Maldives National Skills Development Authority

National Competency Standard for Assistant Utility Laboratory Technician

Standard Code: CONS07V1/21

Qualification Name: National Certificate IV in Utility Laboratory Technician Services
Qualification Code: CONS07Q2L4V1/21

PREFACE

Technical and Vocational Education and Training (TVET) Authority was established with the vision to develop a TVET system in the Maldives that is demand driven, accessible, beneficiary financed and quality assured, to meet the needs of society for stability and economic growth, the needs of Enterprise for a skilled and reliable workforce, the need of young people for decent jobs and the needs of workers for continuous mastery of new technology.

TVET system in the Maldives flourished with the Employment Skills Training Project (ESTP) funded by ADB with the objective of increasing the number of Maldivians, actively participating in the labor force, employed and self-employed. The Project supported expansion of demand driven employment-oriented skills training in priority occupations and to improve the capacity to develop and deliver Competency Based Skill Training (CBST). The project supported delivery of CBST programs to satisfy employer demand-driven needs. Currently CBST is offered for six key sectors in the Maldives: Tourism, Fisheries and Agriculture, Transport, Construction, Social and the Information and Technology sectors. These sectors are included as priority sectors that play a vital role in the continued economic growth of the country.

The National Competency Standards (NCS) provides the base for initiating the training in those topics. The NCS are endorsed by the Employment Sector Councils of the respective sectors and validated by the Maldives Qualification Authority. These NCS were developed in consultation with Employment Sector Councils representing employers. They were designed using a consensus format endorsed by the Maldives Qualifications Authority (MQA) to maintain uniformity of approach and the consistency of content amongst occupations. This single format also simplifies benchmarking the NCS against relevant regional and international standards. NCS specify the standards of performance of a competent worker and the various contexts in which the work may take place. NCS also describes the knowledge, skills and attitudes required in a particular occupation. They provide explicit advice to assessors and employers regarding the knowledge, skills and attitudes to be demonstrated by the candidates seeking formal recognition for the competency acquired following training or through work experience. By sharing this information, all participants in the training process have the same understanding of the training required and the standard to be reached for certification. Certification also becomes portable and can be recognized by other employers and in other countries with similar standards.

In an effort to accelerate the provision of water supply and sewerage services, the Government of Maldives has placed great emphasis towards increasing financial resources from the national budget and much needed institutional reforms in the water and sanitation sector. With the additional resource received from international development and donor agencies significant improvement have been made in the sector. The Government received a grant from Green Climate Fund (GCF) for the project which is being jointly implemented by the Government of Maldives and United Nations Development Programme (UNDP) to Support vulnerable communities in Maldives to manage climate change-induced water shortages.

An important aim of the project is to strengthen the management and institutional capacity of the Water and Sanitation Sector which ensures the sustainability of the water services implanted and contributes to the national policy goals and strategies related to sector capacity development. This is being achieved by encouraging and supporting local educational institutions to develop courses, conduct technical training and educational programs.

TVET Authority and the Ministry of Environment have signed a Memorandum of Understanding (MoU) to setup the National Competency standards for plumbing, water and sewerage system operations and utility laboratory services. The development of these Standards has been assigned to the Maldives Institution of Technology (MIT) with TVET authority reviewing and approving the material.

NCS are the foundation for the implementation of the TVET system in Maldives. They ensure that all skills, regardless of where or how they were developed can be assessed and recognized. They also form the foundation for certifying skills in the Maldives National Qualification Framework (MNQF).

It is with great pleasure we present these National Competency Standards (NCS) for plumbing, water and sewerage system operation and utility laboratory services, developed by the Ministry of Environment in coordination with the Ministry of Higher Education under the support of Green Climate Fund project "Supporting vulnerable communities in Maldives to manage climate change-induced water shortages".

Mohamed Hashim

Minister of State for Higher Education

TVET Authority

Ahmed Nisham

Quality Assurance Consultant

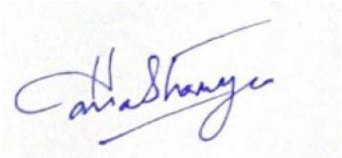
TVET Authority

TECHNICAL PANEL MEMBERS			
#	Name	Designation	Organization
01	Mohamed Siraj	Director	Ministry of Planning
02	Mohamed Fazeeh	Assistant Director	Ministry of Environment
03	Mohamed Ibrahim Jaleel	Assistant Director	Ministry of Environment
04	Adam Mubeen	Assistant Director	Utility Regulatory Authority
05	Mohamed Eyman		Male' Water and Sewerage Company
06	Hussain Shiyam	Civil Engineer	Association of Civil Engineers
07	Abdulla Hussain Rasheed	Executive Member	Association of Civil Engineers
08	Mohamed Saif Saeed		Association of Civil Engineers
09	Dr Shazla Mohamed	Dean (FEST)	Maldives National University
10	Suma Khalid	Lecturer	FENAKA
11	Abdulla Sameen	Engineer	STELCO

VERSION	DEVELOPER	DATE	STANDARD CODE
V1	Maldives Institute of Technology	15th February 2021	CONS07V1/21

EMPLOYMENT SECTOR COUNCILS			
#	**Name**	**Designation**	**Organization**
01	Hassan Shameem	Managing Director	INOCA Pvt Ltd
02	Mohamed Naseer	President	Contractors Association
03	Ismail Ameen	Professional Member	Architect Association of Maldives
04	Mohamed Musthafa	Director General	Ministry of Environment and Energy
05	Mohamed Rasheed	Assistant Director, Project Management and Development	Housing Development Corporation
06	Adnan Haleem	Secretary General	Maldives National Association of Construction Industry
07	Ahmed Musthaq	General Manager Engineering and Maintenance	Maldives Airports Company Limited
08	Ahmed Migdhad	Director	Ministry of Economic Development
09	Hussain Shiyam	Civil Engineer	Association of Civil Engineers
10	Mariyam Abdul Rahman	Director	Ministry of Youth, Sports and Community Empowerment
11	Ibrahim Shareef Hassan	Manager of Academic and Student Structure Board	Maldives Institute of Technology (MIT)
12	Mohamed Haikal Ibrahim	Head of Department Engineering	Maldives National University
13	Mohamed Shahud	Assistant Engineer	Ministry of National Planning
14	Muaz Ibrahim	Assistant Manager Projects	MWSC
15	Mohamed Waheed	Assistant Lecturer Grade 2	Maldives Polytechnic

National Occupational Standard has been endorsed by:

 Hassan Shameem Chairperson Construction Employment Sector Council	 Mohamed Naseer Vice-Chairperson Construction Employment Sector Council
Technical and Vocational Education and Training Authority Ministry of Higher Education Handhuvaree Hingun, M. World Dream Male', Maldives	
Date of Endorsement: 15th February 2021	Date of Revision: NA

Standard Development Process

To begin with, Utility Laboratory Technician occupations were profiled through study of the occupation across Maldivian workplaces. During the study, relevant occupations within the utility enterprises were reviewed including their job description. These processes led to the development of the Draft National Competency Standard for Utility Laboratory Technician

Referred draft for national standard will be submitted through the TVETA to a team of Technical Panel (TP) selected from the Maldivian workplaces to review the Utility Laboratory Technician. Members of the TP will provide technical support by recommending changes to the Utility Laboratory Technician Standard through incorporation of units of competencies and editing of the already included competency units. Purpose of this process is to develop a standard that reflects authentic work practices of Utility Laboratory Technician across the utility enterprises of the Maldives. Technical Panel meetings will continue in reviewing the Utility Laboratory Technician Standard until the Final Draft is drawn which is agreed and accepted by all the participating members.

Final Draft of Utility Laboratory Technician Standard approved by the TP will then be submitted to the Construction Employment Sector Council for endorsement and validation. A brief report on how the National Competency Standard for Utility Laboratory Technician reflecting the process of compilation will be presented to the Construction Employment Sector Council together with the standard. Council members will further review and If Construction ESC recommends any change, Consultant is required to bring those changes and once agreeable, Utility Laboratory Technician Standard will be endorsed by the Council.

With the endorsement from the Construction Employment Sector Council, final document of the National Competency Standard for Utility Laboratory Technician will be submitted to the Maldives Qualification Authority (MQA) for final approval. With approval from MQA, the National Competency Standard for Utility Laboratory Technician will be published on TVETA website, to be used by training providers in delivering Utility Laboratory Technician programs across the Maldives.

