



Australian Government

MSL916003A Supervise laboratory operations in work/functional area

Revision Number: 1

MSL916003A Supervise laboratory operations in work/functional area

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers planning, allocation of tasks, coordination, quality assurance, monitoring resource usage and recording and reporting of laboratory operations. This requires using significant judgement about work sequences and choosing appropriate technology and procedures to ensure that products and services meet customer expectations, and are provided safely and efficiently in keeping with the enterprise business plan.
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Application of the Unit

Application of the unit	This unit of competency is applicable to senior technical officers and laboratory supervisors working in all industry sectors. Responsibility is undertaken for the day-to-day operation of the functional area under broad direction from more senior staff such as scientists, medical staff and engineers, 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 can be 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. Monitor and direct work practices within functional area	1.1.Ensure that personnel follow all relevant procedures, regulations and standards 1.2.Confirm that all technical work is performed in accordance with relevant standards, standard operating procedures (SOPs) and schedules 1.3.Ensure that analytical results/data are checked, collated and distributed in accordance with enterprise requirements 1.4.Monitor testing and sampling procedures for quality control in accordance with enterprise requirements 1.5.Identify and resolve complex problems by using agreed problem solving strategies and act to prevent their recurrence
2. Manage personnel within work area	2.1.Develop and coordinate rosters to balance job requirements, laboratory efficiency and skill development opportunities 2.2.Empower work groups/teams in dealing with technical and work flow problems and suggesting improvements 2.3.Provide coaching and mentoring to support personnel who have difficulties with meeting targets for performance and/or resource usage 2.4.Establish and maintain effective communication with all personnel and clients to ensure smooth and efficient operations
3. Establish resource requirements and operating budgets	3.1.Collect and analyse available resource information in consultation with appropriate personnel 3.2.Prepare operational plans which make the best use of available resources, taking into account client needs and enterprise plans 3.3.Identify and analyse possible variances due to external/internal factors and prepare contingency plans 3.4.Compile operating budgets as required
4. Procure resources to achieve operational plans	4.1.Analyse resource requirements and sources of supply in terms of suitability, cost, quality and availability 4.2.Select and purchase new materials and equipment in accordance with enterprise procedures 4.3.Coordinate stocktaking of materials and equipment

ELEMENT	PERFORMANCE CRITERIA
	to ensure maintenance of stock at prescribed levels 4.4.Ensure that personnel are competent to perform required tasks and organise training if required 4.5.Arrange for the recruitment and induction of personnel as appropriate
5. Monitor and optimise operational performance and resource usage	5.1.Monitor the relationship between budget and actual performance to foresee problems 5.2.Analyse variations in budget performance and either report or rectify abnormal/sub-optimal performance 5.3.Negotiate with designated personnel and seek approval for variations to operational plans as required 5.4.Assess utilisation of plant, equipment and consumables and compare with planned usage 5.5.Rectify sub-optimal utilisation of plant, equipment and consumables 5.6.Program and arrange for maintenance of plant and equipment in accordance with enterprise maintenance schedules 5.7.Maintain systems, procedures and records associated with resource usage in accordance with enterprise requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- collecting, analysing and reporting on information for enterprise operational plans, budgets and performance management
- organising and optimising the use of resources within agreed parameters to achieve planned outcomes
- revising plans to take account of the unexpected
- solving non-routine problems
- making decisions within limits of responsibility and authority
- ensuring that legislation, statutory and enterprise requirements are met in work operations
- monitoring outputs, analyses, processes and introducing ways to improve operations
- using effective consultative processes
- promoting a learning environment for personnel in the immediate work area
- motivating and counselling personnel to improve performance

Required knowledge

Required knowledge includes:

- enterprise:
 - business, strategic and operational plans
 - key performance indicators
 - laboratory services
 - products
 - customers
- legislation, codes, standards and registration criteria relevant to the work area or function
- principles of budgeting, operational planning and efficient resource use
- workplace industrial agreements and regulations dealing with hygiene, dress and behaviour of employees
- SOPs and the technical details of sampling, testing, equipment and instrumentation within the work area
- problem solving techniques and contingency planning
- broad trends in production data (e.g. seasonal and annual)
- auditing procedures
- team leadership and development techniques

REQUIRED SKILLS AND KNOWLEDGE

- mentoring and coaching techniques
- relevant health, safety and environment requirements

Specific industry

Additional knowledge requirements may apply for different industry sectors. For example:

Biomedical and environmental:

- access information from sources, such as relevant Federal and State/Territory Acts, Environmental Protection Agency (EPA), National Pathology Accreditation Advisory Council (NPAAC) and National Health and Medical Research Council (NHMRC)

Food processing:

- Codex Alimentarius standards, Association of Analytical Communities International (AOAC International) Official Methods of Analysis

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:

- collect, analyse and report on information for enterprise operational plans, budgets and performance management
- organise and optimise the use of resources within agreed parameters to achieve planned outcomes
- revise plans to take account of the unexpected
- make decisions within limits of responsibility and authority
- supervise laboratory operations and personnel so that planned outcomes are achieved within agreed resource and budget parameters without compromising safety, quality and ethics
- ensure that legislation, statutory and enterprise requirements are met in work operations
- monitor outputs, analyses processes and introduce ways to improve operations
- solve a range of non-routine problems
- use effective consultative processes
- promote a learning environment for personnel in immediate work area
- motivate and counsel personnel to improve performance.

