

No. 11

11 January 2008

**SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with Regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Water Sector

registered by Organising Field 12, Physical Planning and Construction, publishes the following Qualification and Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification and Unit Standards. The full Qualification and Unit Standards can be accessed via the SAQA web-site at www.saga.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification and Unit Standards should reach SAQA at the address below and **no later 8 February 2008**. All correspondence should be marked **Standards Setting – Water Sector** and addressed to

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DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:**National Certificate: Water and Wastewater Reticulation Services**

SAQA QUAL ID	QUALIFICATION TITLE		
60155	National Certificate: Water and Wastewater Reticulation Services		
ORIGINATOR	PROVIDER		
SGB Water Sector			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National Certificate	500 - Undefined	Undefined	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	124	Level 3	Regular-Unit Stds Based

This qualification replaces:

Qual ID	Qualification Title	NQF Level	Min Credits	Replacement Status
48905	National Certificate: Wastewater Reticulation Services	Level 3	120	Will occur as soon as 60155 is registered

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The Qualification will provide the learner with the knowledge and skills to work in a water and wastewater reticulation services department as a competent person to attend to the maintenance, operation and construction of water and wastewater reticulation systems. The core and elective sections of this qualification accommodates for learners to specialise in water and/or wastewater reticulation services.

Qualifying learners are able to:

- Communicate in a water and wastewater context.
- Demonstrate knowledge of the relevant legislative requirements in a water and wastewater context.
- Be able to partake in the operation and maintenance of water and wastewater reticulation systems.
- Be able to partake in the construction of water and wastewater reticulation systems.

Rationale:

The Water Services SGB has established the need for this qualification across the water services industry sector. This qualification is aimed at learners who wish to further their career in the field of water and/or wastewater reticulation and/or have gained experience in related sub fields and wish to receive formal recognition for their skills and knowledge. This qualification also serves as a basis for post certification development and more particularly to progress to the NQF Level 4 Certificate in Water and Wastewater Reticulation Services.

RECOGNIZE PREVIOUS LEARNING?

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LEARNING ASSUMED IN PLACE

It is assumed that learners are already competent in the following:

- Communication at NQF Level 2.
- Mathematical Literacy at NQF Level 2.
- National Certificate: Water and Waste Water Reticulation NQF Services Level 2 or equivalent.

Recognition of Prior Learning:

This Qualification may be achieved in part through skills programmes or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience. Any learner wishing to be directly assessed may arrange to do so, without attending further training or education. The assessor and learner will decide together on the most appropriate assessment route to be taken.

Access to the Qualification:

- Access to this qualification is open bearing in mind learning assumed to be in place.

QUALIFICATION RULES

This qualification consists of Fundamental credits totalling 36, Core credits totalling 64, all of which are compulsory. The qualification also has Electives totalling 82.

Learners have to choose a minimum of 24 credits from the Electives to be awarded the qualification. Total credits for this qualification will therefore be 124.

EXIT LEVEL OUTCOMES

1. Communicate in a wastewater and water context.
2. Demonstrate knowledge of the relevant legislative requirements in a water and wastewater context.
3. Operate and maintain water and waste water reticulation systems.
4. Construct water and waste water reticulation systems.

Associated Critical Cross Field Outcomes:

- Communicate effectively using visual, mathematical and/or language skills in the form of oral and/or written presentation:
 - This relates to all the associated assessment criteria.
- Work effectively with others as a member of a team, group, organisation, and community:
 - This relates to associated assessment criteria: 1.1, 1.2 and 1.4.
- Communicate effectively using visual, mathematical and/or language skills in the form of oral and/or written presentation:
 - This relates to all the associated assessment criteria.
- Work effectively with others as a member of a team, group, organisation, and community:
 - This relates to all assessment criteria.
- Collect, analyse, organise and critically evaluate information:
 - This relates to all the associated assessment criteria.

