



Australian Government

MSL974007 Undertake environmental field-based monitoring

Release: 1

MSL974007 Undertake environmental field-based monitoring

Modification History

Release 1. Supersedes and is equivalent to MSL974007A Undertake environmental field-based monitoring

Application

This unit of competency covers the ability to organise and undertake field monitoring programs that are primarily focused on the determination of physical and chemical parameters and/or observation and documentation of biological/ecological systems. It covers confirming the requirements of the monitoring activities, sampling, sample handling, physical and chemical monitoring, and simple field-based analysis, data collection and recording. It also covers field camp maintenance and field safety. This unit of competency covers gaining clearance for animal trapping, tagging, keeping or experimentation. This unit does not cover animal handling techniques for specific species of animals. All work would be performed under the guidance and supervision of a scientific officer.

This unit of competency is applicable to technical, field and environmental officers working in the construction materials, mining and environmental services industry sectors.

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

Pre-requisite Unit

Nil

Competency Field

Testing

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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| 1 | Confirm requirements for field monitoring activities | 1.1 | Clarify the purpose, objectives and the defined site for the field monitoring activities with supervising staff |
| | | 1.2 | Review all emergency plans, risk assessments, and safety and environmental requirements associated with the field activities |

- 1.3 Review and discuss the detailed work program with supervising staff
 - 1.4 Clarify the need for permits and any access restrictions or local concerns at field site
 - 1.5 Clarify details of all samples to be collected and field parameters to be measured
 - 1.6 Confirm final data formats will suit stakeholders who receive or use the data
 - 1.7 Review existing in-house protocols and/or associated in-house requirements that relate to field sampling, monitoring and data quality procedures
- 2 Prepare for field monitoring activities
 - 2.1 Develop checklists, based on work program, to facilitate correct preparation of field activities
 - 2.2 Identify and implement all actions required under workplace emergency plan, risk assessment, and environment, safety and data quality procedures
 - 2.3 Complete all administrative requirements and obtain appropriate approvals/permits
 - 2.4 Prepare and check all instruments, equipment, materials and supplies required to implement field program
 - 2.5 Confirm correct and safe use of equipment and details of field activities with supervisor
 - 2.6 Arrange and check correct operation, packaging and transportation of all supplies and equipment
 - 2.7 Arrange all additional pre- and post-monitoring activities
- 3 Perform field activities
 - 3.1 Establish and maintain field camp in accordance with workplace procedures, as necessary
 - 3.2 Perform field sampling, monitoring, data collection and recording in accordance with the agreed work program
 - 3.3 Label all samples and complete data sheets and field log

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| | | book in accordance with workplace procedures |
| | 3.4 | Store samples/specimens in accordance with any special requirements for continued wellbeing, viability or integrity |
| | 3.5 | Perform all tests and operate all equipment according to workplace instructions |
| | 3.6 | Store and maintain equipment and, where appropriate, calibrate instruments during field activities |
| | 3.7 | Perform all activities safely with minimal impact on the environment |
| 4 | Close down field monitoring activities | |
| | 4.1 | Arrange and check final packaging and transportation of all samples, equipment and supplies back to home base |
| | 4.2 | Ensure that monitoring/camp site is left in accordance with workplace and environmental requirements |
| | 4.3 | Ensure all samples and data are stored safely |
| | 4.4 | Ensure dispatch of collected samples for subsequent analysis |
| | 4.5 | Test and, if required, decontaminate equipment before storage |
| | 4.6 | Report results, noting any anomalies with users, data analysers and/or supervisor |

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.

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.

Standards, codes, procedures and/or workplace requirements

Standards, codes, procedures and/or workplace requirements include the latest version of one or more of:

- Australian, national and international standards, guidelines and codes covering work health and safety (WHS); occupational protective equipment; labelling of workplace substances; storage, handling and transport of dangerous goods; and environmental management
- national WHS standards and codes of practice, and national environmental protection measures
- Government policy and regulations covering environmental management, sustainable development and impact assessment
- standard methods for sampling and conducting field monitoring and surveys, specific environmental standards and site-specific requirements
- industry specific codes, regulations and guidelines, such as animal welfare legislation and codes of practice, Australian Quarantine and Inspection Service (AQIS) Export Control (Orders) Regulations and Import Guidelines
- workplace documents, such as standard operating procedures (SOPs), data quality procedures, equipment manuals and warranties, supplier catalogue and handbooks, calibration and maintenance schedules, material safety data sheets (MSDS) and safety procedures, survey/laboratory schedules, workplace recording and reporting procedures, and waste minimisation and safe disposal procedures