Description of “Utility Laboratory Technician”

Utility Laboratory Technicians play an important role within the Public Utility Sector of the Maldives as they undertake testing of treated water by the different utility providers. Referred occupations is vital to ensure water produced by the various public and private utility enterprises remained to be of highest quality and pass the standards set by the Environment Protection Agency (EPA) of the Maldives.

National Certificate IV in Utility Laboratory Technician Services is mapped and organized in such a way to ensure those competent in the referred qualification will have comprehensive knowledge and skills to contribute positively to water testing and laboratory technician sectors of the local industries.

Prospective Job opportunities

Upon successful completion of the National Certificate IV in for Laboratory Technician Services students can work in the following jobs.

- Utility Laboratory Technician

KEY FOR CODING

Coding Competency Standards and Related Materials

DESCRIPTION	REPRESENTED BY
Industry Sector as per ESC (Three letters)	Construction Sector (CON) Fisheries and Agriculture (FNA) Information, Communication and Technology (ICT) Transport Sector (TRN) Tourism Sector (TOU) Social Sector (SOC) Foundation (FOU)
Competency Standard	S
Occupation with in an industry sector	Two digits 01-99
Unit	U
Common Competency	CR
Core Competency	CM
Optional / Elective Competency	OP
Assessment Resources Materials	A
Learning Resources Materials	L
Curricular	C
Qualification	Q1, Q2 etc.
MNQF level of qualification	L1, L2, L3, L4 etc.
Version Number	V1, V2 etc.
Year of Last Review of standard, qualification	By "/" followed by two digits responding to the year of last review, example /21 for the year 2021

1. Endorsement Application for Qualification 01	
2. NATIONAL CERTIFICATE IV IN UTILITY LABORATORY TECHNICIAN SERVICES	
3. Qualification code: CONS07Q2L4V1/21	**Total Number of Credits: 127**

4. Purpose of the qualification

The Certificate IV in Utility Laboratory Technician Services provides comprehensive training for Laboratory technicians perform straightforward laboratory work. They follow set procedures and recipes, and apply well developed technical skills and basic scientific knowledge.

Laboratory Technician generally work inside a laboratory but may also perform technical tasks in the field or within production plants. They may also perform a range of laboratory maintenance and office tasks.

5. Regulations for the qualification	National Certificate IV Utility Laboratory Technician Services will be awarded to those who are competent in units 1+2+3+4+5+6+7+8+9+10+11+12+13+14

6. Schedule of Units

Unit No	Unit Title	Code
Common Competencies		
01	Write technical reports	CONCM08V1/21
02	Apply and maintain Occupational Health and Safety	CONCM09V1/21
03	Carry out data entry and retrieval procedures	CONCM10V1/21
04	Apply mathematics for water operations	CONCM11V1/21
Core Competencies		
05	Apply principles of chemistry to water systems and processes	CONS07CR01V1/21
06	Comply with water industry standards, guidelines and legislations	CONS07CR02V1/21
07	Perform microbiological water contaminant analysis	CONS07CR03V1/21
08	Perform calibration checks on equipment and assist with its maintenance	CONS07CR04V1/21
09	Apply quality system in laboratory	CONS07CR05V1/21
10	Undertake waste disposal in laboratory setting	CONS07CR06V1/21
11	Contribute to continuous improvement of quality systems	CONS07CR07V1/21
12	Process and interpret data	CONS07CR08V1/21
13	Perform Laboratory testing	CONS07CR09V1/21
14	Control Stock	CONS07CR10V1/21

7.Accreditation requirements	The training provider should place trainees in relevant industry or sector to provide the trainees the hands-on experience exposure related to this qualification.
8. Recommended sequencing of units	As appearing under the section 06

Units Details

#	Unit Title	Code	Level	No of credits
01	Write technical reports	CONCM08V1/21	IV	07
02	Apply and maintain Occupational Health and Safety	CONCM09V1/21	IV	10
03	Carry out data entry and retrieval procedures	CONCM10V1/21	IV	10
04	Apply mathematics for water operations	CONCM11V1/21	IV	07
05	Apply principles of chemistry to water systems and processes	CONS07CR01V1/21	IV	07
06	Comply with water industry standards, guidelines and legislations	CONS07CR02V1/21	IV	07
07	Perform microbiological water contaminant analysis	CONS07CR03V1/21	IV	10
08	Perform calibration checks on equipment and assist with its maintenance	CONS07CR04V1/21	IV	10
09	Apply quality system in laboratory	CONS07CR05V1/21	IV	10
10	Undertake waste disposal in laboratory setting	CONS07CR06V1/21	IV	07
11	Contribute to continuous improvement of quality systems	CONS07CR07V1/21	IV	07
12	Process and interpret data	CONS07CR08V1/21	IV	08
13	Perform Laboratory testing	CONS07CR09V1/21	IV	20
14	Control Stock	CONS07CR10V1/21	IV	07

Packaging of National Qualifications:

National Certificate IV Utility Laboratory Technician Services will be awarded to those who are competent in units 1+2+3+4+5+6+7+8+9+10+11+12+13+14

Qualification Code: CONS07Q2L4V1/21

UNIT TITLE	Write technical reports				
DESCRIPTOR	This unit covers the competence to identify and analyse requirements, to plan and conduct research, to evaluate information and findings, and to develop, document and present technical reports.				
CODE	CONCM08V1/21	LEVEL	IV	CREDIT	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Plan the research and write the proposal	1.1 Purpose or objective of the research is identified, and confirmed with stakeholders 1.2 Scope and nature of the information requirements are identified. 1.3 All possible sources of the required information are researched and identified. 1.4 A systematic research or information collection plan is designed to optimize the process. 1.5 Resources are obtained and scheduled to service the research requirements.
2. Conduct research	2.1 Research is undertaken effectively in accordance with the plan 2.2 Experiments and tests to support the research effort are conducted in a manner which ensures the demonstrable integrity of the outcomes or findings. 2.3 Research findings are logged, documented and stored to maintain traceability. 2.4 Preliminary analysis is conducted to identify requirements for variations or additions to the research plan.
3. Analyse the information	3.1 Information is sorted, documented and prepared for the analytical process. 3.2 Information and data is manipulated to

	enable reasonable comparisons and judgements. 3.3 Clarification by way of expert advice and opinion is sought.
4. Prepare and present the report	4.1 Report clearly defines the objectives, process, findings and further actions. 4.2 Report addresses and satisfies the stated objective and timeframe 4.3 Report and associated presentation materials are of a standard and quality for the intended audience 4.4 Reader comprehension of the report is aided by use of executive summaries and attachments. 4.5 Information management requirements, including documenting and repository actions are satisfied in accordance with enterprise procedures.

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.

Tools, equipment and material used in this unit may include:

For the purpose of delivering the assignment, students need to be familiarized with the following.

- ✓ Workplace environment
- ✓ Personal protective equipment

ASSESSMENT GUIDE

Forms of assessment

Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.

Assessment context

- ✓ Assessment may occur on the job or in a workplace simulated activity.
- ✓ Access to a significant technical research and reporting requirement, information sources and a working environment.

Critical aspects (for assessment)

- ✓ Locate, interpret and apply information.
- ✓ Apply safety requirements throughout the work sequence, including the use of personal protective clothing and equipment.
- ✓ Complete a significant technical report covering:
    - detailed research of the topic area
    - a full analysis of the research outcomes
    - conclusions and recommendations clearly supported by the facts
    - satisfaction of legal, regulatory or intellectual property law requirements.
- ✓ Modify activities to cater for variations in research findings.
- ✓ Work effectively with others.

Assessment conditions

Assessment must reflect both events and processes over a period of time.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learned: ✓ technical writing and presentation techniques. ✓ enterprise (or equivalent) technical procedure formats, content rules, preparation and management techniques. ✓ Technical report structures ✓ Presentation techniques	Skills to be developed: ✓ research, collect, organise and understand technical information related to the subject area, developmental activities, testing processes, diagnostic methods and options and safety procedures. ✓ communicate ideas and information to ensure the completeness, clarity and comprehension of the technical report by the target audience.