- Communicate effectively using visual, mathematical and/or language skills in the form of oral and/or written presentation:
 - This relates to all the associated assessment criteria.
- Work effectively with others as a member of a team, group, organisation, and community:
 - This relates to all assessment criteria.
- Collect, analyse, organise and critically evaluate information:
 - This relates to all the associated assessment criteria.
- Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made:
 - This relates to all assessment criteria.
- Communicate effectively using visual, mathematical and/or language skills in the form of oral and/or written presentation:
 - This relates to all the associated assessment criteria.
- Work effectively with others as a member of a team, group, organisation, and Community:
 - This relates to all assessment criteria.
- Collect, analyse, organise and critically evaluate information:
 - This relates to all the associated assessment criteria.
- Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made:
 - Relates to all associated assessment criteria.
- Use science and technology effectively and critically, showing responsibility towards the environment and health of others:
 - This relates to all assessment criteria.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

- 1.1 Information should be accessed and used in the context of workplace tasks and activities.
 - Range: Policies and procedures, job specific information.
- 1.2 Oral communication should be used in accordance with workplace policies and procedures.
- 1.3 Written communication should be defined to specific contexts within the water and wastewater industry.
 - Range: Includes but is not limited to, reports, job cards, communiqués, leave forms, HR requests, etc.
- 1.4 Language and communication should be used for accessing and navigating learning programmes.
 - Range: coaching, mentoring, assessment.

Associated Assessment Criteria for Exit Level Outcome 2:

- 2.1 Activities and tasks considered comply with national legislative requirements.
- 2.2 Activities and tasks considered comply with municipal bylaws.
- 2.3 Policies and procedures are complied with in accordance with organisational requirements.

Operate and maintain water and waste water reticulation systems.

Associated Assessment Criteria for Exit Level Outcome 3:

3.1 Knowledge of equipment and tools for the maintenance and operation of wastewater and water reticulation systems are demonstrated in accordance with workplace policies and procedures.

3.2 Tasks and processes involved in the maintenance and operation of wastewater and water reticulation systems are executed efficiently and within best practice codes.

3.3 Parts and materials used for the maintenance and operation of water and wastewater reticulation systems comply with national industry standards.

Associated Assessment Criteria for Exit Level Outcome 4:

4.1 Knowledge of equipment and tools for the construction of water and wastewater reticulation systems are demonstrated in accordance with workplace policies and procedures.

4.2 Tasks and processes involved in the construction of wastewater and water reticulation systems and sub systems are executed efficiently and within a framework of best practice.

4.3 Parts and materials used for the maintenance and operation of water and wastewater reticulation systems comply with national industry standards.

Integrated Assessment:

- Integrated assessment at the level of the qualification provides an opportunity for learners to show they are able to integrate concepts, actions and ideas achieved across a range of unit standards and contexts. Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance.

- Some assessment aspects will demand practical demonstration while others may not.

- Since this is one of a series of qualifications in a framework, it is necessary to ensure that the fundamental part of the qualification is also targeted to ensure that while the competence may have been achieved in a particular context, learners are able to apply it in a range of other contexts and for further learning. The assessment should also ensure that all the critical cross-field outcomes and essential embedded knowledge has been achieved, by assessing through integrated assessment.

INTERNATIONAL COMPARABILITY

International qualifications were examined to ensure that the qualification model and associated unit standards proposed are comparable in terms of qualification levels, scope and competencies covered. However, the core and elective components have been developed and/or revised taking into account South Africa's unique context, but also looking at international best practice.

Qualifications from the following countries were examined:

Australian Qualifications Framework (AQF):

- NWP05 Water Industry and the Certificate Course in Water and Wastewater Reticulation.

Scottish Vocational Qualifications (SQA):

- Water Distribution: Water Level 2, Code H7HE.
- Construction Practice: Substructures, Code D2 XK.
- Construction Technology: Substructure and Remedial works, D5 XY.

New Zealand Qualifications Authority (NZQA):

- National Certificate in Water and Wastewater Reticulation and its associated unit standards (Level 2; 3 and 4).
- National Certificate in Water and Wastewater reticulation: Site Operator (Level 2; 3 and 4).

