Australian Government

MSL933001A Maintain the laboratory/field workplace fit for purpose

Revision Number: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

MSL933001A Maintain the laboratory/field workplace fit for purpose

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the general cleaning of work surfaces, cleaning and storage of equipment and the monitoring of laboratory stocks under direct supervision.

Application of the Unit

Application of the unit	This unit of competency is applicable to laboratory assistants and instrument operators working in all industry sectors. This unit of competency forms a major part of the work of laboratory assistants. They work in accordance with work instructions and standard operating procedures which incorporate all relevant aspects of occupational health and safety (OHS) legislation and the codes, guidelines, regulations and Australian standards applying to environmental hazards and dangerous goods. Industry representatives have provided case studies to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. These are found at the end of this unit of competency under the section 'This competency in practice'.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Clean work preparation areas	1.1. Clean preparation areas using appropriate cleaning agents and equipment according to enterprise procedures 1.2. Remove spillages, if they occur, using appropriate agents, personal protective equipment and enterprise procedures 1.3. Collect and segregate wastes in accordance with enterprise procedures, relevant codes and regulations
2. Clean and store equipment	2.1. Collect used equipment, inspect for faults and, where necessary, remove from service 2.2. Use appropriate agents, apparatus and techniques to clean equipment 2.3. Store clean equipment in the designated locations and manner
3. Monitor stocks of materials and equipment	3.1. Perform stock checks and maintain records of usage as directed 3.2. Store labelled stocks for safe and efficient retrieval 3.3. Inform appropriate personnel of impending stock shortages to maintain continuity of supply
4. Maintain a safe work environment	4.1. Use established safe work practices and personal protective equipment to ensure personal safety and that of other personnel 4.2. Report potential hazards and/or maintenance issues in own work area to designated personnel 4.3. Minimise the generation of wastes and environmental impacts 4.4. Dispose of wastes in accordance with enterprise procedures, relevant codes and regulations

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- safely cleaning work preparation areas and equipment using appropriate cleaning agents, equipment and techniques
- safely removing spillages and disposing of wastes
- minimising the exposure to hazards of self, others and the laboratory
- safely storing equipment and materials using enterprise procedures, relevant codes and guidelines
- monitoring and reporting stock levels and the condition of laboratory materials and equipment
- keeping accurate, up-to-date records
- reporting potential hazards and maintenance issues using enterprise procedures

Required knowledge

Required knowledge includes:

- enterprise procedures for the cleaning of work preparation areas, materials and equipment
- storage requirements for specific materials and equipment
- enterprise procedures for minimisation and disposal of waste
- enterprise procedures for monitoring of laboratory stocks
- information contained in material safety data sheets (MSDS) for materials handled regularly during the performance of maintenance tasks
- relevant health, safety and environment requirements

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors should ensure that candidates can: • follow enterprise procedures, relevant codes and guidelines when maintaining the laboratory/field workplace • work safely and minimise exposure of hazards to self, others and the laboratory • keep accurate up-to-date records and report potential hazards and maintenance issues.
Context of and specific resources for assessment	This unit of competency is to be assessed in the workplace or simulated workplace environment. This unit of competency may be assessed with: • *MSL943002A Participate in laboratory/field workplace safety*. Resources may include: • access to work preparation areas, stocks, materials and equipment • cleaning, decontamination and/or disinfection agents and equipment • personal protective equipment • stock order firms, labels and records/forms.
Method of assessment	The following assessment methods are suggested: • observation of the candidate's techniques for cleaning and/or removal of spillages and waste disposal • review of stock records completed by the candidate • feedback from supervisors and peers • questioning to assess underpinning knowledge of regulations and procedures where direct observation is difficult (such as dealing with hazards) and choice of materials and equipment. In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess

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	directly. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. Access must be provided to appropriate learning and/or assessment support when required. 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.
This competency in practice	Industry representatives have provided the case studies below to illustrate the practical application of this unit of competency and show its relevance in a workplace setting. **Manufacturing** On receipt of a bulk container of cleaning or sanitising agent, a laboratory assistant always attached to the container a description of its method of use. The assistant also attached a list of the surfaces, apparatus, utensils and machines that could be safely treated with that chemical agent as outlined in the company's quality manual. This practice reduced the likelihood of misuse of the chemical, wastage, damage to equipment and inadequate cleaning and sanitation. **Biomedical and environmental** Laboratory assistants and technical officers routinely examine fluids for micro-organisms using a microscope. They examine fluids, such as urine, seawater, chlorinated pool water, water from catchment areas and bottled water. To maintain microscopes in working order, they thoroughly clean the stage, oculars and each objective after use and sometimes between samples. The 100X objective requires particular care since this is the oil immersion objective. The oil is slightly acidic and will slowly corrode the objective if it is not cleaned thoroughly and regularly. After using the 100X objective they also take care not to drag the other objectives through the oil. **Food processing** A laboratory assistant regularly uses standard pH

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	solutions to calibrate the laboratory's pH meters. The assistant is aware from the label that the shelf life of these solutions after opening is two months and records the opening and disposal dates on the container. The assistant is also aware that the shelf life of unopened buffer solutions is twelve months from the date of manufacture and monitors this by noting the production date on the bottle. Requests for stock replacement take into account the normal rate of use of these buffer solutions so that unopened bottles have not reached their expiry date before use.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
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

Standards, **codes**, **procedures and/or enterprise requirements**	Standards, codes, procedures and/or enterprise requirements may include:
	• Australian and international standards such as:
	  • AS 1678 Emergency procedure guide - Transport
	  • AS 1940-2004 Storage and handling of flammable and combustible liquids
	  • AS 2252 Biological safety cabinets
	  • AS 3780-2008 The storage and handling of corrosive substances
	  • AS 4332-2004 The storage and handling of gases in cylinders
	  • AS ISO 17025-2005 General requirements for the competence of testing and calibration laboratories
	  • AS/NZS 1269 Set:2005 Occupational noise management set
	• AS/NZS 1337 Eye protection
	• AS/NZS 2161 Set:2008 Occupational protective gloves set
	• AS/NZS 2210:1994 Occupational protective footwear
	• AS/NZS 2243 Set:2006 Safety in laboratories set
	  • AS/NZS 2243.8:2006 Safety in laboratories - Fume cupboards
	  • AS/NZS 2865 Set:2005 Safe working in a confined space set
	  • AS/NZS 2982.1:1997 Laboratory design and construction - General requirements

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	• AS/NZS 4187:2003 Cleaning, disinfecting and sterilising reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities • AS/NZS 4452:1997 The storage and handling of toxic substances • AS/NZS 4501 Set:2008 Occupational clothing set • AS/NZS ISO 14000 Set:2005 Environmental management standards set • animal welfare legislation and codes of practice • Australian code of good manufacturing practice for medicinal products (GMP) • Australian Dangerous Goods Code • Australian Quarantine and Inspection Service (AQIS) Export Control (Orders) Regulations 1982 • Australian Quarantine and Inspection Service (AQIS) Import Guidelines • Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Codes of Practice • enterprise or standard operating procedures (SOPs) • equipment manuals and warranties, supplier catalogues and handbooks • gene technology regulations • guide to physical containment levels and facility types • HB 9-1994 Occupational personal protection • material safety data sheets (MSDS) • National Code of Practice for the labelling of workplace substances (NOHSC:2012 (1994)) • national environment protection measures • National Health and Medical Research Council (NHMRC) Guidelines • national measurement regulations and guidelines • occupational health and safety (OHS) national standards and codes of practice • principles of good laboratory practice (GLP) • Therapeutic Goods Regulations 1009

RANGE STATEMENT	
Equipment, material procedures and facilities	Equipment, material procedures and facilities may include: • animal cages • autoclaves • balances • blenders, centrifuges and separating equipment • brushes • cell counters and staining machines • colorimeters/spectrometers and polarimeters • compaction rammers and soil classification equipment • conductivity meters and pH meters • dishwashers, refrigerators, freezers, ovens, microwave ovens, incubators and water baths • disintegration apparatus, thermometers and incubators • fume hoods, biohazard containers and biological safety cabinets • gas cylinders • glassware, plastic ware; glass, plastic and quartz cuvettes • hotplates, mantles, burners and muffle furnaces • instrument chart recorders, penetrometers, force measuring equipment and tensiometers • light and fluorescence microscopes • melting point apparatus, viscometers and hardness testing equipment • microtomes and tissue processors • mixing and separating equipment such as centrifuges, rifflers and splitters and mixers • noise meters and blasting meters • optical microscopes • pipettes, burettes and volumetric glassware • shovels, scoops, plates, rods, cylinder moulds and buckets • steel ruler/tapes and spirit levels • thermometers, thermohygrographs, instrument chart recorders, hydrometers, pH meters and ion-selective electrodes • ultrasonic cleaners • vehicles

