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**SOUTH AFRICAN QUALIFICATIONS AUTHORITY
REGISTERED UNIT STANDARD:**

Manage water quality parameters

SAQA US ID	UNIT STANDARD TITLE			
116322	Manage water quality parameters			
ORIGINATOR		ORIGINATING PROVIDER		
SGB Primary Agriculture				
QUALITY ASSURING BODY				
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FIELD			SUBFIELD	
Field 01 - Agriculture and Nature Conservation			Primary Agriculture	
ABET BAND	UNIT STANDARD TYPE	OLD NQF LEVEL	NEW NQF LEVEL	CREDITS
Undefined	Regular	Level 4	NQF Level 04	3
REGISTRATION STATUS		REGISTRATION START DATE	REGISTRATION END DATE	SAQA DECISION NUMBER
Reregistered		2009-07-01	2012-06-30	SAQA 0480/09
LAST DATE FOR ENROLMENT		LAST DATE FOR ACHIEVEMENT		
2013-06-30		2016-06-30		

In all of the tables in this document, both the old and the new NQF Levels are shown. In the text (purpose statements, qualification rules, etc), any reference to NQF Levels are to the old levels unless specifically stated otherwise.

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

PURPOSE OF THE UNIT STANDARD

A learner will be able to implement corrective actions based on water quality parameters. In addition they will be well positioned to extend their learning and practice into other areas of agriculture and water management.

Learners will gain specific knowledge and skills in maintaining water quality and will be able to operate in an animal production environment implementing sustainable and economically viable production principles.

They will be capacitated to gain access to the mainstream agricultural sector, in animal production, impacting directly on the sustainability of the sub-sector. The improvement in production technology will also have a direct impact on the improvement of agricultural productivity of the sector.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

It is assumed that a learner attempting this unit standard will show competence against the following unit standards or equivalent:

- NQF 3: Maintain water quality parameters.
- NQF 3: Recognize and identify the basic functions of the ecological environment.
- NQF 3: Apply routine maintenance and servicing plans and procedures.

UNIT STANDARD RANGE

Range statements are neither comprehensive nor necessarily appropriate to all contexts. Alternatives must however be comparable in scope and complexity. These are only as a general guide to scope and complexity of what is required.

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1

Correctly assess, analyze and evaluate water quality data and independently decide on the corrective actions within operational technical systems to well defined, but possibly unfamiliar problems.

OUTCOME RANGE

This will include:

- Physical factors such as temperature, suspended solids, plankton, clay turbidity.
- Chemical factors such as: dissolved gasses such as oxygen, ammonia, pH.
- Dissolved solids such as: salinity, super saturation, pollutants, and heavy metals.
- Microbiological characteristics: (E. coli, Vibrio sp., Salmonella sp., algal blooms, and possible diseases.)
- Biological processes such as: photosynthesis, nitrogen cycle, decomposition, and energy budgets.
- Operational technical systems: aeration, filtration, protein skimming, screening, bio-filtration, degassing, nutrient stripping, sterilization such as ozonation, UV sterilization and chlorination.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

A thorough understanding of the effects of certain physical factors is demonstrated and is related and applied as a standard procedure or a corrective action to relevant plant or animal species.

ASSESSMENT CRITERION 2

A thorough understanding of the effects of certain chemical factors is related to and applied as a standard procedure or a corrective action to relevant plant or animal species.

ASSESSMENT CRITERION 3

A thorough understanding of the effects of certain microbiological characteristics is related to and applied as a standard procedure or a corrective action to relevant plant or animal species.

ASSESSMENT CRITERION 4

A thorough understanding of the effects of certain biological processes is related to and applied as a standard procedure or a corrective action to relevant plant or animal species.

ASSESSMENT CRITERION 5

A thorough knowledge and understanding of the principles and use of operational technical systems is related, integrated and applied as a standard procedure or a corrective action to relevant plant or animal species.

SPECIFIC OUTCOME 2

Demonstrate a thorough understanding of the reasons, impacts and implications of specific corrective actions related to water quality.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

A wide range of scholastic and technical concepts related to water and all its aspects is recalled.

ASSESSMENT CRITERION 2

An analysis of collected data or information and the reasons for specific corrective actions are explained and presented.

ASSESSMENT CRITERION 3

Information, especially within the context of corrective actions is independently accessed, analyzed and evaluated.

SPECIFIC OUTCOME 3

Implement corrective actions related to the quality of water and water quality systems.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

Water quality and processing systems are explained and described.

ASSESSMENT CRITERION 2

Quality management systems, as related to water quality are described.

ASSESSMENT CRITERION 3

Quality in existing implemented water quality assurance systems is maintained.

