



Australian Government

Assessment Requirements for MSS025007 Perform sampling and testing of soils

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSS025007A Perform sampling and testing of soils

Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- collecting, preserving and labelling a set of representative soil samples for at least one (1) site in accordance with a given sampling plan
- preparing soil samples and conducting at least one (1) chemical test and one (1) physical test in the field using given test methods
- preparing soil samples and conducting at least one (1) chemical test and one (1) physical test in a laboratory using given test methods
- planning field and laboratory activities
- selecting and checking all required field equipment, instruments and materials
- using sampling equipment to obtain reliable, representative soil samples in accordance with sampling plan and paying close attention to any pre-treatment, containers, preservation, storage, labelling and traceability requirements
- identifying atypical materials and samples and taking appropriate action
- setting-up, calibrating and operating field/laboratory test instruments to obtain valid and reliable data in accordance with test methods
- accurately recording site features, environmental conditions and any observations that may impact on reliability of field data
- interpreting gross features of data, identifying atypical results as out-of-normal range or an artefact and making relevant conclusions
- identifying and rectifying basic instrument faults
- calculating results using appropriate units and precision and/or preparing calibration graphs
- checking the acceptability of environmental data using specified quality tests or procedures
- using established soil parameters/criteria to make valid conclusions about soil suitability
- providing accurate, complete records of sampling and testing, site observations and data
- presenting and reporting results in accordance with workplace procedures
- seeking advice when issues/problems are beyond scope of competence/responsibility
- safely transporting, cleaning, maintaining and storing field equipment in accordance with workplace procedures
- working safely and following relevant legislative requirements for the disposal of waste and the preservation of the environment.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- scientific terminology used in job role covering soil sampling and testing
- fundamentals of soil morphology, such as soil profiles, horizons, structure and texture, and mineralogy
- (Australian) soil classification system
- fundamentals of soil formation
- land use and soil systems (interactions and impacts), such as plant-soil interactions, soil fertility, soil contamination and remediation
- fundamentals of geomorphology, such as erosion and mass wasting; transportation and deposition, sedimentation; fluvial, aeolian, hillslope and weathering processes
- fundamentals of soil chemistry, soil salinity
- physical/engineering soil properties, such as:
 - colour (Munsell chart)
 - liquid and plastic limits
 - linear shrinkage
 - soil particle density
 - particle size distribution
 - dispersion and Emerson class number
- fundamentals of sampling, such as:
 - sampling plans and site selection
 - principles of representative samples
 - principles and procedures for random, systematic, stratified and composite sampling; consistency of sampling procedures
 - preservation of the integrity of samples
 - maintaining identification of samples relative to their source, workplace and/or legal traceability requirements
 - cost-effectiveness of sampling
- characteristics of soils to be sampled and likely contaminants
- links between quality control, quality assurance, quality management systems and sampling procedures
- workplace procedures dealing with legislative requirements for the handling, labelling and transport of hazardous goods
- common site hazards, links between safe work procedures and personal and environmental safety, particularly at high risk sites.

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:
 - inspection of soil samples collected by the candidate
 - review of field and laboratory chemical/physical soil test results, calculations and site observations produced by the candidate, including assessment of soil suitability
 - review of sampling/testing records completed by the candidate
 - feedback from supervisors about the candidate's ability to apply workplace procedures and soil sampling/test methods consistently, work safely and produce results within the agreed timeframe
 - oral and/or written questions to check the candidate's knowledge of soil sampling and testing procedures, set-up and use of equipment, normal ranges, and troubleshooting of common sampling and testing problems.
- Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - vehicles, soil sampling equipment, field test equipment, digital camera, containers and reagents/consumables
 - equipment/instruments for laboratory based soils testing
 - safe work procedures and safety equipment
 - workplace procedures, work program, maps, site plans, site sampling plans and test methods, and equipment manuals.
- 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.

Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>