UNIT TITLE	Apply and maintain Occupational Health and Safety				
DESCRIPTOR	This unit of competency describes the skills and knowledge to monitor and maintain work health and safety (WHS) within a work area where the person has supervisory responsibility for others.				
CODE	CONCM09V1/21	**LEVEL**	IV	**CREDIT**	10

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Perform all work safely	1.1. Use established work practices and personal protective equipment (PPE) to ensure personal safety and that of other workplace 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 PPE appropriate to the work requirements are available and functional 2.2. Provide and communicate current information about workplace health and safety 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 workplace 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 workplace 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 workplace 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 other required documentation are accurately completed and maintained.
5. Support the implementation of emergency procedures within the work group	5.1 Ensure that workplace procedures for dealing with incidents and emergencies are available and known by work group 5.2 Implement processes to ensure that others in the work area are able to respond appropriately to incidents and emergencies 5.3 Participate, as required, in investigations of hazardous incidents to identify their cause

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. Range of activities may include the following.

- ✓ Common Hazards
- ✓ Risk control measures
- ✓ Risk Assessment

Tools, equipment and materials required may include:

Part of the tools and equipment may include the following.

- ✓ new information
- ✓ urgent requests

- ✓ modified activities
- ✓ changed situations
- ✓ late instructions
- ✓ substitution of materials or equipment

ASSESSMENT GUIDE

Forms of assessment

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 Competency standard

Critical aspects (for assessment)

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- ✓ effectively monitored and maintained work health and safety (WHS) within 1 work area, including:
- ✓ ensuring others in the workgroup work safely and follow procedures for hazard identification and risk control and implement safe work practices.

Assessment conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- ✓ use of suitable facilities, equipment and resources, including:
- ✓ typical laboratory/field work equipment and materials
- ✓ PPE and other safety equipment
- ✓ workplace WHS documentation, management system, policies and procedures.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learned: ✓ strategies for controlling risks through the hierarchy of control, including: • appropriate use of personal protective clothing • eliminating hazards • isolating hazards • using administrative controls • using engineering controls ✓ first aid procedures ✓ identification of hazards in the workplace, including: • fire, chemical and electrical hazards • managing broken or faulty equipment • slip, trips and falls • spills and leakage of materials • storage of dangerous goods and hazardous substances • waste ✓ management of WHS, including: • communication and consultation processes • interpreting symbols for WHS signage • manual handling procedures • reporting procedures	Skills to be developed: ✓ Communication and interpersonal skills to: • report unsafe work practices, faulty plant and equipment and incidents and accidents through clear and direct communication • share information • use and interpret non-verbal communication ✓ literacy and numeracy skills to: • estimate weights, size, quantities and mixtures • interpret symbols used for WHS signage • read and interpret instructions ✓ technical skills to: • dispose of waste appropriately • handle broken or damaged equipment • identify hazardous goods and substances • locate and identify emergency exits and use safety alarms and fire extinguishers • store and use chemicals and hazardous substances • use personal protective gear and equipment

UNIT TITLE	Carry out data entry and retrieval procedures				
DESCRIPTOR	This unit deals with the skills and knowledge required to operate computer to enter, manipulate, and retrieve and to access data and communicate via the Internet.				
CODE	CONCM10V1/21	**LEVEL**	IV	**CREDIT**	10

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Initiate computer system	1.1. The hardware components of the computer and their functions are correctly identified. 1.2. Equipment is powered up correctly. 1.3. Access codes are correctly applied. 1.4. Appropriate software is selected or loaded from the menu.
2. Enter data	2.1 Types of data for entry correctly identified and collected. 2.2 Input devices selected and used are appropriate for the intended operations. 2.3 Manipulative procedures of Input device conform to established practices. 2.4 Computer files are correctly located or new files are created, named and saved. 2.5 Data is accurately entered in the appropriate files using specified procedure and format. 2.6 Back-up made in accordance with operative procedures.
3. Retrieve data	3.1 The identity and source of information is established. 3.2 Authority to access data is obtained where required. 3.3 Files and data are correctly located and accessed. 3.4 Integrity and confidentiality of data are

	maintained. 3.5 The relevant reports or information retrieved using approved procedure. 3.6 Formats of retrieved report or information conform to that required. 3.7 Copy of the data is printed where required.
4. Amend data	4.1 Source of data/information for amendment is established. 4.2 Data to be amended is correctly located within the file. 4.3 The correct data/information is entered, changed or deleted using appropriate input device and approved procedures. 4.4 The Integrity of data is maintained.
5. Monitor the operation of equipment	5.1. The system is monitored for correct operation of tasks. 5.2. Routine system messages are promptly and correctly dealt with. 5.3. Error conditions within level of authority are dealt with promptly and uncorrected errors are promptly reported. 5.4. Output devices and materials are monitored for quality.
6. Access and transmit information via the Internet	6.1. Access to the Internet is gained in accordance with the provider's operating procedures. 6.2. Evidence of the ability to negotiate web sites to locate and access specified information and other services is efficiently demonstrated. 6.3. E-mail is sent and retrieved competently.
7. Close down computer system	7.1. The correct shut down sequence is followed. 7.2. Problem with shutting down computer is reported promptly. 7.3. All safety and protective procedures are observed.

RANGE STATEMENT

Software included: (at least 2)

- ✓ word processing
- ✓ spreadsheet
- ✓ Internet access
- ✓ power point
- ✓ database
- ✓ design Programme (CAD)

Input devices included: (at least 3)

- ✓ keyboard
- ✓ mouse
- ✓ scanner
- ✓ microphone
- ✓ camera
- ✓ light pen
- ✓ barcode scanner

Output devices (at least 1)

- ✓ printer
- ✓ monitors
- ✓ speakers
- ✓ multi-media projectors

Tools, equipment and materials required may include:

- ✓ Relevant procedure manuals
- ✓ Availability of telephone, printer, computer, internet, etc.
- ✓ Availability of data on projects and services; tariff and rates, promotional activities in place etc.

ASSESSMENT GUIDE

Form of assessment

- ✓ Assessment for the unit needs to be holistic and must include real or simulated workplace activities.

Assessment context

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of practices.

Critical aspects (for assessment)

You must provide evidence that shows you have done this over a sufficient period of time. It is essential that competence be observed in the following aspects:

- ✓ initiate the use of the equipment
- ✓ locate and access data
- ✓ use file operations
- ✓ manipulate input devices
- ✓ key-in and format documents
- ✓ access to the Internet

Assessment conditions

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts. Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be developed ✓ Safety for working with and around computers. ✓ Computer hardware and software systems. ✓ The operation of the data entry management system. ✓ Files operations and their applications. ✓ Creating, locating and saving files. ✓ Routine functions of a software. ✓ Formatting function of software. ✓ Graphic productions and manipulation. ✓ Regard for accuracy and security of information.	Skills to be developed: ✓ Ability to implement workstation adjustment according to OH&S guidelines ✓ Basic analysis in relation to a limited range of routine tasks ✓ Low-level decision making in relation to a limited range of routine tasks ✓ Problem solving skills in known areas during normal routine activities ✓ Reading and writing at a level where basic workplace documents are understood

✓ Functions on the Internet. ✓ Identify computer hardware. ✓ Manipulate data input devices. ✓ Access and retrieve data. ✓ Amend, save and print data. ✓ Search and retrieve data from the Internet. ✓ Send and receive E-mail.	✓ Clear and precise communication ✓ Ability to interpret user manuals ✓ Using a PC and peripherals ✓ Cultural understanding

UNIT TITLE	Apply mathematics for water operations				
DESCRIPTOR	The aim of this module is to enable the candidate to: Use calculation to solve simple problems, construct plane figures, and develop patterns.				
CODE	CONCM11V1/21	**LEVEL**	IV	**CREDIT**	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Perform simple mathematic calculations	1.1. Perform simple calculations on: fractions and decimals, calculations to a number of significant figures, decimal places 1.2. Identify and use the multiples and sub-multiples of units 1.3. Perform calculations on: perimeter and area of plane figures (i.e., square and rectangle, triangle, circle), volume and surface area (i.e., cube, rectangular prism, cylinder), mass of containers and their contents (i.e., cube, rectangular prism, cylinder) 1.4. Perform mathematical calculations involving formulas, angles, triangles and geometric construction 1.5. Identify and use formulas for SI quantities: length, area, volume, mass, density
2. Apply knowledge of mathematics in water operations	2.1 Identify and use units of Measurement 2.2 Perform calculations on: Conversion Factors, Weight, Concentration, and Flow 2.3 Perform mathematical calculations involving Typical Water/Wastewater Conversion Examples 2.4 Perform Temperature Conversions and Population Equivalent (PE) or Unit Loading Factor 2.5 Perform calculations on: Specific Gravity and Density, Flow and Detention Time 2.6 Perform chemical Addition Conversions
3. Undertake water/wastewater calculations	3.1. Perform Faucet Flow Estimation

	3.2. Calculate Service Line Flushing Time 3.3. Perform Composite Sampling Calculation (Proportioning Factor) and Biochemical Oxygen Demand (BOD) Calculations 3.4. Perform mathematical calculations on Moles and Molarity, Normality, Settleability (Activated Biosolids Solids), Settleable Solids, Biosolids Total Solids, Fixed Solids, and Volatile Solids 3.5. Calculate Biosolids Volume Index (BVI) and Biosolids Density Index (BDI)

RANGE STATEMENT

As per the range of mathematics and drawing, students need to undertake the following.

