



Australian Government

MSS025011 Assist with odour field assessment

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSS025011A Assist with odour field assessment

Application

This unit of competency covers the ability to assist air quality scientists and engineers with assessing impacts of odours from sites on the surrounding community and the effectiveness of odour abatement systems. Personnel use odour monitoring plans and workplace procedures or standardised methods to conduct olfactometry measurements in the field using olfactometry panellists and community volunteer observers.

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, odours and air quality consultancy); environmental compliance, auditing and inspection; chemical, food and by-product process manufacturing; solid waste management; water treatment and wastewater management; agricultural/livestock activities; landfill operations; rendering operations.

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 **Clarify site monitoring requirements with supervisor**

1.1 Examine available information about the site's history, current activities/processes, previous odour assessments, topography, prevalent meteorological conditions and complaint records.

- 1.2 Visit the site with supervisor to clarify issues with the proponent and community representatives, as appropriate.
 - 1.3 Collect and review information about site process operations and conditions.
 - 1.4 Identify potential odour sources at the site and current controls.
 - 1.5 Identify suitable locations in the surrounding areas for impact assessments by panellists and community observers.
 - 1.6 Review relevant legislative, regulatory and licensing requirements or workplace procedures/test methods.
- 2 **Prepare for field monitoring**
 - 2.1 Select or design appropriate monitoring strategies in consultation with supervisor.
 - 2.2 Confirm details of relevant odour monitoring plans, need for site permits, access to the site and nearby locations, and/or community concerns with supervisor.
 - 2.3 Confirm data format and quality requirements.
 - 2.4 Review relevant standards and/or specified workplace procedures/test methods.
 - 2.5 Draft/revise community survey, questionnaire and/or field record forms and seek supervisor and client approvals prior to use.
 - 2.6 Assemble required monitoring equipment and check that all items are fit for purpose and calibrated correctly.
 - 2.7 Ensure that all required supplies and equipment are transported safely to and from the field.
- 3 **Manage odour complaints**
 - 3.1 Use survey/questionnaires to collect information about community odour perceptions and verify complaints.
 - 3.2 Record and report community concerns in accordance with workplace procedures.

- 3.3 Assist with provision of authorised information about odour perception, sources, possible health effects and details of current/planned monitoring to community members.
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- 4 **Prepare standardised or in-house odour panellists**
 - 4.1 Confirm the specifications for panellists with supervisor and client, as necessary.
 - 4.2 Conduct standardised selection to determine odour threshold and ongoing olfactometry performance of individuals for supra-threshold levels.
 - 4.3 Conduct standardised or in-house selection to assess and compare sensitivity against internal criteria.
 - 4.4 Select panellists in consultation with supervisor.
 - 4.5 Train selected panellists in the use of objective odour observation techniques, odour descriptors, olfactometry procedures and test equipment (with site visit and odour identification when possible).
 - 4.6 Record the process and results used to establish and maintain a register of reliable panellists.
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- 5 **Prepare community volunteer observers**
 - 5.1 Confirm the specifications for community volunteer observers with supervisor.
 - 5.2 Explain the details of the requested task to community volunteer observers in consultation with supervisor.
 - 5.3 Conduct observer selection using workplace procedures.
 - 5.4 Select observers in consultation with supervisor.
 - 5.5 Train selected observers in the use of objective odour observation techniques, tools, odour descriptors and test equipment in accordance with the workplace recording tools and objectives.
 - 5.6 Record the process and results used to establish and maintain a register of reliable observers.

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| 6 | Conduct field monitoring with panellists and observers | 6.1 | Check that process/meteorological conditions are consistent with monitoring design conditions and report any deviations. |
| | | 6.2 | Set up monitoring conditions for panellists and observers and check equipment to ensure reliable operation. |
| | | 6.3 | Ensure that panellists fully understand the test procedures. |
| | | 6.4 | Prepare reference for field measurements with the selected panel in accordance with standardised method or workplace procedures. |
| | | 6.5 | Conduct monitoring in accordance with standard method or workplace procedures. |
| | | 6.6 | Monitor panellist's performance for indications of odour fatigue, adaption of their senses to the surrounding ambient air and/or bias. |
| | | 6.7 | Identify and report any defects or abnormalities in monitoring conditions. |
| | | 6.8 | Analyse the conduct of the measurements and reliability of results before confirming data acceptability. |
| 7 | Maintain a safe work environment | 7.1 | Ensure safety through the use of specified safety equipment, safe work procedures and personal protective clothing. |
| | | 7.2 | Handle all samples and equipment in accordance with workplace safety procedures. |
| | | 7.3 | Minimise generation of waste and environmental impacts. |
| | | 7.4 | Collect and dispose of all wastes safely. |
| | | 7.5 | Report hazards and incidents to designated personnel using workplace procedures. |
| 8 | Record data and report results | 8.1 | Record details of the testing process and data in accordance with standard method or workplace procedures. |

- 8.2 Process monitoring and meteorological data and report results in accordance with standard method or workplace procedures.
- 8.3 Record approved data in accordance with specified format and quality requirements.
- 8.4 Maintain confidentiality and security of workplace information and data.

