



Australian Government

MSS025029 Perform sampling and testing for site contamination

Release: 1

MSS025029 Perform sampling and testing for site contamination

Modification History

Release 1. Unit code changed. Unit title changed. Application changed. Performance Criteria changed. Foundation Skills populated. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to MSS025014 Perform sampling and testing of contaminated sites.

Application

This unit describes the skills and knowledge required to assist in site inspections, collect samples and conduct field tests and/or measurements to identify contamination in air, soil and water.

This unit applies to environmental technicians, environmental officers or other roles who are required to inspect site for potential contamination, sample and test air, water and soil, monitor risks and apply safety procedures, select equipment and materials and record and interpret data.

This unit applies in a range of industry sectors, including but not limited to environmental services (e.g. sampling and monitoring of air quality, water and soil); environmental compliance, auditing and inspection; management of pollution and contaminated sites; and site remediation or rehabilitation.

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

MSS024032 Document simple geological information for a site

Competency Field

Environmental monitoring and technology

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. Assist with preliminary site study	1.1 Locate and review relevant legislative, regulatory and/or planning requirements and register for contaminated sites 1.2 Confirm the site location, scope and purpose of the investigation and assigned tasks with supervisor

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.3 Source and review available site data, including site history, geology, hydrogeology and meteorology data 1.4 Summarise information to assist with preparation of a site chronology and identification of gaps or inadequacies in data, potential contaminants and areas of possible contamination
2. Prepare for site activities	2.1 Confirm the scope and purpose of sampling, testing and/or monitoring activities and data requirements with supervisor 2.2 Liaise with site controller to access site, identify locations of services and arrange for induction, clearances and/or permits 2.3 Review risks posed by site contaminants and review the health and safety plan or safe work procedures specified for planned activities 2.4 Review sampling plan and confirm sampling and test methods, sampling and test points, numbers and types of samples and/or measurements with supervisor 2.5 Review specified sampling and test methods to confirm process details and sequence of steps 2.6 Check the operation and, if required, calibration of sampling equipment, test and/or monitoring instruments in accordance with relevant methods, standards and manufacturer instructions 2.7 Ensure required reagents, solutions and/or calibration standards are obtained and ready for field use 2.8 Assemble and safely stow all sampling equipment, test instruments, materials, containers, safety equipment and personal protective equipment (PPE) 2.9 Arrange suitable transport to, from and around site
3. Assist with site inspection	3.1 Sketch, map and/or photograph the site features relevant to site inspection 3.2 Conduct a visual inspection to inform the selection and design of subsequent investigations 3.3 Collect preliminary samples, as directed, to help characterise possible contamination hazards prior to detailed investigations
4. Conduct sampling as directed	4.1 Locate sampling and test points and any services at the site 4.2 Work effectively with other site personnel during drilling excavation and/or survey operations to collect reliable samples, logs and measurements, as necessary

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	4.3 Follow specified procedures to minimise hazards and/or contamination of samples, self/others, equipment and environment 4.4 Collect and preserve required samples in accordance with sampling plan, relevant methods and/or standards 4.5 Record information and label samples in accordance with traceability requirements 4.6 Record environmental conditions and/or atypical observations made during sampling that may impact on validity or integrity of samples 4.7 Store and transport all samples back to base in accordance with specified method, chain of custody requirements and relevant codes
5. Conduct field tests and/or monitoring as directed	5.1 Obtain sample or sub-sample for designated field test 5.2 Check that all equipment, instruments, reagents and calibration standards are fit for purpose 5.3 Set up and calibrate (if required) instruments to ensure safe operation and valid results 5.4 Operate equipment and/or instruments in accordance with test method requirements 5.5 Follow specified procedures to minimise hazards and/or contamination of samples, self and others, equipment and environment 5.6 Perform measurements and tests on samples and standards, if appropriate, in accordance with specified methods 5.7 Keep accurate, complete and traceable records of field observations and test results
6. Clean, decontaminate and/or dispose of contaminated equipment and materials	6.1 Inspect equipment to assess the degree of contamination 6.2 Use specified procedures to remove material from the exposed outer surfaces of sampling and test equipment and PPE 6.3 Use specified procedures and reagents to neutralise, wash and/or rinse exposed surfaces 6.4 Collect rinsate blanks for analysis and preserve and store in accordance with specified procedure or standard 6.5 Prepare and stow items for safe transport 6.6 Safely collect all debris and sillage from decontamination in accordance with relevant regulations and codes
7. Finalise site activities	7.1 Arrange for the safe disposal of hazardous wastes in accordance with