United Kingdom (QCA):

- City and Guilds Level 2 Certificate in Water Engineering, 500/1698/2.
- Certificate in Process Plant Operations Level 2.
- Cambridge University: Module 4D15, Sustainable Water Engineering.
- Modelling Water Distribution Networks MODULE CODE: CIV.

United States of America:

- SD Association of Rural Water Systems Sioux Falls, South Dakota 57106, Water and Wastewater Operator Certification Board.

Findings concerning comparability:

A substantial degree of similarity was found in most of the qualifications examined. Although the South African qualification combines both water and wastewater reticulation services due to the similarities found in the core components of both qualifications, the revised qualification provides a mix of mandatory unit standards to cover both water and wastewater core competencies and electives as optional units that enable learners to choose from to address their particular roles in their respective work areas and specialization.

The South African qualification and its associated unit standards is generally comparable to the Scottish, Australian, New Zealand in terms of degree of complexity, scope and range of competencies covered but are offered and structured differently with the United Kingdom qualification. The UK refers to reticulation as distribution and the implementation of training takes place differently to the system employed by South Africa.

New Zealand being an OECD country, offered many similarities to the environment and structure of the South African Industry and the way their courses and curricular is structured. Unit standard content would often combine concepts differently to what is done locally and the analysis of these often provided new insight into best practice.

ARTICULATION OPTIONS

Horizontal Articulation is possible with the possible:

- ID 58951: National Certificate: Water and wastewater Process Operations, NQF Level 2.
- ID 23473: National Certificate: Community Water, Health and Sanitation Promotion, NQF Level 2.

Vertical Articulation is possible with the following:

- ID 48906: Further Education and Training Certificate: Supervision of Waster and wastewater Reticulation Operations, NQF Level 4.
- ID 59201: National Certificate: Generic Management, NQF Level 5.

MODERATION OPTIONS

- A person assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable the achievement if this Qualification must be accredited as a provider with the relevant ETQA.

- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the qualification.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

All assessors need to be subject matter experts, with a qualification one level higher and registered with the relevant ETQA.

NOTES

This qualification replaces qualification 48905, "National Certificate: Wastewater Reticulation Services", Level 3, 120 credits.

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	Level 3	5
Fundamental	9010	Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	Level 3	2
Fundamental	9013	Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4
Fundamental	119457	Interpret and use information from texts	Level 3	5
Fundamental	9012	Investigate life and work related problems using data and probabilities	Level 3	5
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5
Fundamental	119465	Write/present/sign texts for a range of communicative contexts	Level 3	5
Core	254076	Demonstrate knowledge of hydraulics and flow measurement in water and wastewater systems	Level 3	12
Core	254069	Demonstrate knowledge of the operation and maintenance of mechanical and electrical equipment	Level 3	10
Core	254064	Enter, work in, and exit a confined space in the water industry	Level 3	3
Core	254194	Join pipe fittings and other pipeline devices	Level 3	12
Core	254070	Lay pipes for water and wastewater reticulation systems	Level 3	12
Core	254066	Operate a reticulation pump station	Level 3	10
Core	254075	Read and interpret maps and engineering drawings of water and wastewater reticulation systems	Level 3	5
Elective	254072	Connect a customer drainage system to a public wastewater system	Level 3	5
Elective	254067	Connect a customer to a water reticulation system	Level 3	4
Elective	254073	Demonstrate knowledge of pressure zones and backflow prevention in water reticulation	Level 3	4
Elective	254074	Investigate problems in a wastewater reticulation system	Level 3	10
Elective	12340	Operate and Maintain Water Reticulation System	Level 3	12
Elective	115907	Operate and maintain a wastewater reticulation system	Level 3	15
Elective	254071	Operate and maintain canals	Level 3	10
Elective	254065	Operate and maintain dams	Level 3	4
Elective	115965	Operate, maintain and provide technical support for on site sanitation systems	Level 3	8
Elective	254077	Provide water services support for rural communities	Level 3	10

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION

None



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Enter, work in, and exit a confined space in the water industry***

SAQA US ID	UNIT STANDARD TITLE		
254064	Enter, work in, and exit a confined space in the water industry		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	3

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Identify the location, and work to be carried out.