- ✓ Use calculations to solve simple workshop problems.
- ✓ Make sketches of simple first and third angle orthographic projections from actual objects and pictorial views.
- ✓ Make sketches of simple sectional views.
- ✓ Develop patterns of three-dimensional figures and their frustums between parallel planes.
- ✓ Construct plane figures from given data

Tools, equipment and materials required may include:

Tools, equipment and materials used for this unit may include but not limited to the following.

- ✓ Calculator
- ✓ Drawing tools
- ✓ Drawing table
- ✓ Note pads
- ✓ Pens/pencils

ASSESSMENT GUIDE

Forms of assessment

Assessment for the unit needs to be continuous and holistic and must include real or simulated workplace activities.

Critical aspects (for assessment)

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of mathematics and drawing. This unit may be assessed in conjunction with all and units which form part of the normal job role.

Assessment conditions

It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying circumstances.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
✓ Knowledge related to undertaking calculation such as fractions and decimals, perimeter and area of plane figures (i.e., square and rectangle, triangle, circle), volume and surface area (i.e., cube, rectangular prism, cylinder), mass of containers and their contents (i.e., cube, rectangular prism, cylinder) ✓ Use calculations to solve simple laboratory problems ✓ Use mathematics in laboratory related mathematical problems in linear measurements ✓ Apply formulas to solve problems in laboratory	✓ Solve simple mathematical calculation such as fractions and decimals, perimeter and area of plane figures (i.e., square and rectangle, triangle, circle), volume and surface area (i.e., cube, rectangular prism, cylinder), mass of containers and their contents (i.e., cube, rectangular prism, cylinder) ✓ Perform mathematical calculations involving formulas, angles, triangles and geometric construction ✓ Identify and use formulas for SI quantities: length, area, volume, mass, density ✓ Perform simple laboratory calculations ✓ Solve laboratory related mathematical problems related to linear measurement

UNIT TITLE	Apply principles of chemistry to water systems and processes				
DESCRIPTOR	This unit describes the skills required to identify and apply to water systems and processes the principles of chemistry, and to select the relevant and effective chemicals required for specific processes. This unit applies to a range of operational roles within the water industry and is fundamental to all quality monitoring and treatment processes.				
CODE	CONS07CR01V1/21	**LEVEL**	IV	**CREDIT**	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Apply chemistry to water processes	1.1. Apply relevant chemistry principles to improve performance of specific water processes. 1.2. Identify and describe chemical reactions specific to water processes.
2. Identify the use of chemicals in water industry processes	2.1. Assess the functions of the range of industry chemicals in relation to their use in water processes. 2.2. Identify and describe factors influencing the effectiveness of chemical use. 2.3. Store, handle and prepare chemicals.
3. Select chemicals for specific water industry processes	3.1. Identify the range of chemicals available for specific water industry processes. 3.2. Evaluate the factors affecting the selection of chemicals for particular water industry applications. 3.3. Select suitable chemicals and calculate correct usage for a range of specific water industry processes.

RANGE STATEMENT

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Site hazards include the following:

- ✓ solar radiation, dust and noise
- ✓ manual handling of heavy materials and equipment

- ✓ working in/on trenches, confined spaces, wet and uneven surfaces, heights and slopes
- ✓ vehicular and pedestrian traffic
- ✓ underground services such as gas and electricity

Tools and equipment include the following:

- ✓ hand tools, including shovels, crowbars, scoops, spanners, wrenches and tape measure
- ✓ consumables, including sample bags, labels, sample tubes and wax
- ✓ documentation, including maps, plans and worksheets
- ✓ field test equipment, including dynamic cone penetration (DCP) testing, standard penetration testing (SPT), shear vane, pocket penetrometers and water level indicator
- ✓ safety clothing and equipment, including helmets, boots, gloves, earmuffs and glasses
- ✓ excavation equipment, including hand and power augers, powered excavators, generators and jack hammers

ASSESSMENT GUIDE

Forms of assessment

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 Competency standard

Critical aspects (for assessment)

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- ✓ prepare for site operations and perform geotechnical sampling, testing and site reinstatement under direction
- ✓ work safely at geotechnical investigation sites
- ✓ follow instructions and work as part of a small team.

Assessment conditions

The following assessment methods are suggested:

- ✓ review of work outputs over a period of time to ensure accurate and consistent work is obtained within required timelines
- ✓ examples of completed workplace documentation
- ✓ feedback from peers and supervisors
- ✓ oral or written questioning.

- ✓ 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.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learned: ✓ standards and workplace policies and procedures determining the use and management of chemical processes ✓ chemical concepts relevant to water industry processes ✓ chemical reactions ✓ range and characteristics of chemicals used in various water industry processes ✓ functions of various chemicals in water industry processes ✓ factors influencing the effectiveness of chemicals ✓ factors affecting the selection of chemicals	Skills to be developed: ✓ interpreting a range of complex and technical documents including relevant regulatory, legislative, licensing and organisational requirements ✓ codes and standards ✓ specifications ✓ organisational policies ✓ analysing and evaluating reports and reference materials ✓ performing various calculations to provide data for the analysis and development of options and solutions ✓ identifying risks and hazards

UNIT TITLE	Comply with water industry standards, guidelines and legislations				
DESCRIPTOR	This unit describes the skills required to ensure compliance with the risk management principles established in the Environment Protection Agency (EPA) guidelines which contribute to the improved management of water supply systems and the reduction of water quality risks for water supplies.				
CODE	CONS07CR02V1/21	**LEVEL**	IV	**CREDIT**	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Interpret key legislation and guidelines of the water industry	1.1 Access and interpret the relevant guidelines and legislative requirements. 1.2 Analyse the key features or elements. 1.3 Establish the relationships between the guidelines and the state and territory requirements.
2. Mix trial batch for evaluation	2.1 Interpret organisation standards and processes for reporting compliance with legislative requirements. 2.2 Integrate legislative requirements into organisation water quality management plan. 2.3 Provide advice on the links between the regulatory framework and work practices. 2.4 Convey importance of multiple barrier principles and their general function to team members. 2.5 Manage risks utilising the organisation's risk management principles. 2.6 Collate relevant collected data to support compliance and review for completeness and accuracy. 2.7 Refine and disseminate compliance reporting procedures.
3. Communicate compliance with legislation to team members	3.1 Establish steps to monitor compliance and reporting function. 3.2 Address identified areas of non-compliance and take corrective action. 3.3 Provide feedback on compliance issues to team members. 3.4 Make recommendation for preventative measures. 3.5 Drive continuous improvement of work practices to achieve water quality outcomes.

RANGE STATEMENT

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Tools and equipment include the following:

All the relevant Tools and equipment need to be supplied to the students prior to the assessment.

ASSESSMENT GUIDE

Forms of assessment

Continuous/holistic assessment is suitable to assess the competencies of a welder with regard to this unit.

Critical aspects (for assessment)

The assessment must confirm that the candidate is able to read an interpret the existing water regulations and standards including process and procedures for compliance.