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	relevant regulations and codes 7.2 Ensure site observations, sampling and test data and results are accurately transferred to the workplace information management system 7.3 Store samples in accordance with test method, chain of custody requirements and any relevant codes 7.4 Ensure samples are dispatched for analytical testing within recommended holding times
8. Process and interpret data	8.1 Review test and monitoring data noting atypical observations 8.2 Calculate required quantities using relevant test method and ensure values are consistent with expectations 8.3 Estimate and document uncertainty of measurement, if relevant, in accordance with workplace procedures 8.4 Record processed results in accordance with workplace procedures 8.5 Interpret trends in data and/or results and report atypical results promptly to relevant personnel 8.6 Determine if obvious procedure or equipment problems have led to atypical data or results 8.7 Compare results with established threshold levels or environmental quality concentration limits, as relevant 8.8 Finalise reporting of results in accordance with workplace requirement
9. Maintain a safe work environment	9.1 Clean equipment, instruments, containers, work area and vehicles according to workplace procedures 9.2 Check serviceability of all equipment and instruments before storage 9.3 Use defined safe work practices and PPE to ensure personal safety and that of others 9.4 Minimise the generation of waste and environmental impact according to procedures

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 site information, test methods and manufacturer instructions
- Writing skills to record data, environmental conditions and observations
- Oral communication skills to confirm requirements with supervisor
- Numeracy skills to interpret sampling plan, take and interpret 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 MSS025014 Perform sampling and testing of contaminated sites.

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 MSS025029 Perform sampling and testing for site contamination

Modification History

Release 1. Unit code changed. Unit title changed. Application changed. Performance Criteria changed. Foundation Skills populated. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to MSS025014 Perform sampling and testing of contaminated sites.

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:

- identify and document key features and potential contamination hazards of at least one site
- collect, preserve and label a set of representative samples for at least one site in accordance with sampling plan
- prepare (sub)samples and conduct at least one test and analysis, using specified test methods, for each of the following:
 - air
 - water
 - soil
- apply cleaning and decontamination procedures for each test
- interpret trends in data and/or results and report atypical results on at least 3 occasions.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- scientific terminology covering the sampling and testing of air, water and soil at potentially contaminated sites as relevant to job role
- overview of legislation, regulations, standards and codes of practice related to contaminated sites, and threshold levels or environmental quality concentration limits for contaminants
- common site hazard and risks, risk assessment techniques and use of risk cards
- properties and health risks associated with groups of contaminants including at least 2 examples from each of the following groups:
 - particulates
 - chemicals
 - materials and substances
 - gases/vapours
- sampling plans for contaminated sites, including concepts of preliminary sampling, non-targeted/grid sampling, and targeted/judgemental sampling
- types of sampling strategies for gas, water and soil

- functions and operating principles of, and sampling equipment related to, test equipment and/or instruments including at least 2 from each of the following:
 - air testing
 - water testing
 - soil testing
- screening of gas/vapours, soil and water samples using:
 - colour and texture
 - bioluminescence/toxicity test kits
 - colorimetric methods and dye shake tests
 - pH, electrical conductivity, redox potential, temperature, dissolved oxygen and ammonia concentration
 - photo ionisation detectors (PID)
 - flame ionisation detectors (FID)
 - gas detectors
 - portable infrared analysers for methane and carbon monoxide (CO)
 - portable X-ray fluorescence spectrum analyses
 - field gas chromatography
 - measurement of radiation
- common procedure/equipment problems leading to atypical data/results
- traceability and/or chain of custody of samples and management of large volumes of data
- calculation of measurement uncertainty as relevant to tests being performed
- use of replicates, field and trip (transport) blanks, rinsate blanks and background samples
- data processing, recording and reporting procedures
- hazards, health, safety and environmental requirements relevant to site activities undertaken; use of safe work methods, safety equipment and personal protective equipment (PPE).
-

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:
 - sampling plan
 - test methods and/or procedures
 - instrument calibration procedures, where relevant
- modelling of industry operating conditions.

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

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>