



Australian Government

**Assessment Requirements for MSS024022
Perform environmental biological
techniques**

Release: 1

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Modification History

Release 1. Updated unit code. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- performed each of the following environmental biological techniques on at least 2 occasions:
 - collecting biological samples in accordance with work request and procedures
 - using aseptic techniques to obtain and manipulate samples and prepare media
 - using standard techniques to grow cultures of environmentally significant microorganisms
 - setting up, cleaning and optimising the performance of light microscopes
 - conducting tests and microscopic examination of samples to identify and enumerate environmentally significant (micro)organisms and important components of plant and animal tissues

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- principles and terminology used in elementary microbiological testing, organism classification, microscopic examination
- sampling techniques for air, water, soil in terrestrial and aquatic habitats
- types of samples
- relationship between sterile practices, hygiene procedures and the ability to obtain growth of microorganisms free of contamination
- importance of pure culture techniques and aseptic transfer to successful microbiological investigation and correct interpretation of results
- aseptic techniques
- growth requirements of microorganism cultures (including bacteria, fungi and yeasts)
- principles of infection control related to work health and safety (WHS), sampling and transfer of materials in microbiological investigations
- disinfection and sterilisation procedures used in the collection, processing and safe disposal of samples and materials
- cleaning and sanitising requirements of equipment and work area and effects of physical and chemical agents on microbial growth and death

- parts and functions of common microscopes, set-up procedures and common causes and solutions for sub-optimal performance
- microscopy techniques
- cell theory, basic structure and function of cells and organelles
- cell physiology and processes, including simple and facilitated diffusion, plasmolysis, osmosis, tonicity, active transport, energy production, mitosis, motility, phagocytosis and pinocytosis
- purposes and mechanisms of staining (including Gram +ve and -ve)
- equipment, materials and systems used
- artefacts or image aberrations attributable to misalignment or obstruction of light paths or condensers used in bright field, dark ground, and phase contrast microscopy, or with other steps in microscopic examinations
- workplace and legal traceability requirements
- hazards, controls and safety procedures associated with handling microorganisms.

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 facilities, equipment and resources, including:
 - standard microbiology laboratory
 - sampling and testing equipment, materials and reagents
 - work request, workplace procedures, sampling and test methods, equipment manuals, safety procedures
- modelling of industry operating conditions, including:
 - biological samples and organisms must be of a risk category that is compatible with laboratory as defined in AS/NZS 2243.3 Safety in laboratories - Microbiological safety and containment.

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

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

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