Assessment conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learnt: ✓ relevant guidelines guiding principles ✓ framework for the management of drinking water quality (including the twelve elements) ✓ established organisational risk management procedures ✓ water quality risk assessment and control procedures ✓ water cycle ✓ ecologically sustainable development ✓ water quality risk factors and performance indicators ✓ relevant legislation, codes, standards ✓ chronic and acute health impacts from human exposure	Skills to be developed: ✓ interpreting, analyzing and applying relevant legislative requirements, complex industry codes and standards ✓ collating and analysing information ✓ providing advice and feedback ✓ communicating principles of relevant guidelines and putting into context ✓ initiating problem solving ✓ managing risks on a specific project or site ✓ managing risk control measures ✓ integrating requirements of risk management plans ✓ analysing records of water quality incidents

UNIT TITLE	Perform microbiological water contaminant analysis				
DESCRIPTOR	This unit of competency describes the outcomes required to identify microorganisms and assess the appropriate potable water or water reuse treatment processes for inactivation or removal.				
CODE	CONS07CR03V1/21	**LEVEL**	IV	**CREDIT**	10

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Investigate waterborne microorganisms	1.1 Identify the samples of waterborne microorganisms found in water sources. 1.2 Identify the general characteristics of different types of microorganisms. 1.3 Identify water quality or treatment problems caused by microorganisms. 1.4 Identify microorganisms causing problems specific to water treatment processes. 1.5 Identify the characteristics of, and diseases caused by, pathogenic microorganisms.
2. Identify micro processes to remove organisms	2.1 Assess the effectiveness of a range of filtration processes for physically removing pathogenic microorganisms according to organisational and legislative requirements. 2.2 Assess the effectiveness of a range of disinfection processes for inactivating pathogenic microorganisms according to organisational and legislative requirements. 2.3 Identify and assess the implications of by-product formation resulting from disinfection processes. 2.4 Assess the effectiveness of various pre- or post-treatment processes for removing microorganisms, or their metabolites, causing nuisance and toxicity problem.
3. Determine appropriate water treatment processes	3.1 Identify optimum treatment processes for the range of microorganisms found in water sources. 3.2 Report on effective treatment processes and

	associated sampling and testing requirements required to maintain water quality.

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.

Waterborne microorganisms may include:

- ✓ Viruses
- ✓ Bacteria
- ✓ Protozoa
- ✓ Algae
- ✓ Cyanobacteria
- ✓ Helminths

General characteristics of microorganisms may include:

- ✓ evolutionary development
- ✓ source
- ✓ structure
- ✓ life cycle
- ✓ growth rates and requirements

Water quality or treatment problems may include:

- ✓ nuisance problems
- ✓ taste and odor
- ✓ filter clogging
- ✓ colour
- ✓ corrosion
- ✓ toxicity problems
- ✓ pathogenic problems

Microorganisms causing problems may include:

- ✓ diatoms
- ✓ Sulphur bacteria
- ✓ cyanobacteria including:
- ✓ Microcystis aeruginosa
- ✓ Anabaena cardinals
- ✓ Pathogenic microorganisms including:
- ✓ viruses:

- ✓ Enterovirus,
- ✓ Hepatitis A,
- ✓ Hepatitis E,
- ✓ Rotavirus
- ✓ bacteria:
- ✓ Campylobacter
- ✓ Salmonella
- ✓ Escherichia coli
- ✓ protozoa species:
- ✓ Giardia
- ✓ Cryptosporidium
- ✓ Naegleria
- ✓ Helminths such as Ascaris lumbricoides

Characteristics of pathogenic microorganisms may include:

- ✓ pathogenicity
- ✓ virulence
- ✓ resistance to disinfectants (Ct, log reduction)
- ✓ opportunistic infection capability

Diseases caused by pathogenic microorganisms may include:

- ✓ typhoid
- ✓ cholera
- ✓ ascariasis
- ✓ hepatitis
- ✓ giardiasis
- ✓ cryptosporidiosis
- ✓ gastroenteritis
- ✓ tuberculosis

Filtration processes may include:

- ✓ slow sand filter
- ✓ granular media filters
- ✓ membrane filters

Disinfection processes may include:

- ✓ chlorination

- ✓ chlorination
- ✓ UV

Tools and equipment include the following:

All the relevant Tools and equipment need to be supplied to the students prior to the assessment.

ASSESSMENT GUIDE

Forms of assessment

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 Competency standard.

Critical aspects (for assessment)

The candidate should demonstrate the ability to identify microorganisms and assess the appropriate potable water or water reuse treatment processes for inactivation or removal including:

- ✓ identifying a range of waterborne microorganisms,
- ✓ analysing their general characteristics and the types of problems caused
- ✓ identifying pathogenic microorganisms and the diseases caused
- ✓ assessing and selecting water or reuse treatment processes for physically removing or inactivating pathogenic microorganisms, including disinfection by-product issues
- ✓ assessing and selecting pre- or post-treatment processes for removing the causes of nuisance and toxicity problems
- ✓ preparing reports on the optimum treatment for a range of microorganisms including measures to ensure validity

Assessment conditions

Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. The timeframe must allow for assessment of operation under all normal and a range of abnormal conditions. This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learnt: ✓ organisational and legislative requirements relevant to water quality and treatment ✓ types, lifecycle, characteristics of waterborne microorganisms ✓ nuisance problems caused by waterborne microorganisms ✓ toxicity and pathogenic problems caused by waterborne microorganisms ✓ relevant legislation, standards and workplace policies and procedures related directly to the control and treatment of waterborne microorganisms ✓ principles of water or reuse treatment processes ✓ Ct concept ✓ log reduction ✓ properties and modes of action of disinfectant	Skills to be developed: ✓ Interpret a range of complex and technical documents, including relevant regulatory, legislative, licensing and organisational requirements, codes and standards and specifications ✓ communicate effectively with all the stakeholders, ✓ analyse and evaluate reports and reference materials ✓ perform various calculations to provide data for the analysis and development of options and solutions ✓ identify hazards and develop appropriate responses to control and mitigate risks. ✓ identify opportunities for improved water management ✓ participate in the provision of appropriate information to inform workplace processes ✓ understand capabilities and limitations of plant, equipment and tools

UNIT TITLE	Perform calibration on equipment and assist with maintenance				
DESCRIPTOR	This unit of competency covers the ability to perform set-up, pre-use and in-house calibration/validation checks on equipment and assist with its maintenance.				
CODE	CONS07CR04V1/21	**LEVEL**	IV	**CREDIT**	10

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Perform set-up and pre-use checks of laboratory equipment	1.1 Perform laboratory equipment set-up and pre-use checks in accordance with workplace procedures 1.2 Perform safety checks in accordance with relevant workplace and instrumental procedures 1.3 Identify faulty or unsafe components and equipment and report to appropriate personnel 1.4 Complete equipment log books/records to meet workplace requirements
2. Perform calibration checks	2.1 Startup equipment according to operating procedures 2.2 Use specified standards for calibration check 2.3 Check equipment in accordance with calibration procedures and schedules 2.4 Record all calibration data accurately and legibly 2.5 Compare data with specifications and/or previous records to identify non-compliant equipment 2.6 Quarantine out-of-calibration equipment
3. Assist with equipment maintenance	3.1 Ensure all equipment work areas are clean during and after equipment use 3.2 Perform basic maintenance in accordance with workplace procedures 3.3 Clean and store equipment according to workplace and/or manufacturer's specifications/procedures

	3.4	Identify and replace, repair or dispose of damaged/worn equipment as appropriate
4. Maintain records	4.1	Record and report information on unsafe or faulty equipment according to workplace procedures

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.

Tools, equipment and material used in this unit may include:

Typical equipment

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

ASSESSMENT GUIDE

Forms of assessment

Assessment methods must be chosen to ensure that application of firefighting can be practically demonstrated. Methods must include assessment of knowledge as well as assessment of practical skills.

Assessment context

This unit may be assessed in a simulated environment

Critical aspects (for assessment)

Assessment must ensure:

- ✓ Use of real fire related equipment

- ✓ Ability to assess situations requiring responding to fire and to decide on a plan of action including seeking help
- ✓ Use of laboratory apparatus

Assessment Conditions

Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.

UNDERPINNING KNOWLEDGE AND SKILL

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learned: ✓ PPE includes, but is not limited to, gloves, safety glasses, goggles, face guards, coveralls, gowns, body suits and respirators ✓ biohazard containers and laminar flow cabinets ✓ Samples include, but are not limited to, one or more of water and soil. ✓ Sterilization techniques include, but are not limited to high temperature, high pressure steam, boiling and autoclaving ✓ steam and membrane filtration ✓ microwave, radiation, gas and/or chemical treatments ✓ complying with workplace health and safety ✓ Applying standard precautions relating to the potentially hazardous nature of samples	Skills to be development: ✓ growth requirements of microorganisms (bacteria, fungi, protozoans, viruses and multi-cellular parasites) and tissue in terms of their laboratory culture ✓ relationship between sterile practices, hygiene procedures and the ability to obtain growth free of contamination ✓ cleaning and sanitizing requirements of equipment and work area, and effects of physical and chemical agents on microbial growth and death ✓ disinfection and sterilization procedures used in the collection, processing and safe disposal of samples and materials ✓ relevant hazards, such as accessing the sample from difficult or dangerous areas.

