



Australian Government

Department of Education, Employment and Workplace Relations

MSS025001A Assist with assessing site environmental indicators

Release: 1

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Modification History

Not applicable.

Unit Descriptor

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. This requires 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.

Application of the Unit

This unit of competency is applicable to environmental technicians in a range of industry sectors, such as:

- environmental services (e.g. sampling and monitoring of air quality, water, soil and noise)
- environmental compliance, auditing and inspection
- groundwater and clean water (e.g. catchments, supply and environmental flows)
- water treatment, storm and wastewater management
- solid and hazardous waste management
- management of contaminated sites
- site remediation/rehabilitation
- geotechnical services and civil engineering
- natural resource management.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MSS024003A	<i>Apply an understanding of environmental principles to a site</i>
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Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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

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| | | 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 |
| | | 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 |

Required Skills and Knowledge

Required skills

Required skills include:

- researching and interpreting legislative, enterprise and site requirements
- collecting and compiling/collating data that is potentially relevant to an assessment of site environmental pollution and/or degradation
- comparing expected or known site environmental parameters with accepted background levels or conditions and determining significance for site/project
- using computer software (e.g. databases, spreadsheets and specialist programs)
- defining and solving problems where alternatives are not obvious and where investigations may be required and the implications of various solutions considered
- seeking advice when issues/problems are beyond scope of competence/responsibility
- writing reports using enterprise formats and guidelines
- presenting findings to stakeholders

Required knowledge

Required knowledge includes:

- appropriate scientific terminology relevant to environmental indicators, 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 (e.g. heavy metals, inorganics, organics, nutrients and pesticides)
 - atmosphere and its composition, structure and circulation
 - atmospheric stability and instability (e.g. lapse rates and inversions)
 - atmospheric pollutants (e.g. 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 health, safety and environment requirements

Evidence Guide

Overview of assessment	Competency must be demonstrated in the ability to perform consistently at the required standard.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently apply the skills covered in this unit of competency in new and different situations and contexts. Critical aspects of assessment and evidence include: • 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 relevant environmental indicators for site and/or locality • analysing available data in comparison with core environmental indicators, established standards, regulatory limits, and statutory environmental quality concentration limits or similar • applying a working knowledge of relevant terminology, concepts and principles in geology, geomorphology, hydrology and ecology to provide a systematic, scientific appraisal of site environmental condition.
Context of and specific resources for assessment	This unit of competency is to be assessed in the workplace or a simulated workplace environment. Assessment should emphasise a workplace context and procedures found in the candidate's workplace. This unit of competency may be assessed with: • <i>MSS025002A Assess the environmental risk or impact of a project activity or process</i> • <i>site-specific units, such as:</i> • <i>MSS025013A Assist with assessing and monitoring wetlands.</i>

	The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. Resources may include: - 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.
Method of assessment	The following assessment methods are suggested: - review of reports about assessment of site environmental condition prepared by candidate - feedback from peers and supervisors - oral and written questioning to check underpinning knowledge of assessing the environmental condition of sites - review of workplace documentation completed by the candidate. In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work-like environment.
Guidance information for assessment	

Range Statement

Codes of practice	Where reference is made to industry codes of practice, and/or Australian/international standards, it is expected the latest version will be used
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Legislation, standards, codes, procedures and/or enterprise requirements	Legislation, standards, codes, procedures and/or enterprise requirements may include: • federal legislation, such as • Environment Protection and Biodiversity Conservation Act 1999 • Australian Heritage Council Act 2003 • Native Title Act 1993 • 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 protection • vegetation management • nature conservation, wildlife/plant protection • water and water management • soil conservation • pollution and contaminated sites • fisheries, forestry and mining operations • Australian and international standards, such as: • AS ISO 14050:1999 Environmental management - Vocabulary • AS/NZS ISO 14000 Basic Set:2007 Environmental management basic set • ANZECC Core environmental indicators for reporting on the state of the environment • National strategy for the conservation of Australia's biological diversity • OECD Key environmental indicators • US Environmental Protection Authority (EPA) Environmental indicators gateway • national environment protection measures • ANZECC Guidelines for fresh and marine water quality • occupational health and safety (OHS) national standards and codes of practice • site-specific requirements and specific environmental standards
Project activity or process	Project activity or processes will be of a complexity consistent with the role of an environmental officer working under the supervision of an environmental scientist, engineer or planner, and may include contributions to:

	• environmental studies • environmental impact statements • environmental impact assessments • environmental monitoring programs
Site or locality information	Site or locality information may include: • 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	Site-relevant environmental indicators may include: • 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 • exceedences of maximum residue levels • biodiversity indicators, such as: • threatening processes • loss of biodiversity • biodiversity conservation management
Environmental chemistry principles and concepts	Environmental chemistry principles and concepts may include: • 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, SO_x, NO_x, 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	Biodiversity principles and concepts may include: • 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 • local, state, national and international legislative and policy frameworks
OHS and environmental management requirements	OHS and environmental management requirements: • all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health

Unit Sector(s)

Environmental

Custom Content Section

Not applicable.