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, and 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; environmental protection, pollution and contaminated sites
- legislation, standards and codes of practice for work health and safety (WHS)
- Australian and international standards covering olfactometry and stationary source emissions (e.g. AS/NZS 4323 Stationary source emissions series); odour impact (e.g. VDI 3940 Measurement Of Odour Impact By Field Inspection series), odour intensity (e.g. VDI 3882 Olfactometry; Determination Of Odour Intensity); and occupational personal protection (e.g. HB 9-1994 Occupational personal protection)
- registration/licensing and/or accreditation requirements
- site plans, maps and specifications, client and/or regulatory/certifying body requirements
- workplace procedures for sampling, monitoring, checking

calibration of dynamic olfactometers and data quality

- 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; emergency and safety procedures; safety data sheets (SDS); waste minimisation, containment, processing and safe disposal procedures.

Odour nuisance includes one or more of:

- perceived intensity and offensiveness of odour
- perceived duration and frequency of occurrence
- difficulty in coping with the odour at a specific time and location
- a belief that the odour has a negative effect on their wellbeing and health.

Odour sources include one or more of:

- wastewater treatment plants and sludge ponds
- solid waste recycling plants
- landfill and landfill gas treatment plants
- chemical plants
- composting operations, food and by-product processing, such as rendering and tanning plants
- agriculture/livestock facilities, such as poultry and pig farming, cattle feedlots and mushroom farms

Odour source geometries include point, area, volume and fugitive sources.

Site information includes one or more of:

- location of site and nearby buildings, topography and meteorological records
- complaints, previous odour assessments at site and nearby locations
- other industrial activities or potential odour sources in the surrounding area
- industrial process inputs/outputs, flow diagram and process flowchart
- unit operations and typical variability, and nominal and upset conditions
- pollution control equipment and techniques for industrial processes
- air emission control systems, such as scrubbers, bag filters, stacks and bio filters
- forced or natural ventilation within odorous buildings

- parameters of emission sources, such as location, geometry and release parameters for processes
- operational conditions and period of operation
- batch or continuous operation for units upstream from the emission source
- predictable variations in process conditions, production rates and weather interaction.

Odour monitoring plans include:

- monitoring protocol with details of purpose, duration and scope (e.g. parts of the community involved, available resources, detailed procedures and data quality requirements)
- site map showing key community features, such as plant boundaries, possible/confirmed odour sources, topography and most exposed or likely future sensitive receptors
- field monitoring program with panellist/observer locations and periods of measurement
- data collection forms (e.g. observer/panellist locations, intensity level measurements, weather conditions, odour descriptors, and observer comments and identifier).

Complaint records include one or more of:

- date and time of the complaint and complainant details
- odour characteristic and weather conditions
- actions undertaken to verify the complaint
- actions undertaken to fix the issue
- back communication/information to complainant.

Community observer questionnaires include one or more of:

- use of standard terminology and questions to avoid/minimise bias
- telephone interviews
- newspaper notices inviting responses
- diaries to collect data, such as odour strength, characteristics, date, time and location of detection, wind speed and direction, and physical reactions (e.g. itchy eyes and difficulty breathing)
- face-to-face interviews with community members.

Odour monitoring equipment includes one or more of:

- dynamic olfactometers for laboratory use when preparing panellists
- reference material, such as n-butanol
- torch, stopwatch and global positioning system (GPS)
- anemometer and thermometer.

Pre-use checks of odour monitoring equipment include:

- cleanliness of reusable items
- range, accuracy, precision and lowest detection limit (LDL) for dynamic olfactometer prior to preparing panellists
- n-butanol storage
- cleanliness of the measurement room of the olfactometry laboratory
- batteries for torch, stopwatch, GPS, anemometer and thermometer.

Selection and training for field panellists for regulatory requests include one or more of:

- use of the reference material (n-butanol) to determine odour threshold and performance of individuals in relation to normative values
- use of standard dynamic olfactometry procedures
- odour intensity ranking test
- triangle test
- odour descriptor assignation
- training with odours relevant to survey objectives
- effects of alertness, attention, fatigue, health status, suggestibility (imagining an odour) and variability/inconsistency of the odour detection in the field
- odour panel calibration results (AS/NZS 4323.3) and traceability of the panellist tests.

Selection and training for internal field panellists include one or more of:

- internal procedures, such as n-butanol pens, odour descriptor assignation with an odour wheel, odour intensity ranking test, and triangle test
- training with odours relevant to survey objectives
- basic weather data descriptions
- effects of alertness, attention, fatigue, health status, suggestibility (imagining an odour) and variability/inconsistency of the odour detection in the field
- effects of 'adaptation' (reduced perceptibility) due to internal panellists' workplace location.

