



Australian Government

Department of Education, Employment and Workplace Relations

PMLORG600B Supervise laboratory operations in work/functional area

Release: 1

PMLORG600B Supervise laboratory operations in work/functional area

Modification History

Unit Descriptor

This unit of competency covers the senior technician/supervisors role in planning, allocation of tasks, coordination, quality assurance, recording and reporting of laboratory outputs. This requires significant judgement about work sequences, choice of appropriate technology and procedures to ensure that products and services meet customer expectations and are provided safely and efficiently in keeping with enterprise business plan. Under broad direction from scientists/medical staff/engineers, the senior technician/supervisor accepts responsibility for the day-to-day operation of his/her functional area.

This unit of competency has no prerequisites.

This unit of competency is applicable to laboratory personnel working in all industries. 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.

Application of the Unit

Licensing/Regulatory Information

Pre-Requisites

Employability Skills Information

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the level of performance required to demonstrate achievement of the element.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Program 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, 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 acting 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 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 Arrange for the recruitment and induction of personnel as appropriate
- 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

Evidence Guide

The Evidence Guide describes the underpinning knowledge and skills that must be demonstrated to prove competence.

Critical aspects of competency

Competency must be demonstrated in the ability to perform consistently at the required standard. Candidates must be able to supervise laboratory operations and personnel so that planned outcomes are achieved within agreed resource and budget parameters without compromising safety, quality and ethics. In particular, the assessor should look to see that the candidate:

- collects, analyses and reports information for enterprise operational plans, budgets and performance management
- organises and optimises the use of resources within agreed parameters to achieve planned outcomes
- revises plans to take account of the unexpected
- makes decisions within limits of responsibility and authority
- ensures that legislation, statutory and enterprise requirements are met in work operations
- monitors outputs, analyses processes and introduces ways to improve operations
- uses effective consultative processes
- promotes a learning environment for personnel in immediate work area
- motivates and counsels personnel to improve performance.

Underpinning knowledge

The candidate requires sufficient knowledge of the enterprise's business, strategic and operational plans and key performance indicators; laboratory services; and enterprise products, services and customers to be able to supervise laboratory operations within a work or functional area.

Competency includes the ability to apply and explain:

- 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 (for example, seasonal, annual)
- auditing procedures
- team leadership and development techniques
- mentoring and coaching techniques
- relevant health, safety and environment requirements.

An awareness of the laboratory's business goals and key performance indicators is also required as a basis for decision making and actions.

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 Acts, Environmental Protection Agency, National Pathology Accreditation Advisory Council (NPAAC) and National Health and Medical Research Council (NHMRC).

Food processing

Food Chemicals Codex, AOAC Methods of Analysis.

Assessment context and methods

This unit of competency should be assessed in a laboratory environment that either meets Australian Standards for working laboratories or is accredited by NATA or the Royal College of Pathology, as appropriate.

Because of the comprehensive nature of this unit and the need to integrate a wide range of knowledge and skills, the assessment timeframe must allow for adequate assessment over a planning cycle and address a range of non-routine problems.

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. Questioning techniques should suit the language and literacy levels of the candidate.

Interdependent assessment of unit

This unit of competency may be assessed with:

PMLOHS601A Implement and monitor OHS and environmental management systems

PMLTEAM600B Manage and develop teams

PMLORG601B Maintain registration and statutory or legal compliance in work/functional area.

Resource implications

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, quality manuals.

This competency in practice

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 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.

Key Competencies

The seven key competencies represent generic skills considered for effective work participation. The bracketed numbering against each of the key competencies indicates the performance level required in this unit. These are stand-alone levels and do not correspond to levels in the Australian Qualifications Framework (AQF).

Level (1) represents the competence to undertake tasks effectively

Level (2) represents the competence to manage tasks

Level (3) represents the competence to use concepts for evaluating and reshaping tasks.

Collecting, analysing and organising information	Communicating ideas and information	Planning and organising activities	Working with others and in teams	Using mathematical ideas and techniques	Solving problems	Using technology
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Level 3	Level 3	Level 3	Level 3	Level 2	Level 3	Level 2
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Range Statement

The range of variables relates to the unit of competency as a whole. It allows for different work environments and situations that will affect performance.

Where reference is made to industry Codes of Practice, and/or Australian/international standards, it is expected the latest version will be used.

This unit of competency applies to supervisors who prepare operational plans and monitor resource usage. Generally, they will have reference to:

staff performance measures, such as:

internal auditing against standard operating procedures (SOPs)

three stage proficiency testing (external, interpersonal, replicate)

customer needs, specific testing requirements, standards

waste auditing and minimisation processes

strategic plans, productivity/profit targets, 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

relevant legislation, standards, codes and practices (for example, ethical and legal

responsibilities of enterprise personnel relating to animal welfare, poisons, environmental protection)

access/equity/ethics principles, processes and procedures

technical standards, such as:

AS ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories

registration/licensing requirements

NATA accreditation

ISO 9001, 9002, 9003 series Quality management and quality assurance standards

AS 2243 Safety in laboratories

RTA test methods

Standard Australian test methods (for example, Food Standards Code, AS sampling and test methods)

batch cards, work schedules and rosters

maintenance and housekeeping schedules.

This unit of competency may include the use of equipment and systems, such as:

computer equipment

information management systems

financial accounting systems.

Problem solving could include:

troubleshooting, fault finding

risk analysis, root cause analysis, aspect/impact analysis

non-routine operational/technical problems

non-routine administrative and personnel related problems.

Communication could involve:

supervisors and managers

laboratory and production personnel and workteams

members of the public, customers and suppliers.

This unit of competency includes supervision of:

work practices within functional area, such as:

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, such as:

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, such as:

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, such as:

recognising problems and initiating corrective actions

continuously improving the skills of personnel in the workplace.

Health, safety and environment

All operations to which this unit applies are subject to stringent health, safety and environmental (HSE) requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

All operations assume the potentially hazardous nature of samples and require standard precautions to be applied. Users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council and State and Territory Departments of Health. All operations are performed in accordance with standard operating procedures.

Unit Sector(s)