Context of and specific resources for assessment

This unit of competency should be assessed in a laboratory environment that meets Australian standards for working laboratories or is accredited by NATA or the Royal College of Pathology. The assessment timeframe must allow for adequate assessment over a planning cycle.

This unit of competency may be assessed with:

- *MSL916002A Manage and develop teams*
- *MSL916004A Maintain registration and statutory or legal compliance in work/functional area*
- *MSL946001A Implement and monitor OHS and*

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	<i>environmental management systems.</i> Resources may include: - laboratory equipped with appropriate services, equipment, instruments and consumables - relevant enterprise policies, procedures, operational reports, financial reports and stock records - technical manuals, SOPs and quality manuals.
Method of assessment	The following assessment methods are suggested: - direct observation of the candidate's interactions with personnel - review of reports from subordinates, peers, managers and customers - review of reports, operational budgets and plans generated by the candidate - review of performance reports for the candidate's work area - review of documented examples of quality performance improvements achieved and examples of significant problems solved - simulations/role plays to assess situations which are critical but did not arise during the negotiated assessment period. 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 studies below to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting.

EVIDENCE GUIDE**Manufacturing**

A laboratory supervisor analysed the costs of regular heavy metal testing of the wastewater stream leaving the company's plant. He/she compared these costs with a quotation from an external environmental consulting company and noted that it would be more cost effective to outsource the current level of testing. However, the supervisor argued that the company should retain this capability in-house given the impact of impending legislation which will require it to develop an environmental management plan and introduce more complex monitoring. He/she demonstrated that it would benefit the company more in the long run if they recruited one new technician, retrained existing laboratory staff and continued to perform all wastewater testing on site.

Food processing

A technical officer had to complete a wide range of chemical analyses that required samples to be ignited for many hours in a muffle furnace, digested with acid, prepared for analysis by atomic absorption spectroscopy and gas chromatography (GC), and titrated against standard solutions. The laboratory supervisor noticed that the number of analyses performed each day by the technician tended to fluctuate widely without an obvious cause. Closer observation showed that the technician's efficiency was dependent on the order in which the analyses were begun and the use of the auto sampler for overnight operation of the GC.

The supervisor suggested several ways to improve the technician's time management. The supervisor installed a timer on the muffle furnace so that it could be operated overnight and organised the technician to perform labour intensive tasks after automated analyses had been initiated. The supervisor then showed the technician the optimum order to perform individual tasks and verified that his instructions were followed over succeeding weeks. The supervisor's actions significantly improved the productivity of the laboratory. Later it became obvious that the technician's time management system was not working as effectively as it had. Again, the supervisor monitored the technician's work and realised that since the daily analytical load was seasonal, a second management system had to be developed that was

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dedicated to the new season. Both systems were sufficiently flexible to take account of short term fluctuations in workload. In summary, the organisational skills of the supervisor and technician's ability to follow detailed instructions resulted in a more efficient use of company time, labour and resources.

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 ISO 17025-2005 General requirements for the competence of testing and calibration laboratories
 - AS/NZS 2243 Set:2006 Safety in laboratories set
 - AS/NZS ISO 14000 Set:2005 Environmental management standards set
 - AS/NZS ISO 9000 Set:2008 Quality management systems set
- Australia New Zealand Food Standards (ANZFS) Code
- Australian code of good manufacturing practice for medicinal products (GMP)
- Australian Dangerous Goods Code
- occupational health and safety (OHS) national standards and codes of practice
- principles of good laboratory practice (GLP)
- standard Australian test methods
- registration/licensing requirements
- ethical and legal responsibilities of enterprise personnel such as:
 - animal welfare
 - poisons
 - environmental protection
- National Association of Testing Authorities (NATA) accreditation
- staff performance measures, such as:

RANGE STATEMENT	
	• SOPs • three stage proficiency testing (external, interpersonal and replicate) • customer needs, specific testing requirements and standards • waste auditing and minimisation processes • strategic plans, productivity/profit targets and business plans • quality and continuous improvement processes and standards • cost-benefit analysis principles • workplace industrial agreements • hygiene/dress/behaviour regulations • grievance and dispute resolution procedures • access/equity/ethics principles, processes and procedures • batch cards, work schedules and rosters • maintenance and housekeeping schedules
Equipment and systems	Equipment and systems may include: • computer equipment • information management systems • financial accounting systems
Problem solving	Problem solving may include: • troubleshooting and fault finding • risk analysis, root cause analysis and aspect/impact analysis • non-routine operational/technical problems • non-routine administrative and personnel related problems
Communication	Communication may be with: • supervisors and managers • laboratory and production personnel • work teams • members of the public • customers • suppliers
Supervisory responsibilities	Supervisory responsibilities may include: • work practices within functional area:

RANGE STATEMENT

	• determining quality assurance sequences to minimise errors and inconsistencies • participating in external quality control programs • ensuring documentation of results and that data is processed and records maintained • personnel within functional area: • developing rosters to fulfil both work requirements and skill development opportunities • identifying roles and responsibilities for individuals and team members • providing effective communication pathways to ensure smooth and efficient operations • encouraging teams to solve problems relating to work flow and to suggest possible improvements to work organisation to maximise efficiency • operational plans: • determining work schedules that use resources efficiently and meet customer and enterprise needs • identifying possible variances of operational plans in order to prepare contingency plans • operational performance: • recognising problems and initiating corrective actions • continuously improving the skills of personnel in the workplace
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

RANGE STATEMENT

	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
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Unit Sector(s)

Unit sector	Communication/organisation
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		