



Australian Government

MSS025026 Perform sampling and testing of air

Release: 1

MSS025026 Perform sampling and testing of air

Modification History

Release 1. Unit code changed. Elements changed. Application changed. Performance Criteria changed. Foundation Skills populated. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to MSS025009 Perform sampling and testing of air.

Application

This unit describes the skills and knowledge required to collect and test gaseous and particulate components in air using an existing sampling or monitoring plan and specified test methods and/or procedures for field and laboratory tests.

This unit applies to environmental technicians, environmental officers and other roles who are required to sample and test air quality, monitor risks and apply safety procedures, select equipment and materials, calculate uncertainty of measurement and record and interpret data.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil.

Competency Field

Environmental monitoring and technology

Unit Sector

Not applicable

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Confirm air sampling and testing requirements with supervisor	1.1 Review site plan, sampling and testing locations and history of sampling and testing 1.2 Confirm the scope and purpose of air sampling and testing and data requirements 1.3 Confirm sampling methods, locations, numbers and types of samples, and duration and/or frequency of sampling from workplace or

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	client's sampling plan 1.4 Check that all air sampling and testing procedures are in accordance with client or workplace requirements and relevant standards and guidelines 1.5 Clarify and/or confirm requirements with supervisor
2. Prepare for air sampling and testing	2.1 Identify site and sampling and testing hazards and review workplace safety procedures 2.2 Liaise with relevant personnel to arrange site access and obtain required clearances and/or permits 2.3 Review field sampling procedures and sample preparation methods required for specific laboratory tests 2.4 Select sampling equipment and conditions to achieve representative samples and preserve sample integrity during collection, storage and transit 2.5 Ensure all reagents, solutions, standards and blanks (as appropriate) are obtained and/or ready for field use 2.6 Select field test equipment and/or instruments and check operation and calibration, as applicable, in accordance with procedures and manufacturer instructions 2.7 Assemble, check and stow all sampling equipment, field test equipment, materials, containers and safety equipment for safe transport 2.8 Arrange suitable transport to, from and around site
3. Conduct sampling of air	3.1 Locate sampling sites and, if required, services at the site 3.2 Conduct representative sampling in accordance with sampling plan and defined procedures for field and laboratory testing 3.3 Ensure controls, blanks and replicate samples are properly integrated into the sampling process 3.4 Record information and label samples in accordance with traceability requirements 3.5 Record environmental conditions and any atypical observations made during sampling that may impact on sample representativeness or integrity 3.6 Transport samples back to base according to workplace procedures and relevant guidelines

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
4. Conduct field and laboratory testing of air	4.1 Take sufficient measurements of samples and, if appropriate, standards to obtain reliable data 4.2 Obtain sample or subsample for designated field test or locate established locations for in-situ testing 4.3 Set up, check, calibrate and use equipment, instruments, reagents, gases in accordance with specified test methods and/or procedures and any manufacturer instructions 4.4 Perform tests, procedures and observations in accordance with specified methods and/or procedures 4.5 Record field and laboratory observations and results and ensure that they are accurately transferred to workplace information management system
5. Process and interpret air data	5.1 Review test data, noting atypical observations 5.2 Check calculated values are consistent with expectations and recalculate to correct any errors 5.3 Estimate and document uncertainty of measurement in accordance with workplace procedures 5.4 Record processed results in accordance with workplace procedures 5.5 Interpret trends in data and/or results and report out-of-specification or atypical results promptly to relevant personnel 5.6 Determine if obvious procedure or equipment problems have led to atypical data or results 5.7 Compare results with established air quality standards and any statutory environmental quality concentration limits 5.8 Finalise reporting of results in accordance with workplace requirements
6. Maintain a safe work environment	6.1 Rehabilitate sampling site to render it safe and to minimise environmental impact 6.2 Clean equipment, instruments, containers, work area and vehicles according to workplace procedures 6.3 Check serviceability of equipment and instruments before storage 6.4 Use defined safe work practices and personal protective equipment (PPE) to ensure personal safety and that of others 6.5 Minimise the generation of waste and environmental impact

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	according to procedures 6.6 Ensure the safe collection of all hazardous wastes for disposal

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret sampling plan, test methods and procedures, and manufacturer instructions. Writing skills to record data, environmental conditions and observations
- Oral communication skills to liaise with others to confirm requirements and arrange for access
- Numeracy skills to interpret sampling plan, take and interpret readings and measurements and perform calculations.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS025009 Perform sampling and testing of air.

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 MSS025026 Perform sampling and testing of air

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- collect, preserve and label a set of representative air samples for at least one site in accordance with sampling plan
- prepare air (sub)samples and conduct, using specified test methods:
 - at least 2 field tests
 - at least 2 laboratory tests
- process and interpret data from at least 2 tests, including estimation of measurement uncertainty.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- scientific terminology used in job role covering atmospheric science, air measurement and air pollution
- structure, circulation and composition of the atmosphere
- atmospheric stability, lapse rates and inversions
- localised meteorology and dispersion of air pollutants
- air pollutants and concentration parameters in indoor, ambient and workplace contexts including at least 2 from each of the following types:
 - inorganic gases
 - organic gases
 - particulates
 - air toxics
- principles of air quality sampling and analysis, methods and standards
- functions and operating principles of and sampling equipment related to at least 4 of the following air quality instruments:
 - continuous gas monitors:
 - gas chromatographs
 - mass spectrometers

- atomic absorption spectrophotometers
- infrared spectrophotometers
- UV-visible spectrophotometers
- tapered element oscillating microbalance (TEOM)
- beta gauges
- particle counters
- portable (handheld) gas monitors
- legislation, regulations, standards, statutory limits and codes of practice which specify air pollution and air quality monitoring requirements
- field sampling and monitoring procedures including labelling, preservation, storage and traceability
- calculation of measurement uncertainty as relevant to tests being performed
- relevant hazards and health, safety and environmental requirements, including field safety principles.
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Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including but not limited to:
 - sampling plan
 - test methods and/or procedures
 - instrument calibration procedures, where relevant
- modelling of industry operating conditions, including but not limited to:
 - indoor, ambient and workplace
 - field and laboratory.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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