



Australian Government

MSS025008 Monitor and evaluate noise

Release: 1

MSS025008 Monitor and evaluate noise

Modification History

Release 1. Supersedes and is equivalent to MSS025008A Monitor and evaluate noise

Application

This unit of competency covers the ability to monitor noise using handheld sound level meters and fixed noise monitoring stations with either data logging or telemetry. It includes the ability to perform noise surveys, process data and report results in accordance with workplace standards.

This unit of competency is applicable to environmental technicians in a range of industry sectors, such as environmental services (e.g. monitoring of environmental and/or occupational noise); environmental compliance, auditing and inspection; environmental management; and occupational hygiene.

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

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.

1	Confirm noise monitoring requirements	1.1	Confirm the purpose for noise monitoring with supervisor.
		1.2	Confirm locations, timing and frequency of monitoring from workplace or client's monitoring plan or other instructions.

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| | 1.3 | Check that all noise measurement procedures are in accordance with client or workplace requirements, relevant standards and codes. |
| 2 | Prepare for noise measurement | |
| | 2.1 | Identify site hazards and review workplace safety procedures. |
| | 2.2 | Liaise with relevant personnel to arrange site access and obtain all clearances and/or permits, as necessary. |
| | 2.3 | Select noise monitoring instruments and any ancillary equipment that are required for the particular task. |
| | 2.4 | Assemble all field test equipment and complete all pre-use and calibration checks in accordance with workplace procedures and manufacturer instructions. |
| | 2.5 | Stow all equipment for safe and secure transport. |
| | 2.6 | Arrange suitable transport to, from and around site, as required. |
| 3 | Perform noise measurement | |
| | 3.1 | Record significant site features, such as noise sources, their direction and approximate distance, relevant barriers, structures, noise sensitive areas and adjacent land uses. |
| | 3.2 | Select and record sampling sites and ensure that site conditions are conducive for valid and reliable noise measurement. |
| | 3.3 | Measure and record relevant site condition parameters and make any modifications to procedures, as appropriate. |
| | 3.4 | Check calibration of sound level meter, make any required adjustments and record results. |
| | 3.5 | Conduct noise measurements in accordance with workplace, regulatory and manufacturer procedures. |
| | 3.6 | Ensure that background measurements are obtained at an appropriate time, under appropriate conditions and in accordance with workplace/regulatory procedures. |

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| | | 3.7 | Repeat and record calibration measurements at the conclusion of the measurement sequence in accordance with workplace/regulatory procedures. |
| | | 3.8 | Collect and/or record all results and ensure that they are accurately transferred to workplace information database. |
| 4 | Process and interpret noise data | 4.1 | Review test data noting atypical observations. |
| | | 4.2 | Manipulate raw data to obtain corrected and adjusted data and ensure that calculated values are consistent with expectations. |
| | | 4.3 | Estimate and document uncertainty of measurement in accordance with workplace procedures, if required. |
| | | 4.4 | Interpret trends in data and/or results and report out-of-specification or atypical results promptly to appropriate personnel. |
| | | 4.5 | Determine if obvious procedure or equipment problems have led to atypical data or results. |
| | | 4.6 | Compare results with established noise standards, statutory noise limits or similar, if relevant. |
| | | 4.7 | Record and report data and results in accordance with workplace requirement. |
| 5 | Maintain a safe work environment | 5.1 | Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other personnel. |
| | | 5.2 | Minimise the generation of wastes and environmental impacts. |
| | | 5.3 | Care for and store equipment and materials as required. |

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, National Environmental Protection Measures
- state/territory government legislation and local government by-laws, policies, regulations and plans dealing with land use, acquisition, planning and protection, and environmental protection
- legislation, standards and codes of practice for work health and safety (WHS)
- Australian and international standards covering environmental noise (e.g. AS 1055 Acoustics - Description and measurement of environmental noise series); and sound level meters and sound calibrators (e.g. AS IEC 61672 Electroacoustics series, AS IEC 60942-2004 Electroacoustics - Sound calibrators)
- registration/licensing and/or accreditation requirements
- industry guidelines and manuals, such as Noise Measurement Manual (QLD EPA), A Guide to Measurement and Analysis of Noise (VIC EPA), Noise Guide for Local Government (NSW), established noise standards and statutory noise limits
- site plans, maps and specifications; methods and procedures for noise measurement to meet workplace, client and/or regulatory/certifying body requirements
- workplace documents, such as standard operating procedures (SOPs), work schedules, recording and reporting procedures, equipment manuals and warranties, supplier catalogue and handbooks, field notebooks or log books, and emergency and safety procedures.