SPECIFIC OUTCOME 2

Enter, complete work and withdraw from a confined space.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Operate and maintain dams***

SAQA US ID	UNIT STANDARD TITLE		
254065	Operate and maintain dams		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Demonstrate knowledge of dams.

SPECIFIC OUTCOME 2

Operate dams.

SPECIFIC OUTCOME 3

Maintain dams.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate a reticulation pump station

SAQA US ID	UNIT STANDARD TITLE		
254066	Operate a reticulation pump station		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115955	Operate a wastewater pump station	Level 3	12	Will occur as soon as 254066 is registered

SPECIFIC OUTCOME 1

Identify and explain pumps.

SPECIFIC OUTCOME 2

Comply with safety procedures in pump station.

SPECIFIC OUTCOME 3

Operate pumping system.

SPECIFIC OUTCOME 4

Provide basic maintenance for pumps.

SPECIFIC OUTCOME 5

Maintain and repair valves in a pumping system.

SPECIFIC OUTCOME 6

Service drive-units of pumps.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Connect a customer to a water reticulation system

SAQA US ID	UNIT STANDARD TITLE		
254067	Connect a customer to a water reticulation system		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Plan work tasks for water connection.

SPECIFIC OUTCOME 2

Connect a water supply.

SPECIFIC OUTCOME 3

Connect a water supply.

SPECIFIC OUTCOME 4

Complete water connection task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate knowledge of the operation and maintenance of mechanical and electrical equipment

SAQA US ID	UNIT STANDARD TITLE		
254069	Demonstrate knowledge of the operation and maintenance of mechanical and electrical equipment		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Explain basic mechanical principles.

SPECIFIC OUTCOME 2

Operate mechanical equipment at own works.

SPECIFIC OUTCOME 3

Explain maintenance of mechanical equipment.

SPECIFIC OUTCOME 4

Explain principles of electricity.

SPECIFIC OUTCOME 5

Demonstrate practices and procedures for managing electrical fires.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Lay pipes for water and wastewater reticulation systems

SAQA US ID	UNIT STANDARD TITLE		
254070	Lay pipes for water and wastewater reticulation systems		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
12338	Lay pipes for water reticulation system	Level 3	12	Will occur as soon as 254070 is registered
115904	Lay pipes for a wastewater reticulation system	Level 3	10	Will occur as soon as 254070 is registered

SPECIFIC OUTCOME 1

Set out a pipe route using control points.

SPECIFIC OUTCOME 2

Check and form trench sub-grade and base in preparation for pipe installation.

SPECIFIC OUTCOME 3

Lay pipeline in accordance with code of practice and engineering drawing.

SPECIFIC OUTCOME 4

Inspect and test the system in accordance with code of practice.

SPECIFIC OUTCOME 5

Complete final backfill and construction work as per code of practice and specification.

SPECIFIC OUTCOME 6

Shut down and charge system in accordance with code of practice and work procedures.

SPECIFIC OUTCOME 7

Complete reports and records in accordance with work procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL
Core 60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Operate and maintain canals***

SAQA US ID	UNIT STANDARD TITLE		
254071	Operate and maintain canals		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Demonstrate knowledge of water measurement.

SPECIFIC OUTCOME 2

Demonstrate knowledge of water distribution.

SPECIFIC OUTCOME 3

Maintain canals.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Connect a customer drainage system to a public wastewater system

SAQA US ID	UNIT STANDARD TITLE		
254072	Connect a customer drainage system to a public wastewater system		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115882	Connect a customer sewerage system to a public wastewater system	Level 3	7	Will occur as soon as 254072 is registered

SPECIFIC OUTCOME 1

Plan work and prepare work site for wastewater connection.

SPECIFIC OUTCOME 2

Set out work site and excavate to required levels.

