Australian Government

Department of Education, Employment and Workplace Relations

MSS024005A Collect spatial and discrete environmental data

Release: 1

MSS024005A Collect spatial and discrete environmental data

Modification History

Not applicable.

Unit Descriptor

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

Application of the Unit

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 outdoor 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
-

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

1	Prepare for data collection	1.1	Locate and review relevant legislative/regulatory, enterprise 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 enterprise 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 enterprise procedures to check acceptability of environmental data
		3.3	Report location and environmental data using required formats and within the expected timeframe
		3.4	Complete all required documentation
		3.5	Maintain the security and confidentiality of data and documentation in accordance with enterprise requirements

Required Skills and Knowledge

Required skills
Required skills include: • reading and interpreting instructions, specifications, procedures and manuals • planning and organising resources for data collection • reading and interpreting maps and aerial photos • using computer equipment to collect, manipulate and file spatial/environmental data • using basic troubleshooting and problem-solving methods to check/address atypical data • performing calculations involving height, depth, dimensions, uncertainty, accuracy and precision • relating direction and position on ground to visual representations • presenting results and preparing technical reports • seeking advice when issues/problems are beyond scope of competence/responsibility • working safely for the protection of self and others
Required knowledge
Required knowledge includes: • legislative requirements, standard methods and enterprise procedures governing data collection • environmental terms, concepts and principles relevant to data collection • operating principles of GPS equipment and environmental instruments, set-up and optimisation methods, and equipment limitations • uncertainty, accuracy and precision of measurements, and data requirements • data formats • methods for data processing, manipulation and management • relevant health and safety requirements and enterprise safe work procedures

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: • planning and conducting data collection efficiently and safely • setting up and operating handheld GPS equipment and environmental instruments correctly • collecting spatial and environmental data that meet specifications • recognising and recording atypical data • conducting basic troubleshooting of equipment • processing, presenting and storing data reliably • completing required documentation accurately.
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: • **environmental monitoring units, such as:** • *MSL974007A Undertake environmental field-based monitoring* • *MSS024008A Recognise common geological landforms and samples* • *MSS024011A Navigate in urban, regional and remote areas.* The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. Resources may include: • GPS receivers and related GPS software • environmental monitoring instruments, digital camera and sampling equipment • site/project history, maps and aerial photos • guidelines, codes, regulations and enterprise procedures governing data collection.
Method of assessment	The following assessment methods are suggested: • review of data and results obtained by the candidate • feedback from supervisors and peers • 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 understanding of enterprise procedures, use of equipment and interpretation of data. 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
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 and wildlife/plant protection

	• water, water management • soil conservation • pollution and contaminated sites • fisheries, forestry and mining operations • Australian and international standards, such as: • AS/NZS ISO 14000 Set:2005 Environmental management standards set • enterprise or regulator procedures for sampling, monitoring and in-field testing • equipment manuals and standard operating procedures • material safety data sheets (MSDS) • safe work procedures
Background information	Background information may include: • site or project history • client history • records of consultations with stakeholders • emergency plans and safety procedures • 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
Specifications	Specifications may include: • purpose of data collection • detailed descriptions of spatial and environmental data requirements: • positional data, metadata, calculated information • environmental measurements • sampling • data processing requirements • data quality requirements • data presentation/reporting requirements
Equipment	Equipment may include: • any handheld GPS receiver • sampling and environmental monitoring equipment • communications equipment (e.g. radio and phone) • safety equipment

Project parameters	Project parameters may include: • coordinate systems • datum • display formats • information displays • data outputs, formats and protocols
Verifying data	Verifying data may include checking the quality of environmental data by: • comparison with expected or reference values • conducting repeat tests, and using duplicate samples or locations
Required documentation	Required documentation may include: • 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
Occupational health and safety (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.