ASSESSMENT CRITERION 4

Water quality and processing systems, ensuring water quality and integrity is maintained.

SPECIFIC OUTCOME 4

Evaluate the effects of corrective actions or adjustments on the water quality requirements.

ASSESSMENT CRITERIA

ASSESSMENT CRITERION 1

The implementation of corrective actions or adjustments on water quality, supply and integrity is evaluated.

ASSESSMENT CRITERION 2

Further adjustments or adaptations to water supply and quality management systems are proposed.

ASSESSMENT CRITERION 3

Water quality management systems are in place and reported on continuously.

UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS

The assessment of qualifying learners against this standard should meet the requirements of

established assessment principles.

It will be necessary to develop assessment activities and tools, which are appropriate to the contexts in which the qualifying learners are working. These activities and tools may include an appropriate combination of self-assessment and peer assessment, formative and summative assessment, portfolios and observations etc.

The assessment should ensure that all the specific outcomes; critical cross-field outcomes and essential embedded knowledge are assessed.

The specific outcomes must be assessed through observation of performance. Supporting evidence should be used to prove competence of specific outcomes only when they are not clearly seen in the actual performance.

Essential embedded knowledge must be assessed in its own right, through oral or written evidence and cannot be assessed only by being observed.

The specific outcomes and essential embedded knowledge must be assessed in relation to each other. If a qualifying learner is able to explain the essential embedded knowledge but is unable to perform the specific outcomes, they should not be assessed as competent. Similarly, if a qualifying learner is able to perform the specific outcomes but is unable to explain or justify their performance in terms of the essential embedded knowledge, then they should not be assessed as competent.

Evidence of the specified critical cross-field outcomes should be found both in performance and in the essential embedded knowledge.

Performance of specific outcomes must actively affirm target groups of qualifying learners not unfairly discriminate against them. Qualifying learners should be able to justify their performance in terms of these values.

- Anyone assessing a learner against this unit standard must be registered as an assessor with the relevant ETQA.
- Any institution offering learning that will enable achievement of this unit standard or assessing this unit standard must be accredited as a provider with the relevant ETQA.
- Moderation of assessment will be overseen by the relevant ETQA according to the moderation guidelines in the relevant qualification and the agreed ETQA procedures.

UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE

The person is able to demonstrate a basic knowledge of:

- Names and functions of all the various components of water supply and quality systems.
- Attributes of water related to water quality.
- The requirements of organisms related to their water need.
- The purposes of maintaining relevant water quality for living organisms.
- Measurement and recording technique.
- Water purification techniques and systems.
- Relevant legislation related to the feeding and care of living organisms.
- Relevant legislations related to water use and environmental issues.
- Interpersonal skills related to communication.
- Sensory and documented cues related to water quality.
- Sensory cues related to the water requirements and use of water by living organisms.

UNIT STANDARD DEVELOPMENTAL OUTCOME

N/A

UNIT STANDARD LINKAGES

N/A

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

Problem solving: Relates to all specific outcomes.

UNIT STANDARD CCFO WORKING

Teamwork: Relates to all specific outcomes.

UNIT STANDARD CCFO ORGANISING

Self Management: Relates to all specific outcomes.

UNIT STANDARD CCFO COLLECTING

Interpreting information: Relates to all specific outcomes.

UNIT STANDARD CCFO COMMUNICATING

Communication: Relates to all specific outcomes.

UNIT STANDARD CCFO SCIENCE

Science and Technology: Relates to all specific outcomes.

UNIT STANDARD CCFO DEMONSTRATING

The world as a set: Relates to all specific outcomes.

UNIT STANDARD CCFO CONTRIBUTING

Self-development: Relates to all specific outcomes.

QUALIFICATIONS UTILISING THIS UNIT STANDARD:

	ID	QUALIFICATION TITLE	OLD LEVEL	NEW LEVEL	STATUS	END DATE	QUALITY ASSURING BODY
Core	48979	National Certificate: Animal Production	Level 4	New Level Assignment Pend.	Reregistered	2012- 06-30	AgriSETA
Core	49009	National Certificate: Plant Production	Level 4	New Level Assignment Pend.	Reregistered	2012- 06-30	AgriSETA

PROVIDERS CURRENTLY ACCREDITED TO OFFER THIS UNIT STANDARD:

This information shows the current accreditations (i.e. those not past their accreditation end dates), and is the most complete record available to SAQA as of today. Some Quality Assuring Bodies have a lag in their recording systems for provider accreditation, in turn leading to a lag in notifying SAQA of all the providers that they have accredited to offer qualifications and unit standards, as well as any extensions to accreditation end dates. The relevant Quality Assuring Body should be notified if a record appears to be missing from here.

NONE