



Australian Government

MSS025001 Assist with assessing site environmental indicators

Release: 1

MSS025001 Assist with assessing site environmental indicators

Modification History

Release 1. Supersedes and is equivalent to MSS025001A Assist with assessing site environmental indicators

Application

This unit of competency covers the ability to assist environmental scientists and engineers with determining the environmental condition of a site or locality. Personnel are required to locate and assess relevant data sets and reports; interpret the magnitudes and trends in measured environmental parameters; and determine and report on the potential significance for site/locality activities. They require sufficient knowledge of environmental science to interpret measurements involving the atmosphere, biodiversity, land and water. The unit does not cover the collection of field data.

This unit of competency is applicable to environmental technicians working in a range of industry sectors, such as environmental monitoring, and sampling (e.g. air quality, water, soil and noise); environmental compliance, auditing and inspection; groundwater and clean water (e.g. catchments, supply, environmental flows); water treatment, storm and wastewater management; solid and hazardous waste management; site remediation; management of contaminated sites; geotechnical services and civil engineering; natural resource management.

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

Pre-requisite Unit

MSS024003 Apply an understanding of environmental principles to a site

Competency Field

Environmental monitoring

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

essential outcomes.	demonstrate achievement of the element.
1	Review existing site and/or locality information
1.1	Confirm the scope of the proposed project activity or process and details of the site and/or locality.
1.2	Identify relevant legislative, regulatory and/or planning requirements.
1.3	Access and interpret available, relevant information about the site and/or locality.
1.4	Summarise existing data and relate it to legislative, planning or other statutory requirements.
2	Identify relevant environmental indicators for site and/or locality
2.1	Determine which environmental indicators and/or statutory environmental quality concentration limits are relevant to the proposed project activity, process and/or requirements of the site/locality.
2.2	Identify relevant core environmental indicators and collect and collate data.
2.3	Identify relevant statutory environmental quality concentration limits and collect and collate data.
2.4	Identify additional site/locality/project specific environmental indicators and collect and collate data, if available.
2.5	Identify gaps in available data and refer to supervisor for further action.
3	Analyse data to establish site condition
3.1	Ensure compatibility of data sets and seek advice, as necessary.
3.2	Compare compatible data with core environmental indicators, established standards, regulatory limits, and statutory environmental quality concentration limits or similar.
3.3	Apply relevant environmental chemistry and biodiversity concepts and principles to estimate the ‘environmental health’ of the site/locality.
3.4	Identify significant trends in environmental data and correlations and differences with relevant indicators.

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|---|------------------------|-----|---|
| | | 3.5 | Make an assessment of site condition. |
| 4 | Report findings | 4.1 | Report the assessment of environmental condition in the required format and expected timeframe. |
| | | 4.2 | Brief supervisor and/or stakeholders about the environmental assessment process and outcomes. |

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/or requirements include the latest version of one or more of:

- federal legislation, such as Environment Protection and Biodiversity Conservation Act, Australian Heritage Council Act, Native Title Act and National Environmental Protection Measures
- state/territory government legislation and regulations and local government by-laws, policies, and plans dealing with: land use, acquisition, planning and protection; environmental protection; cultural/heritage sites; vegetation management; nature conservation, wildlife/plant protection; water and 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)
- Australian and international standards covering environmental management such as: AS/NZS ISO 14000 Basic Set:2007 Environmental Management Basic Set, and AS ISO 14050 Environmental management – Vocabulary
- ANZECC Core environmental indicators for reporting on the state of the environment, ANZECC Guidelines for fresh and marine water quality, OECD Key environmental

	indicators, US Environmental Protection Authority (EPA) Environmental indicators gateway • national strategy for the conservation of Australia's biological diversity • site-specific requirements and specific environmental standards.
Project activity or process includes making contributions to one or more of:	• environmental studies • environmental impact statements • environmental impact assessments • environmental monitoring programs and where these contributions are consistent with the role of an environmental officer working under the supervision of an environmental scientist, engineer or planner.
Site or locality information includes one or more of:	• notice of intention and initial advice statement • environmental impact assessment • environmental impact statement • public environment report • environmental indicators • national environment protection measures • statutory environmental quality concentration limits • data in existing databases, such as vegetation, topography, soils and regional ecosystem maps • geological, hydro geological, ecological and meteorological data for site • environmental management plans for specific site, locality or project • site environmental management procedures and actions for specific issues • site environmental management action checklists • relevant site reports, case studies and good practice models.
Site-relevant environmental indicators include one or more of:	• atmospheric indicators, such as: • exceedances of national environment protection measures • air quality standards for gases and particulates • emissions of air pollutants • greenhouse gas emissions and atmospheric

concentrations

- water indicators, such as:
 - water salinity
 - exceedances of groundwater and surface water quality guidelines
 - water extraction versus availability
 - environmental flows objectives
 - health of aquatic habitats
 - wastewater treatment
 - estuarine and marine water quality
- land indicators, such as:
 - salinity and acidity
 - potential for erosion
 - exceedances of maximum residue levels
- biodiversity indicators, such as:
 - threatening processes
 - loss of biodiversity
 - biodiversity conservation management.

