Australian Government

MSS025011 Assist with odour field assessment

Release: 1

MSS025011 Assist with odour field assessment

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.
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.
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.

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

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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