



Australian Government

MSS024007 Collect and evaluate meteorological data

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSS024007A Collect and evaluate meteorological data

Application

This unit of competency covers the ability to site and set up basic 'ground level' meteorological equipment and collect and record reliable data. It also includes the ability to assess data quality, interpret significant data features and use the data to assist with analysing or processing other environmental monitoring measurements.

This unit of competency is applicable to environmental technicians working 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; solid and hazardous waste management, and 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

Nil

Competency Field

Environmental 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.

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|---------------------------------|-----|---|
| 1 Prepare for field work | 1.1 | Review job request to identify the equipment required and the appropriate meteorological parameters to be measured. |
| | 1.2 | Identify hazards and workplace safe work procedures associated with the site, test methods and equipment |

- used.
- 1.3 Confirm site location, access, timing and any client requirements.
 - 1.4 Assemble all required equipment/materials and check that they are fit for purpose.
 - 1.5 Stow equipment/materials to ensure their safe transport, as necessary.
 - 1.6 Arrange transport to site, as necessary.
 - 1.7 Liaise with appropriate personnel on arrival at site to ensure safety and minimise disruption to others, as necessary.
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- 2 **Perform basic meteorological measurements**
 - 2.1 Select an appropriate location for the meteorological equipment at the site to achieve valid readings for the required parameters.
 - 2.2 Install and check instrumentation and any recording/data logging equipment to ensure it is functioning correctly.
 - 2.3 Confirm calibration status of meteorological equipment.
 - 2.4 Perform measurements using 'ground level' meteorological equipment.
 - 2.5 Collect meteorological data using physical or electronic methods.
 - 2.6 Ensure wind direction sensors are aligned or corrected to true north rather than magnetic north.
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- 3 **Verify meteorological data**
 - 3.1 Ensure that quality requirements for data are met.
 - 3.2 Perform any required corrections, calculations and data manipulations and identify significant trends in data.
 - 3.3 Check for anomalous data and take appropriate corrective action.
 - 3.4 Verify that processed data meets requirements.

4	Interpret and apply meteorological information	4.1	Relate meteorological data to weather maps and other sources of meteorological data.
		4.2	Associate meteorological conditions with related weather maps.
		4.3	Compare weather patterns and data for different time periods and geographic locations.
		4.4	Interpret meteorological data in terms of local atmospheric conditions.
		4.5	Use meteorological data to interpret and/or assist with processing air and/or noise monitoring data.
5	Maintain a safe work environment	5.1	Use safe work procedures and protective equipment to ensure personal safety and that of others.
		5.2	Minimise environmental impacts of meteorological measurements and generation of waste.
		5.3	Collect and/or dispose of all waste in accordance with environmental/quarantine requirements and workplace procedures.
6	Report data and finalise documentation	6.1	Report field data in the required formats and expected timeframe.
		6.2	Complete all required documentation.
		6.3	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 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 air measurements, such as AS 2923 Ambient air
- industry methods and guidelines, such as:
 - Australian Bureau of Meteorology Observation Specification 2013.1 Guidelines for the siting and exposure of meteorological instruments and observing facilities
 - National Environment Protection (Ambient Air Quality) Measure Technical Paper No 6: Meteorological Measurements
 - World Meteorological Organisation - No. 8: Guide to Meteorological Instruments and Methods of Observation
- registration/licensing and/or accreditation requirements
- workplace or regulator's procedures for meteorological monitoring; recording, processing, presenting and reporting meteorological 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.

Siting and installation considerations for meteorological instrumentation include one or more of:

- topography
- vegetation and built structures
- exposure
- availability of services
- site security.

Meteorological instrumentation includes one or more of:

- thermometers, such as liquid in glass, thermocouples, Pt resistance, thermistors, hygrometers and psychrometers
- barometers, such as aneroid, mercury
- anemometers, such as rotational, pressure tube and Doppler
- rain gauges, such as manual, tipping bucket, automatic weather stations (AWS), radiometers, net pyranometer, total solar radiometer.

Meteorological parameters include one or more of:

- temperature and temperature gradient
- atmospheric pressure
- humidity
- precipitation
- wind speed and direction (vector and scalar)
- vertical wind speed
- insolation and net radiation
- evaporation.

Hazards include one or more of:

- sunlight, dust, noise and heat
- extreme weather conditions (e.g. fire, flood and storms)
- manual/handling of heavy equipment or materials
- crushing, entanglement and cuts associated with moving machinery
- vehicular traffic on roads and sites
- injuries caused by falling objects and working conditions such as: uneven surfaces, heights, slopes and wet surfaces
- biohazards (e.g. microbiological organisms in soils)
- chemical hazards/contaminants in soils.

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.education.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>