SPECIFIC OUTCOME 3

Lay and joint pipes and connect to sewer connecting points.

SPECIFIC OUTCOME 4

Monitor drainage laid by others to ensure compliance with work procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate knowledge of pressure zones and backflow prevention in water reticulation

SAQA US ID	UNIT STANDARD TITLE		
254073	Demonstrate knowledge of pressure zones and backflow prevention in water reticulation		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Demonstrate knowledge of pressure zones in water reticulation.

SPECIFIC OUTCOME 2

Demonstrate knowledge of backflow prevention in water reticulation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Investigate problems in a wastewater reticulation system***

SAQA US ID	UNIT STANDARD TITLE		
254074	Investigate problems in a wastewater reticulation system		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
115897	Investigate problems in a wastewater reticulation system	Level 3	10	Will occur as soon as 254074 is registered

SPECIFIC OUTCOME 1

Explain elementary hydraulics.

SPECIFIC OUTCOME 2

Investigate abnormal sewer flows.

SPECIFIC OUTCOME 3

Locate irregularities in wastewater infrastructure.

SPECIFIC OUTCOME 4

Report back on investigations and irregularities.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Read and interpret maps and engineering drawings of water and wastewater reticulation systems

SAQA US ID	UNIT STANDARD TITLE		
254075	Read and interpret maps and engineering drawings of water and wastewater reticulation systems		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
14024	Read and interpret maps and engineering drawings of water reticulation systems	Level 2	4	Will occur as soon as 254075 is registered

SPECIFIC OUTCOME 1

Identify, use and explain different maps.

SPECIFIC OUTCOME 2

Locate work site from map.

SPECIFIC OUTCOME 3

Interpret and explain engineering drawings and diagrams.

SPECIFIC OUTCOME 4

Prepare materials list based on engineering drawing.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate knowledge of hydraulics and flow measurement in water and wastewater systems

SAQA US ID	UNIT STANDARD TITLE		
254076	Demonstrate knowledge of hydraulics and flow measurement in water and wastewater systems		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1

Describe the hydraulics of a water reticulation system.

SPECIFIC OUTCOME 2

Describe the hydraulics of wastewater collection systems.

SPECIFIC OUTCOME 3

Demonstrate knowledge of external factors affecting wastewater flows.

SPECIFIC OUTCOME 4

Methods used to identify, prevent, or reduce inflow, infiltration, and exfiltration is described in terms of their techniques.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Provide water services support for rural communities

SAQA US ID	UNIT STANDARD TITLE		
254077	Provide water services support for rural communities		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
14018	Provide water services support for rural communities	Level 3	10	Will occur as soon as 254077 is registered

SPECIFIC OUTCOME 1

Describe water sources.

SPECIFIC OUTCOME 2

Explain different levels of service and advise community members.

SPECIFIC OUTCOME 3

Operate elementary water treatment processes and quality procedures in accordance with code of practice and work procedures.

SPECIFIC OUTCOME 4

Explain the principles and practices of operating a community water distribution system.

SPECIFIC OUTCOME 5

Operate village water distribution system in accordance with code of practice and work procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Join pipe fittings and other pipeline devices***

SAQA US ID	UNIT STANDARD TITLE		
254194	Join pipe fittings and other pipeline devices		
ORIGINATOR	PROVIDER		
SGB Water Sector			
FIELD	SUBFIELD		
12 - Physical Planning and Construction	Civil Engineering Construction		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
14017	Join pipes fittings and other pipeline devices	Level 3	7	Will occur as soon as 254194 is registered

SPECIFIC OUTCOME 1

Join water and wastewater pipes.

SPECIFIC OUTCOME 2

Join associated fittings and other pipeline devices as per material supplier specifications.

SPECIFIC OUTCOME 3

Demonstrate knowledge of pipe jointing methods.

SPECIFIC OUTCOME 4

Complete reports and records in accordance with work procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	60155	National Certificate: Water and Wastewater Reticulation Services	Level 3