UNIT TITLE	Apply quality system in laboratory				
DESCRIPTOR	This unit of competency covers the exercise of good laboratory practice (GLP) and effective participation in quality improvement teams. Personnel are required to ensure the quality and integrity of their own work, detect non-conformances and work with others to suggest improvements in productivity and quality.				
CODE	CONS07CR05V1/21	LEVEL	IV	CREDIT	10

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Satisfy quality system requirements in daily work	1.1. Access information on quality system requirements for own job function 1.2. Record and report quality control data in accordance with quality system 1.3. Follow quality control procedures to ensure products or data are of a defined quality as an aid to acceptance or rejection 1.4. Recognize and report non-conformances or problems 1.5. Conduct work in accordance with sustainable work practices 1.6. Promote sustainability principles and work practices to other workers
2. Analyse opportunities for corrective and/or optimization action	2.1 Compare current work practices, procedures and process or equipment performance with requirements and/or historical data or records 2.2 Recognise variances that indicate abnormal or sub-optimal performances 2.3 Collect and/or evaluate batch and/or historical records to determine possible causes for sub-optimal performance 2.4 Use appropriate quality improvement techniques to rank the probabilities of possible causes
3. Recommend corrective and/or optimization actions	3.1 Analyse causes to predict likely impacts of changes and decide on the appropriate actions

	3.2 Identify required changes to standards and procedures and training 3.3 Report recommendations to designated personnel
4. Participate in the implementation of recommended actions	4.1Implement approved actions and monitor performance following changes to evaluate results 4.2 Implement changes to systems and procedures to eliminate possible causes 4.3 Document outcomes of actions and communicate them to relevant personnel
5. Participate in the development of continuous improvement strategies	5.1 Review all relevant features of work practice to identify possible contributing factors leading to sub-optimal performance 5.2 Identify options for removing or controlling the risk of sub-optimal performance 5.3 Assess the adequacy of current controls, quality methods and systems 5.4 Identify opportunities to continuously improve performance 5.5 Develop recommendations for continual improvements of work practices, methods, procedures and equipment effectiveness 5.6 Consult with appropriate personnel to refine recommendations before implementation of approved improvement strategies 5.7 Document outcomes of strategies and communicate them to relevant personnel

RANGE STATEMENT

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Quality control procedures

- ✓ standards imposed by regulatory and licensing bodies
- ✓ working to a customer brief or batch card and associated quality procedures
- ✓ checklists to monitor job progress against agreed time, costs and quality standards
- ✓ preparation of sampling plans

- ✓ the use of hold points to evaluate conformance
- ✓ the use of inspection and test plans to check compliance

Sustainable work practices

- ✓ examining work practices that use excessive electricity
- ✓ switching off equipment when not in use
- ✓ regularly cleaning filters
- ✓ insulating rooms and buildings to reduce energy use
- ✓ recycling and reusing materials wherever practicable
- ✓ minimising process waste

Quality improvement tools and techniques

- ✓ plan, do, check, act (PDCA)
- ✓ Ishikawa fishbone diagrams and cause and effect diagrams, logic tree, similarity/difference analysis, Pareto charts and analysis, force field/strength, weakness, opportunities, threats (SWOT) analysis
- ✓ run charts, control charts, histograms and scattergrams to present routine quality control data
- ✓ statistical analysis of quality control data, mean, median, mode, ranges and standard deviations

Quality improvement opportunities:

- ✓ production processes
- ✓ hygiene and sanitation procedures
- ✓ reductions in waste and re-work
- ✓ laboratory layout and work flow
- ✓ safety procedures
- ✓ communication with customers
- ✓ methods for sampling, testing and recording data

Tools, equipment and material used in this unit may include:

All relevant equipment to develop the competency of quality system skills relevant.

ASSESSMENT GUIDE

Forms of assessment

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 Competency standard

Critical aspects (for assessment)

Assessors should ensure that candidates can:

- ✓ review of operational plans, schedules and budgets prepared by the candidate
- ✓ review of risk assessments and control strategies prepared by the candidate
- ✓ review of job cards detailing completed tasks by the candidate
- ✓ feedback from students, teaching staff, suppliers and supervisor
- ✓ observation of the candidate assisting teaching staff and students during practical activities
- ✓ written or oral questions to assess the candidate's knowledge of relevant workplace procedures, technical details of practical activities and his/her ability to handle a range of contingencies.

Assessment conditions

Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. The timeframe must allow for assessment of operation under all normal and a range of abnormal conditions. This unit of competency is to be assessed in the workplace or a simulated workplace environment.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge required: ✓ scientific and technical requirements of the processes, procedures, equipment and instrumentation associated with the candidate's work tasks and duties ✓ specifications for laboratory products and services in the work area ✓ sustainable energy principles ✓ workplace procedures associated with the candidate's regular technical duties ✓ layout of the workplace, divisions and laboratory ✓ organisational structure of the workplace ✓ lines of communication ✓ role of laboratory services to the workplace and customers ✓ work health and safety (WHS) and environment requirements.	Skills required: ✓ applying relevant quality control procedures and regulatory requirements to ensure the quality and integrity of the products/services or data provided in work area ✓ applying and promoting sustainability principles and work practices in work area ✓ detecting non-conforming products or services ✓ apply quality improvement tools and techniques to analyse performance ✓ applying effective problem-solving strategies, such as identifying inputs and outputs, sequencing a process, identifying and rectifying a problem step, and root cause analysis ✓ following workplace procedures for recording and reporting information about quality ✓ implementing and monitoring approved actions, changes and improvement strategies

UNIT TITLE	Undertake waste disposal in laboratory setting				
DESCRIPTOR	This unit of competency covers the ability to manage the day-to-day running of water testing laboratories and applying safe and relevant process and protocols for disposal of waste being produced within the lab.				
CODE	CONS07CR06V1/21	LEVEL	IV	CREDIT	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Identify waste produced in lab	1.1 Waste characteristics are identified. 1.2 Types of wastes are differentiated by waste stream or waste categories within lab setting 1.3 Hazardous and dangerous waste and non-conforming waste are detailed. 1.4 Contaminants present in waste are noted. 1.5 Further information on waste is obtained by questioning appropriate personnel to ensure correct identification.
2. Identify hazards and risks.	2.1 Other potential hazards and risks present in work environment are listed. 2.2 Supervisor and team members are informed of job requirements, hazards and risks. 2.3 Safe work practices that prevent risk behaviour are outlined to supervisor. 2.4 Emergency response procedures are practised with team members.
3. Dispose of waste	3.1 Appropriate disposal is arranged with regard to waste quality, quantity and EPA and government regulations 3.2 Waste is disposed of in an appropriate way to ensure compliance with workplace and EPA standards 3.3 Any subcontractors are checked to ensure they comply with EPA and government regulation 3.4 Wastage rates are documented or collated for further review
4. Prepare and fill documents	4.1 Fill in the relevant document related to waste disposal

	4.2 Update document on daily basis.

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.

Tools, equipment and material used in this unit may include:

All relevant equipment to develop the competency of waste disposal skills relevant.

ASSESSMENT GUIDE

Forms of assessment

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 Competency Standard.

Critical aspects (for assessment)

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to identify critical issues in relation to waste disposal, plan own work process within workplace procedures and explain the reasons for the steps in the process take appropriate action to observe equipment, materials and products for atypical waste issues and take appropriate action.