Communication

Communication includes:

- face-to-face and telephone interactions, written documents and meetings

Purpose of field monitoring activities

Purpose of field monitoring activities include one or more of:

- single or multiple site sampling and monitoring, routine monitoring of physical/chemical parameters
- biological/ecological surveys
- requirement to comply with legislation, regulations or standards, industry sampling or monitoring protocols or codes of practice

Workplace procedures for field activities

Workplace procedures for field activities include, but are not limited to:

- SOPs covering fieldwork, sampling and testing, and recording of data

- equipment operating manuals, calibration procedures, instrument fault-finding procedures, and general maintenance and repair procedures
- field camp procedures for cleaning, cooking, safety, security, hygiene, work management and set-up/take down
- requirements related to protection of the environment
- emergency, first aid and survival procedures, and incident/accident/injury report forms

Administrative requirements and appropriate approvals

Administrative requirements and appropriate approvals include one or more of:

- travel requisitions
- authority for use of vehicles and equipment
- insurance
- permits
- permits and clearances

WHS and environmental management requirements

WHS and environmental management requirements include:

- complying with WHS and environmental management requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time
- applying standard precautions relating to the potentially hazardous nature of samples
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and 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=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL974007 Undertake environmental field-based monitoring

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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:

- organising and undertaking at least one (1) field monitoring program for determining physical and chemical parameters and/or observing and documenting biological and ecological systems
- reviewing a written work program to confirm its purpose, major field activities, resource requirements and the relevant aspects of emergency, safety and environmental field plans
- developing accurate and complete checklists covering instruments, equipment and associated supplies necessary for a defined field activity
- managing the logistics of field activities, such as purchasing; bookings; assembly; checking and transport of equipment and consumables; rosters; location, establishment and maintenance of site; communication systems; waste removal and site remediation
- preparing, checking, calibrating and safely using field instruments and equipment under laboratory and field conditions
- identifying and rectifying basic equipment/instrument faults
- collecting, preserving, labelling, storing and transporting samples and specimens to enable subsequent identification and ensure their wellbeing, viability and integrity
- performing field tests accurately and collecting/recording reliable field data
- gaining site access and permits and clearances for sample collecting
- communicating and negotiating effectively with staff and other relevant parties
- responding effectively to changed or unforeseen circumstances
- following workplace safety procedures and hazard control measures for the protection of self and others.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- understanding of the purpose and objectives of field activities, such as information and analysis required, end users of information, and significance of outcomes for broader programs
- application of risk assessment to work programs and field activities
- technical capabilities and limitations of equipment and instruments used in field activities
- specific legislation and codes of practice related to sample collection
- workplace procedures for the conduct of monitoring activities and recording of field data

- relevant hazards, work health and safety (WHS) and environment requirements, including field safety/survival principles
- common issues and problems with organising and conducting field activities, such as:
 - loss or failure of equipment
 - failure to bring critical equipment
 - communication failure/difficulties
 - unexpected restriction access to site
 - unforeseen environmental impacts
 - contact with hazardous wastes.

Assessment Conditions

- Judgment 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).
- This unit of competency may be assessed with:
 - MSL944001 Maintain laboratory/field workplace safety
 - MSL954001 Obtain representative samples in accordance with sampling plan
- Holistic assessment methods include:
 - review of workplace documentation completed by the candidate, such as a checklist of resources required to carry out a defined work program and pre-and post-monitoring requirements
 - review of field data and results obtained by the candidate
 - feedback from supervisors and peers
 - review of candidate's responses to simulation exercises, such as accident and emergency situations, communication failure/difficulties and failure to bring critical equipment
 - observation of candidate preparing for and/or conducting fieldwork
 - oral and/or written questioning to assess required knowledge.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:

- equipment required for field activities, such as vehicles, navigation and communication equipment; survey equipment, sampling equipment, containers, field test kits and instruments, safety equipment and consumables
- work program, workplace procedures, codes of practice and field protocols and manuals.
- 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 competence 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 a laboratory about performing the competency being assessed within the last twelve months.

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