



Australian Government

MSL944001A Maintain laboratory/field workplace safety

Revision Number: 1

MSL944001A Maintain laboratory/field workplace safety

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the ability to monitor and maintain occupational health and safety (OHS) and environmental programs within a work area where the person has supervisory responsibility for others.
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Application of the Unit

Application of the unit	This unit is applicable to laboratory technicians, senior technicians and laboratory managers in all industry sectors. 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'.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Perform all work safely	1.1. Use established work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel 1.2. Clean, care for and store equipment, materials and reagents as required 1.3. Minimise the generation of wastes and environmental impacts 1.4. Ensure safe disposal of laboratory/hazardous wastes
2. Ensure others in the work group are able to implement safe work practices	2.1. Ensure hazard controls and personal protective clothing and equipment appropriate to the work requirements are available and functional 2.2. Provide and communicate current information on OHS and environmental policies, procedures and programs to others 2.3. Ensure hazards and control measures relating to work responsibilities are known by those in the work area 2.4. Provide support to those in the work area to implement procedures to support safety 2.5. Identify and address training needs within level of responsibility
3. Monitor observance of safe work practices in the work area	3.1. Ensure enterprise procedures are clearly defined, documented and followed 3.2. Identify any deviation from identified procedures and report and address within level of responsibility 3.3. Ensure personal behaviour is consistent with enterprise policies and procedures 3.4. Encourage and follow up others to identify and report hazards in the work area 3.5. Monitor conditions and follow up to ensure housekeeping standards in the work area are maintained
4. Participate in risk management processes	4.1. Report and address any identified hazards and inadequacies in existing risk controls within level of responsibility and according to enterprise procedures 4.2. Participate in risk assessments to identify and analyse risks 4.3. Support the implementation of procedures to control risk (based on the hierarchy of control) 4.4. Ensure records of incidents in the work area and

ELEMENT	PERFORMANCE CRITERIA
	other required documentation are accurately completed and maintained according to enterprise procedures and legislative requirements
5. Support the implementation of participative arrangements	5.1. Inform and consult work group on OHS and environmental issues relevant to the work role 5.2. Promptly report outcomes of consultation on OHS and environmental issues back to the work group 5.3. Resolve, or promptly refer to appropriate personnel, matters raised relating to OHS and the environment
6. Support the implementation of emergency procedures within the work group	6.1. Ensure that enterprise procedures for dealing with incidents and emergencies are available and known by work group 6.2. Implement processes to ensure that others in the work area are able to respond appropriately to incidents and emergencies 6.3. Participate, as required, in investigations of hazardous incidents to identify their cause

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- performing all work safely
- following procedures for hazard identification and risk control
- ensuring others in the team are able to implement safe work practices
- preparing brief reports for a range of target groups, including OHS committees, OHS representatives, managers and supervisors

Required knowledge

Required knowledge includes:

- definition of hazard, physical hazard, risk and risk management
- hazards commonly found in the work area and standard risk controls
- signage, symbols and signals relating to OHS
- location and purpose of personal protective equipment and emergency/hazard control equipment in the work area, including first aid facilities and personnel
- use, care and storage requirements for personal protective clothing and equipment used in work areas
- roles and responsibilities under OHS legislation of employers and employees, including supervisors and contractors
- requirements for record keeping that address OHS, privacy and other relevant legislation
- principles and practices of effective OHS management, including hazard identification, risk assessment and risk control
- the hierarchy of control
- enterprise procedures for OHS and environmental management
- key personnel within enterprise management structure and the OHS management system
- sources of OHS information, including specialist advisors
- the elements of an OHS management system which includes that part of the enterprise's overall management system for developing, implementing, reviewing and maintaining the activities for managing OHS risks associated with their business
- how the characteristics and composition of the workforce impact on OHS management

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:

- work safely at all times
- ensure others in the workgroup work safely and follow OHS and environmental policies and procedures for hazard identification and risk control
- communicate OHS and environmental issues with designated personnel
- ensure that enterprise procedures for dealing with incidents and emergencies are available and known by work group
- communicate effectively with personnel at all levels within the enterprise and OHS specialists
- prepare brief reports for a range of target groups.

Context of and specific resources for assessment

This unit of competency is to be assessed in the workplace or simulated workplace environment.

Resources may include:

- laboratory/field work environment, equipment and materials
- personal protective equipment and safety equipment
- enterprise OHS management system, policies and procedures.

Method of assessment

The following assessment methods are suggested:

- feedback from peers and supervisors
- review of documentation prepared by candidate, such as OHS committee minutes, risk assessments and incident reports
- written and/or oral questioning to assess underpinning knowledge of principles and practices of effective OHS management and the enterprise's OHS management system, OHS policies and procedures
- observation of the candidate preparing for and undertaking a range of work tasks.

EVIDENCE GUIDE

	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. 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 study below to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. Education A technical officer working for a university biology school assists honours and final year undergraduate students to perform their own experiments. The students discuss what technical work they want to do with the technical officer and what reagents and equipment will be needed. The technical officer provides MSDS and other information to the student. He/she also conducts a risk assessment to identify and analyse the risks, selects appropriate controls and outlines the risk management process to be used. In some cases, the toxicity of mixtures and the waste generated by experiments may pose an unacceptable level of risk and the technical officer will suggest safer alternatives.