Assessment conditions

Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. The timeframe must allow for assessment of operation under all normal and a range of abnormal conditions. This unit of competency is to be assessed in the workplace or a simulated workplace environment.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learnt: ✓ summarize how to follow segregating and packaging requirements for correct disposal ✓ outline appropriate handling methods ✓ outline consequences of incorrectly handling waste ✓ identify appropriate storage method ✓ list details recorded when recording results of liquid waste treatment ✓ explain why equipment must be kept clean and maintained ✓ identify work health and safety (WHS) concerns related to operating, cleaning and maintaining waste testing equipment ✓ outline the Environmental Protection Authority requirements regarding storage and disposal of waste ✓ describe WHS regulations on the handling of waste	Skills to be developed: ✓ operation of waste systems and equipment ✓ correct selection and use of waste retrieval equipment, materials, processes and procedures ✓ hazards of the materials and process and appropriate hazard control procedures ✓ relevant procedures relating to safe working practices prescribed for the materials ✓ site-specific instructions based on production requirements. ✓ Interpret causes of faults such as failure to pick up or dispose of waste according to the agreed process or timing

UNIT TITLE	Contribute to continuous improvement of quality systems				
DESCRIPTOR	This unit of competency describes the outcomes required to understand and implement quality systems in the water industry and to identify opportunities for improvement in quality outcomes for the organisation.				
CODE	CONS07CR07V1/21	**LEVEL**	IV	**CREDIT**	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Interpret and communicate quality system requirements	1.1 The accreditation requirements for relevant water quality systems are interpreted, understood and communicated to work colleagues. 1.2 The implications of non-conformance with quality accreditation requirements are identified and communicated 1.3 Standard operating procedures are regularly reviewed to ensure compliance with current quality standards.
2. Implement quality systems	2.1 Individual roles and responsibilities in quality system implementation are defined. 2.2 Standard operating procedures are implemented to ensure compliance with quality systems. 2.3 Relevant data is recorded for quality system monitoring. 2.4 Observations of non-conformance with quality accreditation requirements are recorded and reported promptly.
3. Identify and correct quality system implementation problems	3.1 System monitoring data is analyzed to identify variances that indicate abnormal or sub-optimal performance. 3.2 Non-conformance reports are reviewed to identify contributing factors. 3.3 Corrective action to remove or control the risk of sub-optimal performance is identified.
4. Contribute to improvement of quality system	4.1 Recommendations for continuous

implementation	improvement of work practices, methods, equipment and procedures are developed to ensure continued compliance with quality accreditation requirements. 4.2 All relevant work colleagues are consulted to refine recommendations. 4.3 Recommendations for quality system implementation improvements are documented and the required modifications to standard operating procedures are noted.

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. 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.

Tools, equipment and materials required may include:

Access to the workplace and resources, including documentation that should normally be available in a water industry organisation including relevant codes, standards and government regulations

ASSESSMENT GUIDE

Forms of assessment

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 Competency Standard.

Critical aspects (for assessment)

The candidate should demonstrate the ability to implement quality systems in the water industry, including:

- ✓ interpreting and communicating the accreditation requirements for, and implications of non-conformance with, relevant quality systems
- ✓ implementing and reviewing standard operating procedures to ensure compliance
- ✓ monitoring quality systems and reporting non-conformance with quality accreditation requirements
- ✓ analysing historical variance and non-conformance data and proposing improvements
- ✓ consulting work colleagues regarding recommendations for continuous improvement of quality system implementation

- ✓ recording recommendations

Assessment conditions

Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. The timeframe must allow for assessment of operation under all normal and a range of abnormal conditions.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge required: ✓ relevant legislation, standards and workplace policies and procedures ✓ relevant quality standards and systems ✓ quality improvement tools and techniques including statistical process control ✓ communication channels and consultative arrangements ✓ procedures for addressing non-compliance ✓ risk assessments ✓ control charts and control limits	Skills required: ✓ interpret complex and technical documents, including relevant regulatory, licensing and organisational requirements, codes and standards. ✓ analyse and evaluate reports and reference materials ✓ participate in ensuring compliance with standards, regulations and policies ✓ interpret, maintain and check records and documents ✓ collaboratively and effectively implement operational plans ✓ perform various calculations to provide data for the analysis and development of options and solutions ✓ identify hazards and develop appropriate responses to control and mitigate risks.

UNIT TITLE	Process and interpret data				
DESCRIPTOR	This unit of competency covers the ability to retrieve data, evaluate formulae and perform scientific calculations, present and interpret information in tables and graphs and keep accurate records. The unit requires personnel to solve problems of limited complexity where the information may be less obvious, but not contradictory, and can be determined by direct reasoning.				
CODE	CONS07CR08V1/21	**LEVEL**	IV	**CREDIT**	08

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Retrieve and check data	1.1. Store and retrieve data using appropriate files and/or application software 1.2. Verify the quality of data using workplace procedures 1.3. Rectify errors in data using workplace procedures
2. Calculate scientific quantities	2.1 Calculate statistical values for given data 2.2 Calculate scientific quantities using given formulae and data and estimate uncertainties 2.3 Ensure calculated quantities are consistent with estimations and expectations 2.4 Report all calculated quantities using the appropriate units and correct number of significant figures
3. Present data	3.1. Present data in clearly labelled tables, charts and graphs 3.2. Graph data using appropriate scales to span the range of data or display trends 3.3. Report all data using the appropriate units and number of significant figures
4. Interpret data	4.1. Interpret significant features of tables, charts and graphs, including gradients, intercepts, maximum and minimum values, and limit lines 4.2. Recognise and report trends in data
5. Keep accurate records and maintain confidentiality	5.1. Transcribe information accurately 5.2. Verify the accuracy of records following

	workplace procedures 5.3. File and store workplace records in accordance with workplace procedures 5.4. File all reference documents logically and keep them up-to-date and secured 5.5. Observe workplace confidentiality standards

RANGE STATEMENT

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Data includes:

- ✓ worksheets, spreadsheets and/or databases linked to information management systems
- ✓ results of observations, tests and measurements, analyses, surveys and/or quality assurance and control assessments

Calculations are performed with or without a calculator and using computer software:

- ✓ spreadsheets, databases and statistical packages

Records include information associated with one or more of:

- ✓ purchase of equipment and materials, service records
- ✓ safety procedures
- ✓ history of calibration and test results

Tools, equipment and materials required may include:

Access to the workplace and resources, including documentation that should normally be available in a water industry organisation including relevant codes, standards and government regulations

ASSESSMENT GUIDE

Forms of assessment

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 Competency standard

Critical aspects (for assessment)

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. Assessors should ensure that candidates can:

- ✓ prepare for site operations and perform sampling, testing and site reinstatement under direction
- ✓ work safely at sites
- ✓ follow instructions and work as part of a small team.

Assessment Conditions

Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learnt: ✓ concepts of metrology, including that all measurements are estimates. ✓ measurements belong to a population of measurements of the measured parameters ✓ repeatability, precision, accuracy and significant figures ✓ sources of error, and uncertainty associated with measurement steps ✓ traceability ✓ the international system of units (SI) ✓ scientific and technical terminology relevant to job role ✓ procedures for coding, entering, storing, retrieving and communicating data ✓ procedures for verifying data and rectifying mistakes ✓ procedures for maintaining and filing records, and maintaining security of data ✓	Skills to be developed: ✓ retrieving coding, recording and checking data ✓ calculating scientific and statistical quantities with or without a calculator or computer software, including converting units involving multiples and submultiples ✓ scientific notation, significant figures, round off, estimate and approximate ✓ transposing and evaluating formulae ✓ fractions, decimals, proportions and percentages, mean, median, mode and standard deviation ✓ performing calculations on perimeters and angles, percentage and absolute uncertainties in measurements and test results, areas (m2) and volumes (mL, L, m3) of regular shapes, such as packaging ✓ dose (mg), average mass, mass percentage, density, specific gravity, moisture, relative and absolute humidity, viscosity and permeability ✓ ratios, such as mass to mass, mass to volume and volume to volume percentages

	✓ concentration, such as molarity, g/100mL, mg/L, mg/L, ppm, ppb, dilution mL/L ✓ average count, colonies per swab surface and cell counts, such as live and dead/total ✓ process variables, such as pressure, gauge pressure, velocity and flow rates ✓ biological oxygen demand (BOD), chemical oxygen demand (COD) and total organic carbons (TOC) ✓ food properties, such as % concentration (dry), friability, bitterness, brix, free amino nitrogen, diastatic power, calorific content and yeast viability, % content of moisture, ash, fat, protein, alcohol, Sulphur dioxide and trace metals, such as calcium or zinc ✓ mechanical properties, such as stress, strain, moduli and force ✓ presenting accurate results in the required format (significant figures, uncertainty units) ✓ preparing and presenting data in tables, graphs line graphs, histograms, pie charts, bar charts and control charts. ✓ semi-quantitative observations expressed on a scale (e.g. 1 to 4 or + to ++++) ✓ recognising and interpreting significant points, anomalies and trends in data

UNIT TITLE	Perform Laboratory testing				
DESCRIPTOR	This unit of competency covers the ability to prepare samples and perform tests and measurements using standard methods with access to readily available advice from supervisors.				
CODE	CONS07CR09V1/21	LEVEL	IV	CREDIT	20

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Interpret test requirements	1.1 Review test request to identify samples to be tested, test method and equipment involved 1.2 Identify hazards and workplace controls associated with the sample, preparation methods, reagents and/or equipment
2. Prepare sample	2.1 Record sample description, compare with specification, record and report discrepancies 2.2 Prepare sample in accordance with appropriate standard methods
3. Check equipment before use	3.1 Set up test equipment in accordance with test method 3.2 Perform pre-use and safety checks in accordance with workplace procedures and manufacturer instructions 3.3 Identify faulty or unsafe equipment and report to appropriate personnel 3.4 Check calibration status of equipment and report any out-of-calibration items to appropriate personnel
4. Perform tests on samples	4.1 Identify, prepare and weigh or measure sample and standards to be tested 4.2 Conduct tests in accordance with workplace procedures 4.3 Record data in accordance with workplace procedures
5. Maintain a safe work environment	5.1 Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other laboratory personnel

	5.2 Minimise the generation of wastes and environmental impacts 5.3 Ensure safe disposal of laboratory and hazardous wastes 5.4 Clean, care for and store equipment and reagents as required

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.

