Australian Government

Department of Education, Employment and Workplace Relations

# MSL922001A Record and present data

**Revision Number: 1**

INDUSTRY SKILLS COUNCILS

Creating Australia's Future

# MSL922001A Record and present data

## Modification History

Not applicable.

## Unit Descriptor

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| **Unit descriptor** | This unit of competency covers the ability to record and store data, perform simple calculations of scientific quantities and present information in tables and graphs. The unit of competency requires personnel to solve predictable problems using clear information or known solutions. Where alternatives exist, they are limited or apparent. |

## Application of the Unit

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| **Application of the unit** | This unit of competency is applicable to production operators, field assistants and laboratory assistants working in all industry sectors.<br><br>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

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| **Prerequisite units** | | |
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| **Prerequisite units** | | |
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## 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. Record and check data | 1.1. Enter data into laboratory information system or record sheets as directed<br>1.2. Check data to identify transcription errors or atypical entries<br>1.3. Rectify errors in data using enterprise procedures |
| 2. Calculate simple scientific quantities | 2.1. Calculate simple scientific quantities using given formulae and data<br>2.2. Ensure calculated quantities are consistent with estimations and expectations<br>2.3. Report all calculated quantities with appropriate precision and units |
| 3. Present data in tables, charts and graphs | 3.1. Present data accurately in tables and charts using given formats and scales<br>3.2. Recognise and report obvious features and trends in data |
| 4. Store and retrieve data | 4.1. File and store data in accordance with enterprise procedures<br>4.2. Maintain enterprise confidentiality standards |

# Required Skills and Knowledge

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required skills**

Required skills include:

- performingsimple calculations
- preparing and interpreting straightforward tables, graphs and charts
- applying calculations in the workplace
- coding, recording and checking data accurately
- presenting accurate results in the required format
- recognising obvious trends in data
- maintaining the confidentiality of data in accordance with workplace and regulatory requirements

**Required knowledge**

Required knowledge includes:

- concepts of metrology
- the international system of units (SI)
- relevant scientific and technical terminology
- procedures for coding, entering, storing, retrieving and communicating data
- procedures for verifying data and rectifying mistakes
- conversion of units involving multiples and submultiples
- significant figures, estimation, approximation, rounding off
- substitution of data in formulae
- calculations involving fractions, decimals, proportions and percentages
- procedures for maintaining and filing records, security of data

# Evidence Guide

| EVIDENCE GUIDE | |
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| 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:<br>• accurately code, check and record data in the required format<br>• calculate simple scientific quantities<br>• recognise obvious trends in data<br>• maintain the confidentiality of data. |
| **Context of and specific resources for assessment** | This unit of competency is to be assessed in the workplace or simulated workplace environment.<br>This unit may be assessed with technical units, such as:<br>• *MSL973001A Perform basic tests*<br>• *MSL973002A Prepare working solutions*<br>• *MSL973007A Perform microscopic examination*.<br>Resources may include:<br>• data sets and records<br>• computer and relevant software or laboratory information system<br>• relevant enterprise procedures. |
| **Method of assessment** | The following assessment methods are suggested:<br>• review of data worksheets, calculations, graphs and tables prepared by the candidate<br>• review of records transcribed, maintained or stored by the candidate<br>• feedback from supervisors and peers<br>• observation of the candidate as they record data and perform calculations<br>• questions to assess understanding of relevant procedures and trends in data.<br>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.<br>Where applicable, reasonable adjustment must be made |