Selection and training for community volunteer observers include one or more of:

- procedures, such as n-butanol pens, odour descriptor assignation with an odour wheel
- training with odours relevant to survey objectives
- basic weather data descriptions
- selection criteria, such as location, availability, known health problems with symptoms impacting on olfactory sense, and relevant previous training/work
- use of 'objective' odour observation techniques

- use of information recording forms
 - effects of alertness, attention, fatigue, health status, variability/inconsistency of the odour detection in the field and suggestibility (imagining an odour).
- Odour monitoring data include:**
- odour source conditions at time of the assessment
 - field odour measurement data, such as identification of the field panellist/community observer; date, time, duration and location of the assessment; operational process conditions if available; intensity and odour characteristic reference scale used for the test; diaries or observation record sheets from community observers; table with all panellist's and observer's observations; meteorological conditions at the time of the assessment; any atypical conditions in the area of the assessment; processing data and interpretation; and reporting
- Odour control strategies include one or more of:**
- physical, such as adsorption, absorption, photo ionisation, masking and neutralisation
 - chemical, such as scrubbing, oxidation and incineration
 - biological, such as biofiltration using bacteria
 - combined, such as bioscrubbers
- 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

Release 1. Supersedes and is equivalent to MSS025011A Assist with odour field assessment

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 MSS025011 Assist with odour field assessment

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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:

- selecting and training odour field panellists and/or community observers for olfactometry measurements in accordance with standard methods or workplace procedures on at least one (1) occasion (under supervision)
- conducting field olfactometry measurements with odour field panellists and community observers in accordance with standard methods or workplace procedures on at least two (2) occasions
- planning and preparing for field activities, including researching and summarising legislative/regulatory requirements, site history and operations, existing data and complaints, and/or reports
- accurately interpreting legislative/regulatory requirements, client requests, odour monitoring plans and workplace procedures
- undertaking site reconnaissance and identifying potential odour sources and current controls (under supervision)
- preparing appropriate odour monitoring strategies, community survey, questionnaire and/or field record forms (under supervision)
- selecting and checking all required monitoring equipment and materials
- selecting panellists and community observers by using standardised tests and/or given criteria (under supervision)
- providing accurate information about use of objective odour observation techniques, tools, odour descriptors, olfactometry procedures and test equipment to olfactometry panellists and community observers
- listening and communicating effectively with clients, observers, panellists, community members and complainants
- using olfactometry equipment correctly and closely monitoring panellist's performance and testing environment to obtain valid and reliable data
- identifying/rectifying basic equipment faults
- processing odour/meteorological data and analysing the conduct of measurements and reliability of results before confirming their acceptability
- providing accurate, complete records of odour monitoring process and conditions, site observations and data, including any errors and/or unexpected variations
- presenting odour results in the required format and timeframe and reporting on their significance
- seeking advice when issues/problems are beyond scope of competence/responsibility

- working safely for the protection of self and others, especially when transporting and managing panellists in the field.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- scientific terminology, such as olfactometry, odour threshold, odour intensity, hedonic tone, odour character or quality, odour nuisance, dilution to threshold, odour concentration, odour units (ou) and commonly used odour descriptors
- basic principles of atmospheric chemistry, odorous compound families and meteorology
- calculation of flow rates, dilution factors, odour emission rates and uncertainties
- chemical/process engineering relevant to site
- regulatory/licensing requirements that apply to site
- nature of odour complaints, possible health effects, typical community concerns and environmental issues about odour
- workplace procedures and test methods for odour monitoring, selection of odour panellists/community observers, recording of field data
- use/design of questionnaires to collect reliable information
- set-up and operation of dynamic olfactometer in the laboratory for panellists selection, function of key components, simple troubleshooting and calibration checks
- likely causes of variation in odour results and their control
- reporting requirements, protocols for the confidentiality and security of information and communicating with the community and media
- relevant hazards, health, safety and environment requirements.

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 odour data, results, records (e.g. site monitoring, complaints, panellist selection) and/or reports prepared by the candidate

- feedback from supervisors that the candidate consistently follows workplace procedures and standard test methods, works safely and provides reliable results within the agreed timeframe
- feedback from clients, observers and/or panellists about the candidate's handling of enquiries/complaints and provision of information
- oral and/or written questions to check the candidate's understanding of odour monitoring and test methods, calculations, selection and instruction of panellists/observers, regulatory odour field assessment process and community surveys.
- Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - odour measuring equipment, materials and reagents for field measurements
 - standard laboratory with facilities, equipment, materials and reagents required for panellist selection and training
 - work program, workplace procedures, codes of practice, site maps, odour monitoring plans, 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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