Purpose of noise measurement includes one or more of:

- assessing compliance with a statutory condition, such as a licence
- investigation of a noise complaint
- environmental impact assessment studies
- long-term monitoring programs
- occupational hygiene
- noise surveys.

Noise monitoring instruments and ancillary equipment include one or more of:

- type 1 and type 2 portable sound level meters
- integrating and non-integrating sound level meters
- noise dose meters
- sound level calibrators
- octave analysers
- statistical analysers, data loggers and recorders
- telemetry equipment
- sound monitoring stations
- microphones
- wind shields.

Ancillary equipment includes one or more of:

- meteorological instruments, such as thermometers, hygrometers, barometers and anemometers
- digital camera
- global positioning system (GPS) equipment
- maps and aerial photographs
- noise measurement and survey forms
- PPE

Meteorological measurements include one or more of:

- temperature
- relative humidity
- barometric pressure
- wind speed and direction

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 MSS025008 Monitor and evaluate noise

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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:

- conducting at least two (2) noise surveys and evaluating the data
- planning and preparing for field activities, including researching and summarising site history, existing data and/or reports
- identifying and interpreting survey and data quality requirements, test methods, workplace procedures and statutory requirements accurately
- undertaking site reconnaissance and identifying safe and reliable noise monitoring locations according to defined criteria
- safely packaging and transporting supplies, equipment and instruments to and from the field
- setting up and calibrating handheld sound level meters to obtain verifiable results
- assembling, testing, operating and closing down a field-based, noise monitoring station
- performing automatic and manual noise measurements to obtain valid and reliable data
- identifying atypical results as out-of-normal range or an artefact
- identifying and rectifying basic instrument faults
- manipulating raw data to obtain corrected and adjusted data in the required format and calculating required noise parameters
- applying noise standards and/or statutory noise limits to evaluate noise data, if relevant
- providing accurate, complete records of noise measurements, field observations, data and results
- seeking advice when issues/problems are beyond scope of competence/responsibility
- working safely.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- scientific terminology, concepts and principles, such as:
 - sound and noise
 - frequency, pitch and wavelength
 - sound power and acoustic energy
 - sound levels, pressure and intensity
 - sound attenuation with distance

- measurement units (dBA and others)
- adding and subtracting sound levels
- physiology of hearing, perception of noise
- sources of noise, point sources and line sources
- types of noise, such as continuous, intermittent and impulsive
- typical noise levels
- frequency weighting curves
- function of key components and operating principles of sound level meters/noise measuring instruments, including response, sensitivity and range, hold circuits, integrating and averaging meters
- calibration of handheld sound level meters/noise measuring instruments
- effects on test results of modifying meter/instrument variables
- measurement methods, including techniques for:
 - measuring different noise types, including steady noise, discretely varying noise and impulsive noise
 - methods for measuring noise exposure, including equivalent continuous sound level (Leq)
- common sources of uncertainty in sound level measurement, including mishandling of equipment, meteorological conditions, effects of topography and built structures, reflected and absorbed sound, and background noise effects
- data processing techniques, such as:
 - frequency analysis and weighting networks (including at least A and Lin)
 - calculation of combined sound levels using graphical and mathematical equation techniques
 - statistical analysis, including LAeq, LA10, LA50 and LA90
 - time weighted exposure measurement (LAeqT)
 - characterisation of noise by octave band analysis
 - background noise calculations, background noise level (LA90)
 - day and night sound levels (LDN)
 - calculation of individual noise exposure
 - noise mapping
 - noise rating curves
- specific legislation, policies and codes of practice related to environmental noise measurement, noise standards and statutory noise limits
- procedures for maintaining, storing and transporting noise measurement equipment and instrumentation
- relevant hazards, health, safety and environment requirements, including field safety principles.

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 noise measurements, results and calculations, survey records and/or site reports provided by the candidate
 - feedback from supervisors that the candidate consistently follows workplace procedures, works safely and provides reliable results within the agreed timeframe
 - oral and/or written questions to check the candidate's understanding of the principles of noise measurement, operation of sound level meters/noise measuring instruments and processing of data.
 - Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - noise measuring equipment, data loggers and telemetry equipment, vehicles, survey equipment, camera, consumables and manuals
 - work program, workplace procedures, codes of practice, site maps, site monitoring plans and test methods and field protocols.
- 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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