RANGE STATEMENT	
Typical materials	Typical materials may include: • consumable items, such as syringes, pipette tips, weigh boats • disposable clothing and personal protective equipment • distilled water, reagents, chemicals, disinfectants, detergents, agar media and plates • equipment spares, such as fuses, bulbs and batteries • oils/lubricants, fuels, industrial gases and cryogenics, such as dry ice and liquid nitrogen • paper and stationery • reference samples and standards
Maintenance	Maintenance may include: • checking serviceability before storage • cleaning • prevention of contamination • storing
Cleaning requirements	Cleaning requirements may include: • decontamination and/or disinfection • hygiene monitoring • minimising environmental impacts • operation of automatic cleaning apparatus, such as pipette washer, ultrasonic cleaners and dishwashers • sterilisation and disposal of wastes using boiling, high pressure air or steam, microwaves, chemicals, gas, filtration, ultraviolet radiation and autoclaving • use of specialised techniques, such as chromic acid baths and soaking in hypochlorite
Preparation areas	Preparation areas may include: • benches • fume cupboards • sheds • sinks
Agents for cleaning	Agents for cleaning may include: • cleaning solutions

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	• decontaminants • organic solvents
Spillages	Spillages may include: • chemicals • radioactive materials • biologically active materials
Wastes	Wastes may include: • broken glass • batteries • disposable personal protective equipment • excess test samples • micro-organisms • plastic and metals • sharps • solvents • spent reagents • spent samples and test pieces • used containers, boxes, bags and palettes
Stock records	Stock records may include: • calibration and maintenance history • data sheets • handbooks, warranty documents, catalogues, manuals and MSDS • records of usage, loans and breakages
Communication	Communication could involve other people, such as: • laboratory, production, administration and cleaning staff • internal/external contractors • emergency personnel
Maintenance issues	Maintenance issues could involve: • checking materials and equipment are fit for purpose • equipment malfunction • hygiene issues • potential hazards, incidents and emergencies • recycling and waste disposal

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	• spillages, leakages, breakages and contamination • stock requirements and shortages
Hazards	Hazards may include: • aerosols from broken centrifuge tubes and pipetting • chemicals, such as acids, heavy metals, pesticides and hydrocarbons • crushing, entanglement and cuts associated with moving machinery or falling objects • cryogenics, such as dry ice and liquid nitrogen • electric shock • fluids under pressure, such as steam and industrial gas cylinders • manual handling, working at heights and working in confined spaces • microbiological organisms and agents associated with soil, air, water, blood and blood products, and human or animal tissue and fluids • occupational overuse syndrome, slips, trips and falls • pedestrian and vehicular traffic • sharps, broken glassware and hand tools • solar radiation, dust and noise • sources of ignition, flammable liquids and gases
Established safe work practices	Established safe work practices may include: • applying containment procedures through the use of appropriate equipment, such as biohazard containers, laminar flow cabinets, Class I, II and III biohazard cabinets and Class PCII, PCIII, and PCIV physical containment facilities • ensuring access to service shut-off points • following established manual handling procedures for tasks involving manual handling • handling and storage of all hazardous materials and equipment in accordance with labelling, MSDS and manufacturer's instructions • identifying and reporting operating problems or equipment malfunctions

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	• labelling of samples, reagents, aliquoted samples and hazardous materials • recognising and observing hazard warnings and safety signs • reporting to appropriate personnel of abnormal emissions, discharges and airborne contaminants, such as noise, light, solids, liquids, water/waste water, gases, smoke, vapour, fumes, odour and particulates • use of MSDS • use of personal protective equipment, such as hard hats, hearing protection, gloves, safety glasses, goggles, face guards, coveralls, gown, body suits, respirators and safety boots
Occupational health and safety (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)

Unit sector	Maintenance

Competency field

Competency field	

Co-requisite units

Co-requisite units		