality of data and documentation in accordance with workplace requirements.

Foundation Skills

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

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Legislation, regulations, standards, codes, workplace procedures and requirements include the latest version of one or more of:

- federal legislation, such as the Environment Protection and Biodiversity Conservation Act, Australian Heritage Council Act, Native Title Act and National Environmental Protection Measures
- state/territory government legislation and local government by-laws, policies, regulations and plans dealing with land use; environmental protection; cultural/heritage sites; vegetation management; nature conservation and wildlife/plant protection; water management; soil conservation; pollution and contaminated sites; fisheries, forestry and mining operations
- legislation, standards and codes of practice for work health and safety (WHS) and handling of dangerous goods
- Australian and international standards covering environmental management such as AS/NZS ISO 14000 Basic Set:2007 Environmental Management Basic Set
- registration/licensing and/or accreditation requirements
- workplace procedures for sampling, monitoring and in-field testing; recording, processing, presenting and reporting data
- workplace documents, such as standard operating procedures (SOPs), work schedules, recording and reporting procedures, equipment manuals and warranties; safety data sheets (SDS) and safety procedures; waste minimisation, containment, processing and safe disposal procedures.

Background information includes one or more of:

- site or project history and client history
- records of consultations with stakeholders
- site access protocols and permits
- site utilities/services (e.g. water, sewer, electricity and gas)

- maps (e.g. road, topographical and survey marks)
- existing data sets (e.g. vegetation, topography, soils and regional ecosystem maps)
- hazards and safety risks
- emergency plans and safety procedures.

Specifications include one or more of:

- purpose of data collection
- detailed descriptions of spatial and environmental data requirements, such as:
 - positional data, metadata, calculated information
 - environmental measurements
 - sampling
 - data processing requirements
 - data quality requirements
 - data presentation/reporting requirements.

Equipment includes one or more of:

- any handheld GPS receiver
- sampling and environmental monitoring equipment
- communications equipment (e.g. radio and phone)
- safety equipment.

Project parameters include one or more of:

- coordinate systems
- datum
- display formats
- information displays
- data outputs, formats and protocols.

Verifying environmental data includes one or more of:

- comparison with expected or reference values
- conducting repeat tests, and using duplicate samples or locations.

Required documentation includes one or more of:

- map of GPS data locations
- sampling, monitoring or in-field test data and results
- records of vehicle/equipment use
- records of time spent and approved expenditure
- emails and correspondence
- records of site consultations
- final report/briefing.

- WHS requirements include:**
- compliance with relevant federal/state/territory WHS legislation at all times
 - assuming that samples are potentially hazardous and applying standard precautions
 - accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and state/territory Departments of Health, where relevant.

Unit Mapping Information

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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 MSS024005 Collect spatial and discrete environmental data

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Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- collecting spatial and discrete environmental data that meets specifications on at least two (2) occasions
- accurately interpreting instructions, specifications, procedures and manuals
- planning and organising resources for efficient data collection
- reading and interpreting maps and aerial photos, including relating direction and position on ground to visual representations
- setting up and operating handheld GPS equipment and environmental instruments correctly
- using computer equipment to reliably collect, manipulate and file spatial/environmental data
- recognising and recording atypical data
- using basic troubleshooting and problem-solving methods to check/address atypical data
- checking the acceptability of environmental data using specified quality tests or procedures
- presenting results and preparing technical reports in accordance with workplace procedures
- seeking advice when issues/problems are beyond scope of competence/responsibility
- working safely for the protection of self and others.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- environmental terms, concepts and principles relevant to data collection
- legislative requirements, standard methods and/or workplace procedures governing data collection, processing and reporting
- operating principles of GPS equipment and environmental instruments used in job role, including set-up and optimisation methods and equipment limitations
- uncertainty, accuracy and precision of measurements and data quality requirements
- data formats
- methods for data processing, manipulation and management
- relevant hazards, health and safety and site environmental management requirements.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace, or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- 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.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process such as workbooks, written assessments or interviews (provided a record is kept in each case).
- Holistic assessment methods include:
 - review of environmental data, results and site reports generated by the candidate
 - feedback from supervisors about the candidate's ability to safely collect reliable environmental data using available resources and within the agreed timeframe
 - observation of candidate collecting data with a focus on:
 - general site reconnaissance and observations
 - set-up and use of equipment
 - accurate data recording
 - problem solving/troubleshooting
 - safe work practices
 - oral and/or written questions to assess the candidate's understanding of workplace procedures relating to data collection, processing and reporting; use of equipment; and interpretation of data.
- Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - access to suitable sites and a vehicle
 - sampling/monitoring equipment and instruments, GPS receivers and related GPS software, camera; consumables; calculator, computer and relevant software or laboratory information system
 - documentation, including site information and history, maps, aerial photos; site environmental management plans, codes of practice and field protocols; equipment manuals, workplace procedures and test/survey methods.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR

- relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing environmental monitoring, management or technology related services about performing the competency being assessed within the last twelve months.

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