Australian Government

Department of Education, Employment and Workplace Relations

MSS025011A Assist with odour field assessment

Release: 1

INDUSTRY SKILLS COUNCILS

Creating Australia's Future

MSS025011A Assist with odour field assessment

Modification History

Not applicable.

Unit Descriptor

This unit of competency covers the ability to assist air quality scientists and engineers with assessing odour impacts from sites on the surrounding community and the effectiveness of odour abatement systems. Personnel use odour monitoring plans and enterprise procedures or standardised methods to conduct olfactometry measurements in the field using olfactometry panellists and community volunteer observers. Note that sampling at the source and laboratory odour measurements are covered in *MSS025010A Assist with odour source assessment.*

Application of the Unit

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.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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 enterprise 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 enterprise 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 enterprise 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	5.1	Confirm the specifications for community volunteer observers with supervisor
		5.2	Explain the details of the requested task to

	observers		community volunteer observers in consultation with supervisor
		5.3	Conduct observer selection using enterprise 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 enterprise 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 enterprise procedures
		6.5	Conduct monitoring in accordance with standard method or enterprise 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 enterprise 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 enterprise procedures
8	Record data and report results	8.1	Record details of the testing process and data in accordance with standard method or enterprise procedures
		8.2	Process monitoring and meteorological data and report results in accordance with standard method or enterprise procedures
		8.3	Record approved data in accordance with specified format and quality requirements
		8.4	Maintain confidentiality and security of enterprise information and data

Required Skills and Knowledge

Required skills
Required skills include: • listening and communicating effectively with clients, panellists and community members • negotiating with stakeholders to reach satisfactory agreements, where possible • organising laboratory (for potential panellists selection) and field activities efficiently • interpreting and analysing information, procedures and attending closely to detail • providing accurate information about odours and odour monitoring, and instructing community odour observers and olfactometry panellists • applying odour monitoring procedures (e.g. traceability of measurements) • using monitoring equipment and olfactometry instruments correctly and safely, and identifying and rectifying basic equipment faults • responding effectively to changed or unforeseen circumstances • 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
Required knowledge
Required knowledge includes: • chemical/process engineering relevant to site • 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 • regulatory/licensing requirements that apply to site • nature of odour complaints, possible health effects, typical community concerns and environmental issues about odour • use/design of questionnaires to collect reliable information • calculating flow rates, dilution factors, odour emission rates and uncertainties • basic principles of atmospheric chemistry, odorous compound families and meteorology • enterprise procedures and test methods for odour monitoring • 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 • enterprise procedures for the recording of field data • reporting requirements, protocols for the confidentiality and security of information and communicating with the community and media • relevant health, safety and environment requirements

Evidence Guide

Overview of assessment	Competency must be demonstrated in the ability to perform consistently at the required standard.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently apply the skills covered in this unit of competency in new and different situations and context. Critical aspects of assessment and evidence include: • accurately interpreting client requests, enterprise procedures and legislative/regulatory requirements • selecting suitable field panellists and/or community observers under supervision • communicating effectively with clients, observers, panellists and community members • using olfactometry equipment to obtain reliable data • managing odour field panellists and community observers • processing odour data and confirming its acceptability • communicating the significance of results, including the discussion of any errors and/or unexpected variation to appropriate personnel • reporting results and completing all records in the required format and timeframe • working safely for the protection of self and others.
Context of and specific resources for assessment	This unit of competency is to be assessed in the workplace or a simulated workplace environment. Assessment should emphasise a workplace context and procedures found in the candidate's workplace. This unit of competency may be assessed with: • *MSS025002A Assess the environmental risk or impact of a project activity or process* • *MSS025004A Provide environmental information to customers* • *MSS025010A Assist with odour source assessment.* The competencies covered by this unit would be

	demonstrated by an individual working alone or as part of a team. Resources may include: • odour measuring equipment • equipment, materials and reagents for field measurements • enterprise procedures, standard test methods and equipment manuals.
Method of assessment	The following assessment methods are suggested: • review of odour data, results and records prepared by the candidate • feedback from peers and supervisors that the candidate consistently follows enterprise procedures, standard test methods and works safely • feedback from clients, observers, panellists about the candidate's handling of enquiries and information • oral/written questioning associated with odour measurements, calculations, a simulated case study about regulatory field assessment and community surveys • observation of the candidate conducting olfactometry testing and/or instructing observers/panellists. In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work-like environment.
Guidance information for assessment	

Range Statement

Codes of practice	Where reference is made to industry codes of practice, and/or Australian/international standards, it is expected

	the latest version will be used
Legislation, standards, codes, procedures and/or enterprise requirements	Legislation, standards, codes, procedures and/or enterprise requirements may include: • federal legislation, such as: • Environment Protection and Biodiversity Conservation Act 1999 • The Environmental Protection Act 1986 • state/territory government legislation and regulations and local government by-laws, policies, and plans dealing with: • land use, acquisition, planning and protection • environmental protection • Australian and international standards, such as: • AS/NZS 4323.3:2001 Stationary source emissions - Determination of odour concentration by dynamic olfactometry • *VDI 3940-2*:2006 Measurement of odour impact by field inspection - Measurement of the impact frequency of recognizable odours - plume measurement • *VDI 3940*-3:2010 Measurement of odour impact by field inspection - Determination of odour intensity and hedonic odour tone • VDI 3882-1:1992 Olfactometry - determination of odour intensity • SAA HB 9 Occupational personal protection • data quality procedures • enterprise procedures for monitoring and checking calibration of dynamic olfactometers • equipment manuals and warranties, supplier catalogue and handbooks • material safety data sheets (MSDS) • occupational health and safety (OHS) national standards and codes of practice
Odour nuisance	Odour nuisance involves the cumulative effects of odour on people and may include: • 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 and geometries	Odour sources may include: • 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 may include: • point, area, volume and fugitive sources
Information about the site and industrial activities	Information about the site and industrial activities collected by air quality scientists and engineers may include: • 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	Odour monitoring plans may include: • monitoring protocol with details of purpose, duration and scope (parts of the community involved, available resources, detailed procedures and data quality requirements) • site map showing key community features, plant

	boundaries, possible/confirmed odour sources, topography, and most exposed or likely future sensitive receptors • field monitoring with panellist/observer locations (e.g. addresses, global positioning system (GPS) coordinates), and periods of measurement • data collection forms (e.g. observer/panellist locations, intensity levels measurements, weather conditions, odour descriptors, and observer comments and identifier)
Complaint records	Complaint records may include: • 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	Community observer questionnaires may include: • 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	Odour monitoring equipment may include: • dynamic olfactometers for laboratory use when preparing panellists • reference material, such as n-butanol • torch, stopwatch and GPS • anemometer and thermometer
Pre-use checks of odour monitoring equipment	Pre-use checks of odour monitoring equipment may 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 and internal panellists and community observers	Selection and training for field panellists for regulatory requests may include: • 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 4323.3:2001 Stationary source emissions - Determination of odour concentration by dynamic olfactometry) and traceability of the panellist tests Selection and training for internal (in reference with the plant) field panellists may include: • internal procedures that may include 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 may include: • procedures that may include n-butanol pens, odour descriptor assignation with an odour wheel • training with odours relevant to survey objectives • 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

	• basic weather data descriptions • 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	Odour monitoring data may 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	Odour control strategies may include: • 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
OHS and environmental management requirements	OHS and environmental management requirements: • all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health

Unit Sector(s)

Environmental

Custom Content Section

Not applicable.