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 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 2982.1:1997 Laboratory design and construction - General requirements
 - 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

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- HB 9-1994 Occupational personal protection
- Australian Dangerous Goods Code
- Australian Quarantine and Inspection Service (AQIS) Import Guidelines
- Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Codes of Practice
- gene technology regulations
- Guide to physical containment levels and facility types
- National Code of Practice for the labelling of workplace substances [NOHSC:2012 (1994)]
- OHS national standards and codes of practice

Hazards

Hazards may include:

- electric shock
- microbiological organisms and agents associated with soil, air, water, blood and blood products, and human or animal tissue and fluids
- solar radiation, dust and noise
- chemicals, such as acids, heavy metals, pesticides and hydrocarbons
- aerosols from broken centrifuge tubes and pipetting
- radiation, such as alpha, beta, gamma, X-ray and neutron
- sharps, broken glassware and hand tools
- flammable liquids and gases
- cryogenics, such as dry ice and liquid nitrogen
- fluids under pressure, such as steam, hydrogen in gas liquid chromatography and acetylene in atomic absorption spectrometry
- sources of ignition
- high temperature ashing processes
- disturbance or interruption of services
- occupational overuse syndrome, slips, trips and falls
- manual handling, working at heights and working in confined spaces
- crushing, entanglement and cuts associated with moving machinery or falling objects
- pedestrian and vehicular traffic

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	• vehicle and boat handling • factors, such as inadequate work practices, lack of training or fatigue are not hazards but are conditions that may result in the loss of control of the hazard and cause injury or damage
Addressing hazards	Addressing hazards may include: • hazard and incident reporting and investigation procedures • elimination • substitution, such as review of nature of substances or processes used • isolation: • use of appropriate equipment, such as biohazard containers, laminar flow cabinets, Class I, II and III biohazard cabinets • Class PCII, PCIII, and PCIV physical containment laboratories • engineering • administrative procedures, such as: • ensuring access to service shut-off points • recognising and observing hazard warnings and safety signs • labelling of samples, reagents, aliquoted samples and hazardous materials • handling and storing hazardous materials and equipment in accordance with labelling, MSDS and manufacturer's instructions • identifying and reporting operating problems or equipment malfunctions • cleaning and decontaminating equipment and work areas regularly using enterprise procedures • applying containment procedures • following established manual handling procedures for tasks involving manual handling • using appropriate equipment and procedures to avoid personal contamination and contamination of others

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	• following risk control measures to minimise environmental hazards • using practices which minimise waste • 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 • minimising exposure to radiation, such as lasers, electromagnetic and ultraviolet • using MSDS • using signage, barriers and service isolation tags • using personal protective equipment, such as hard hats, hearing protection, sunscreen lotion, gloves, safety glasses, goggles, face guards, coveralls, gowns, body suits, respirators and safety boots
Enterprise policies, procedures and programs include those that directly or indirectly cover OHS and environmental issues	Enterprise policies, procedures and programs include those that directly or indirectly cover OHS and environmental issues, such as: • hazards and control measures • minimisation of environmental threats • minimisation and disposal of waste • standard operating procedures (SOPs), work instructions, laboratory manuals, operator's manuals and manufacturers' operating manuals • safety, emergency, fire and other incidents • selection and use of personal protective clothing and equipment • reporting of hazards and incidents • consultation and issue resolution • risk management • contractor and employee handbooks • formulas and batch sheets • industry codes of practice and guidelines
Risk assessment	Risk assessment includes: • analysing the risk • identifying factors influencing the risk and the range of potential consequences

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	• effectiveness of existing controls • likelihood of each consequence considering exposure and hazard level • combining these in some way to obtain a level of risk • comparison of the determined risk with pre-established criteria for tolerance (or as low as reasonably achievable) and the subsequent ranking of risks requiring control
Hierarchy of control	Hierarchy of control includes: • the preferred order of risk-control measures from most to least preferred, that is: • eliminating risk • substituting with a lesser hazard • isolating personnel from hazard • engineering controls • applying administrative controls (e.g. procedures and training) • using personal protective equipment
OHS and environmental issues	OHS and environmental issues may include: • identification of hazards • assessment of risk and decisions on measures to control risk • risk reduction measures • implementation of controls • investigation of injury and incidents • hazards not otherwise addressed • problems in implementing risk controls • incidents • clarification of policies or procedures
Consultation with the workgroup on OHS and environmental issues	Consultation with the workgroup on OHS and environmental issues may involve: • following OHS procedures and environmental risk control measures • information sessions on existing or new issues • meetings between employer and employees or representatives • access to relevant workplace information • use of clear and understandable language

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	• provision for non-English speaking personnel • provision for hearing-impaired personnel • awareness of databases and online software for the inventory, manifest and information retrieval regarding hazardous materials • formal arrangements, such as health and safety committees and health and safety representatives (where appointed) • informal arrangements, such as toolbox meetings and coffee breaks
Incidents and emergencies	Incidents and emergencies may include: • workplace injury and accidents • biological and chemical spills • leakage of radioactivity • fire • bomb threat • security threat
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	Occupational health and safety
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		