| EVIDENCE GUIDE | |
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| | to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.<br><br>Access must be provided to appropriate learning and/or assessment support when required.<br><br>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.<br><br>**Construction materials**<br><br>A laboratory assistant is given 20 soil samples and asked to test their moisture content by weighing each sample, placing them in an oven for 24 hours and then reweighing them. The assistant performs the tests in accordance with the standard method and then calculates the % water content by dividing the weight loss by the wet weight and multiplying by 100. He/she checks the results. After entering them into the laboratory information management system (LIMS), they notice that they are consistently less than the previous results recorded for soils at the same site. The assistant reports the discrepancy to the supervisor who checks whether the oven was operated at the required temperature. The supervisor then discovers that the assistant has calculated the moisture content by dividing the weight loss by the wet weight instead of the dry weight. The assistant recalculates the moisture content for the 20 samples and notes that the results are now consistent with previous results.<br><br>**Manufacturing**<br><br>On Friday, a laboratory assistant performs the routine set of temperature, pressure and humidity measurements at 10 sites in a refinery. They enter the data on a pre-prepared data sheet that also contains the data recorded for the previous days of that week. The assistant checks the data for any significant variations to that recorded previously. They notice that for site #5, the temperature reading is 250(C which is 100(C below the expected value. The assistant repeats the measurement |

| EVIDENCE GUIDE | |
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| | and gets the same result. After returning to the laboratory, the assistant enters the data into the LIMS and reports the odd result to their supervisor. The supervisor contacts the site manager and finds out that the pipeline at site #5 has been isolated as part of unscheduled maintenance in that part of the site. |

# Range Statement

| RANGE STATEMENT | |
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| 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:<br>• Australian and international standards such as:<br>  • AS ISO 1000-1998 The international system of units (SI) and its application<br>• national measurement regulations and guidelines |
| **Concepts of metrology** | Concepts of metrology may include:<br>• that all measurements are estimates<br>• measurements belong to a population of measurements of the measured parameters<br>• repeatability<br>• precision<br>• accuracy<br>• significant figures<br>• sources of error<br>• uncertainty<br>• traceability |
| **Data** | Data may be recorded on:<br>• worksheets<br>• spreadsheets or databases linked to information management systems<br>Data may include results of:<br>• observations<br>• tests and measurements<br>• surveys<br>Data may be presented in the form of: |

| RANGE STATEMENT | |
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| | • graphs<br>• tables<br>• control charts<br>• semi-quantitative observations expressed on a scale (for example, 1 to 4 or + to ++++) |
| **Simple calculations** | Simple calculations may be performed with or without a calculator or computer software and may include scientific quantities such as:<br>• decimals, fractions, ratios, proportions and percentages<br>• perimeters, areas, volumes and angles<br>• concentration<br>• unit conversion, multiples and submultiples<br>• use of significant figures, rounding off, estimation and approximation<br>• substitution of data in formulae<br>• conversions between SI units<br>• areas ($m^2$) and volumes (mL, L, $m^3$) of regular shapes (e.g. packaging and moulds)<br>• average mass, mass %, density, specific gravity, moisture, relative and absolute humidity<br>• ratios, such as mass to mass, mass to volume and volume to volume percentages<br>• industry specific ratios, such as $g/cm^2$ , $kg/m^2$<br>• concentration (for example, g/100mL, mg/L, mg/(L, dilution mL/L)<br>• statistical values such as mean, median, mode and standard deviation<br>• average count, colonies per swab surface and cell counts (live and dead/total)<br>• process variables, such as pressure, velocity and flow rates<br>• % content of moisture, ash, fat, protein, alcohol, sulphur dioxide and trace metals, such as calcium or zinc<br>• food properties, such as % concentration (dry), friability, bitterness, brix, free amino nitrogen, diastatic power, calorific content and yeast viability |
| **Obvious features and trends in** | Obvious features and trends in data could include: |

| RANGE STATEMENT | |
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| **data** | • maximum and minimum values<br>• spread of data<br>• increasing/decreasing data, rate of change<br>• outliers, data beyond control limits or normal range |
| **Occupational health and safety (OHS) and environmental management requirements** | OHS and environmental management requirements:<br>• 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<br>• all operations assume the potentially hazardous nature of samples and require standard precautions to be applied<br>• 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)

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| **Unit sector** | Data |

# Competency field

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| **Competency field** | |

# Co-requisite units

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| **Co-requisite units** | | |
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| **Co-requisite units** | | |
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