Environmental chemistry principles and concepts include one or more of:

- biogeochemical cycles
- aquatic chemistry
- aquatic microbial biochemistry
- water pollution, such as:
 - trace elements and heavy metals
 - inorganic pollutants
 - trace organic pollutants
 - sewage (e.g. biological oxygen demand (BOD), pathogens and detergents)
 - chemical carcinogens
 - sediments
 - radionuclides
- water and wastewater treatment
- atmosphere and atmospheric chemistry, such as:
 - structure and composition
 - inversions and air pollution
 - meteorology, weather and climate
 - atmospheric particulates
 - inorganic air pollutants, including CO, SOX, NOX, acid rain, ammonia and chlorine compounds
 - organic air pollutants and photochemical smog

- soil chemistry, such as:
 - soil and agriculture
 - macronutrients and micronutrients in soil
 - contaminated soil
 - soil loss and degradation
 - environmental chemistry of hazardous wastes
 - environmental toxicological chemistry.

Biodiversity principles and concepts include one or more of:

- scope (levels) of biodiversity, such as genetic diversity, species diversity and ecosystem diversity
- biodiversity attributes, such as components, patterns and processes
- bioregional planning and management
- biodiversity and the balance between conservation and ecologically sustainable development
- biodiversity and ecosystem health, such as soil fertility, clean freshwater and clean air
- managing threatening processes, such as:
 - land clearing and habitat loss
 - alien species
 - pollution control
 - fire
 - climate change.

WHS and environmental management 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 MSS025001 Assist with assessing site environmental indicators

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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:

- locating and analysing relevant environmental data/reports/indicators and/or limits and using appropriate scientific concepts/principles to provide a systematic, reliable appraisal of the environmental condition for at least one (1) site or locality
- demonstrating an understanding of the legislative and planning framework that applies to environmental site appraisal
- researching, reviewing and concisely documenting site environmental history using appropriate scientific terminology
- identifying and compiling/collating available data that is potentially relevant to assessment of site environmental pollution and/or degradation
- identifying relevant environmental indicators for the site and/or locality
- using computer software (e.g. databases, spreadsheets and specialist programs) to process and present data
- analysing available data in comparison with core environmental indicators, established standards, regulatory limits, and statutory environmental quality concentration limits or similar and determining the significance of results for site/project
- seeking advice when issues/problems are beyond scope of competence/responsibility
- presenting the findings and details of environmental assessment process to stakeholders
- reporting the environmental condition of a site and/or locality in the required format and expected timeframe.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- scientific terminology relevant to job role, use of environmental indicators, assessment of environmental pollution and environmental degradation
- fundamental concepts and principles in chemistry, physics, geology and biology to support a scientific, systematic approach to the evaluation of environmental degradation
- fundamentals of environmental chemistry, including:
 - natural and modified hydrologic cycle
 - aquatic chemistry in natural and polluted waters
 - water pollutants, such as heavy metals, inorganics, organics, nutrients and pesticides

- atmosphere and its composition, structure and circulation
- atmospheric stability and instability, such as lapse rates and inversions
- atmospheric pollutants, such as particulates, inorganic air pollutants and organic air pollutants
- awareness of climate change science
- soil chemistry
- hazardous wastes and toxicological chemistry
- concepts of biodiversity stresses, including:
 - land clearing and loss of habitat
 - threatened and vulnerable species and ecological communities
 - introduced species
- specific legislation, strategies, policies and codes of practice related to environmental pollution and biodiversity

relevant hazards, health, safety and environment 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 report/presentation of the assessment of the environmental condition of a site or locality conducted by the candidate
 - feedback from supervisors that the candidate consistently follows workplace procedures when conducting site assessments and produces work outputs within agreed timeframes
 - oral and/or written questions to check the candidate's knowledge of the environmental legislative and planning framework, processes used for assessing the environmental condition of sites and relevant environmental science concepts and principles.
- Access is required to all equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:

- State of the Environment Reports, national environment protection measures, ANZECC Core Environmental Indicators documentation
- environmental databases (electronic, web-based and hardcopy)
- national and state/territory environmental management strategies, guidelines and regulations
- documentation, including site information, environmental management plans, codes of practice and workplace procedures.
- 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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