Undertake Basic Water Tests aligned to the monthly tests stipulated by EPA include of:

- Chlorides
- Nitrates
- Ammonia
- Iron
- Hydrogen Sulphone
- Total Hardness
- Suspended solids

Sample preparation processes include one or more of:

- ✓ sub-sampling or splitting using procedures, such as riffling, coning and quartering, manual and mechanical splitters
- ✓ diluting samples
- ✓ physical treatments, such as aching, dissolving, filtration, sieving, centrifugation and comminution
- ✓ molding, casting or cutting specimens

Typical basic tests carried out by laboratory/field assistants

- ✓ visual/optical tests of appearance, such as colour, texture, identity, turbidity and refractive index (alcohol content and Baume/Brix)
- ✓ physical tests, such as:
    - density, specific gravity and compacted density
    - moisture content and water activity
    - particle size, particle shape and size distribution
- ✓ chemical tests, such as:
    - gravimetric, colorimetric, electrical conductivity (EC) and pH
    - specific ions using dipsticks and kits
    - nutrients (e.g. nitrates and orthophosphates) using kits

- ashes, including sulphated ashes

✓ biological/environmental tests, such as:

- pH, oxygen reduction potential (ORP), dissolved oxygen (DO) and EC
- E coli using test kits, and surface hygiene/presence of microbes

✓ packaging tests, such as:

- tearing resistance, bursting strength and impact resistance
- permeability and/or leakage

✓ mechanical tests, such as:

- Emerson class
- concrete slump

Tools, equipment and materials required may include:

Access to the workplace and resources, including documentation that should normally be available in a water industry organisation including relevant codes, standards and government regulations

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Critical aspects (for assessment)

Assessors should ensure that candidates can:

✓ review of the quality of test data/results achieved by the candidate over time

✓ inspection of records and workplace documentation completed by the candidate

✓ observation of the candidate performing a range of basic tests

✓ feedback from peers and supervisors

✓ oral or written questioning to check required knowledge of basic test procedures.

✓ Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:

✓ a standard laboratory equipped with basic test equipment, common measuring instruments, materials, standard methods, workplace procedures, MSDS and equipment manuals.

Assessment conditions

This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learnt: ✓ accurately interpreting workplace procedures and standard methods ✓ preparing samples using different processes ✓ performing basic tests or measurements using standard methods and procedures ✓ checking test equipment before use ✓ completing all tests within the required timeline without sacrificing safety, accuracy or quality ✓ demonstrating close attention to the accuracy and precision of measurements and the data obtained ✓ calculating simple quantities using appropriate equations, units, uncertainties and precision ✓ recording and presenting results accurately and legibly ✓ maintaining the security, integrity and traceability of all samples, data/results and documentation ✓ following procedures for working safely and minimising environmental impacts.	Skills to be developed: ✓ making sure all measurements belong to a population of measurements of the measured parameters ✓ identify sources of error, uncertainty and repeatability and traceability ✓ familiarize with international system of units (SI) ✓ purpose of tests performed as part of job role and principles of the standard methods/specifications used ✓ function of key components of the test equipment, pre-use equipment and safety checks ✓ interpret sources of uncertainty in measurement and methods for control ✓ workplace and/or legal traceability requirements ✓ interpretation and recording of test result, including simple calculations ✓ procedures for recognising and reporting of unexpected or unusual results.

UNIT TITLE	Control Stock				
DESCRIPTOR	This unit of competency covers the ability to order, maintain and control the use of laboratory materials and/or equipment in the work area. For any laboratory to be properly operated, it is vital that stock is always managed and appropriately controlled to ensure supplies of testing chemicals and other consumables are always available.				
CODE	CONS07CR10V1/21	**LEVEL**	IV	**CREDIT**	07

ELEMENTS OF COMPETENCIES	PERFORMANCE CRITERIA
1. Maintain and control stocks of materials or equipment	1.1 Label, document and store stocks in accordance with relevant standards and specific safety requirements 1.2 Follow stock rotation procedures to maximise use of stocks within permitted shelf life 1.3 Identify stock discrepancies and replace redundant or outdated stocks to maintain stocks at prescribed level 1.4 Identify and replace damaged/worn equipment or arrange for repairs or disposal as appropriate 1.5 Initiate quality control sampling and testing procedures when appropriate 1.6 Report stock problems outside own knowledge and authority limitations to relevant personnel
2. Order and receive materials and equipment	2.1 Determine requirements of customers and suppliers using appropriate communication and interpersonal skills 2.2 Determine demand for stock, taking into account peak and seasonal variations in stock usage and production conditions 2.3 Place and/or follow up approved orders using workplace systems and procedures 2.4 Check condition of received goods and take appropriate action
3. Maintain stock records	3.1 Record all relevant details accurately using the specified forms/computer system

	3.2 Ensure that written information is legible and indelible 3.3 File all records in the designated place
4. Maintain a safe work environment	4.1 Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other laboratory personnel 4.2 Minimize the generation of wastes and environmental impacts 4.3 Ensure the safe collection of redundant/outdated stocks for subsequent disposal

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.

Safety Procedures need to be followed include:

- ✓ use of personal protective equipment (PPE), such as hearing protection, gloves, safety glasses, coveralls and safety boots
- ✓ ensuring access to service shut-off points
- ✓ handling and storing hazardous materials and equipment in accordance with labels, MSDS, manufacturer's instructions, and workplace procedures and regulations
- ✓ regular cleaning of equipment and work areas

WHS and environmental management requirements:

- ✓ complying with WHS and environmental management requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time
- ✓ applying standard precautions relating to the potentially hazardous nature of samples

Tools, equipment and materials required may include:

Access to the workplace and resources, including documentation that should normally be available in a water industry organisation including relevant codes, standards and government regulations

ASSESSMENT GUIDE

Forms of assessment

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 Competency Standard.

Critical aspects (for assessment)

Assessors should ensure that candidates can:

- ✓ review of operational plans, schedules and budgets prepared by the candidate
- ✓ review of risk assessments and control strategies prepared by the candidate
- ✓ review of job cards detailing completed tasks by the candidate
- ✓ feedback from students, teaching staff, suppliers and supervisor
- ✓ observation of the candidate assisting teaching staff and students during practical activities
- ✓ written or oral questions to assess the candidate's knowledge of relevant workplace procedures, technical details of practical activities and his/her ability to handle a range of contingencies.

Assessment conditions

Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event. The timeframe must allow for assessment of operation under all normal and a range of abnormal conditions. This unit of competency is to be assessed in the workplace or a simulated workplace environment.

UNDERPINNING KNOWLEDGE AND SKILLS

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
Knowledge to be learnt: ✓ terminology associated with ordering and storage of stocks ✓ laboratory stock, product and service information relevant to job role ✓ types of hazardous chemical reactions and the rationale for recommended storage systems ✓ workplace procedures and quality system requirements for stock control ✓ codes of practice and regulations concerning the labelling, handling, storage and transport of stock relevant to job role ✓ relevant hazards, work health and safety and environment requirements.	Skilled to be developed: ✓ accessing online databases and/or catalogues efficiently ✓ following workplace procedures for predicting and/or determining demand for stock. ✓ maintaining stocks of materials and equipment at prescribed levels for the work area. ✓ performing quality control sampling and testing and rotating stock with workplace procedures ✓ managing peak and seasonal variations in stock usage and production conditions ✓ interpreting labelling information (lot number, batch and date) and material safety data sheets (MSDS) correctly ✓ completing and recording all stock records and documentation accurately