No. 336 ***8* April *2005***

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

Radiation Protection

Registered by **NSB 10,** Physical, Mathematical, Computer and Life Sciences publishes the following qualification and unit standards for public comment.

This notice contains the titles, fields, subfields, NQF levels, credits, and purpose of the qualification and unit standards. The qualification and unit standards can be accessed via the **SAQA** web-site at www.saqa.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the **SAQA** offices, Hatfield Forum West, 1067 Arcadia Street, Hatfield.

Comment on the qualification and unit standards should reach SAQA at the address below and no later *than 7 May* **2005.** **All** correspondence should be marked Standards Setting - **SGB** Radiation Protection and addressed to

The ectc Standards Setting and Development
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ACTING DIRECTOR: STA NDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Radiation Monitoring

SAQA QUAL ID	*QUALIFICATION TITLE*		
49596	National Certificate: Radiation Monitoring		
SGB *NAME*		*NSB 10*	*PROVIDER NAME*
SGB for Radiation Protection		Physical, Mathematical, Computer and Life Sciences	
QUAL TYPE		*FIELD*	*SUBFIELD*
National Certificate		Physical, Mathematical, Computer and Life Sciences	Physical Sciences
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUALIFICATION CLASS*
Undefined	120	Level 3	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Qualified learners are able to take appropriate action, given a set of prescribed procedures, and are expected to be able to do this during normal and emergency operations. They participate in programs for radiation protection of workers, radiation protection of the public through control of radioactive discharges, waste management, and transport of radioactive materials. They have an understanding of radiation monitoring concepts and/or are able to work in areas of radiation protection. Finally, this qualification has been developed to assist with professionalisation across the radiation protection sector. It is intended to allow qualified learners to gain membership of registered professional bodies in the radiation protection industry.

The qualification is aimed at providing a nationally recognised qualification in the radiation protection environment, and at improving professional standards within the discipline.

The unit standards in this qualification will allow vertical and horizontal progression and mobility to obtain other qualifications and competencies credited on the National Qualifications Framework. Achievement of the elective unit standards allow for progression and career pathing into specialist areas within radiation protection. The qualification will make provision for the movement between different subdisciplines of radiation protection.

A learner who has achieved this qualification is competent to perform radiation protection monitoring functions. Qualified learners are capable of:

> Communicating in a variety of ways in the radiation sector
> Using mathematics during radiation monitoring activities
> Selecting radiation and contaminant measurement instruments for specific contexts
> Monitoring radiation and contaminants according to specified requirements
> Managing own workplace relations for optimal productivity
> Adhering to radiation protection measures according to given procedures

In addition, the elective component of the qualification is designed to ensure flexibility, for learners to access different career paths that are related to radiation monitoring, in the areas of measurement, control and instrumentation, occupational safety, hygiene and environment, project management, nuclear power plant operation, fossil power plant process control, power plant auxiliary systems operation, and wastewater reticulation services.

Rationale

This qualification reflects the workplace-based and broader environmental needs of the radiation protection sector that are expressed by employers, employees and society at large for both current and future purposes. It allows learners employed in the radiation protection field to participate in further learning in the

areas of implementation and maintenance of radiological control programmes, standards development, assessment and programme design, and to perform relevant roles in the broader radiation protection environment.

Target learners include mainly helpers in the radiation protection field, as well as medical professionals, waste disposal workers, and industrial radiographers, and everyone who wishes to pursue a career in radiation protection, health and safety and physical sciences sectors. Also, achieving these competencies will impact on members of the public who are protected against ionising radiation by gathering data. In the same manner, learners achieving this qualification will contribute to the establishment and maintenance of radiologically safe workplaces and environments. This National Certificate is intended to be an entry-level qualification, at the Further Education band, in the area of radiation protection. It aims to enhance readiness for further learning in radiation protection and related fields at the Further Education level, as well as providing for initial employment in the radiation protection field.

Learners come from schooling or the workplace and can be with or without school-based learning achievements. One of the most important needs for this qualification is to provide recognition of prior learning. There are currently no unit standards based registered qualifications for radiation protection monitoring. Training is currently not provided against nationally recognised qualifications based on unit standards, which this qualification will be addressing. People with workplace experience in the areas covered by this qualification will now be allowed to request assessment and get recognition for prior learning. The qualification is internationally comparable and improved competence in this area will improve South Africa's ability to compete. Based on legal requirements for facilities, employees are appointed to work in this area, and, therefore, by implication, appointment of qualified learners will ensure that they meet the requirements for competence.

Qualified learners are employed for surveying radiation. There are known health risks, as exposure to radiation is a known carcinogen causing cancers and illness. Environment and political sensitivity is required and the sector is under environmental and political pressure to ensure good practice in terms of occupational health, safety and the environment. International standards are currently stricter in terms of allowable levels of radiation than in South Africa. Prior to the 1980s, the area of employment was closed to specific race groups. This qualification will improve access to employment and provide a formal qualification for experience, with the resulting access to further learning and career pathways.

The qualification is designed to:
> Provide qualified learners with an entry into the field of basic radiation monitoring
> Prepare qualified learners for initial employment in the radiation protection industry
> Allow many of the listed unit standards to be used in learnership schemes in the radiation protection sector, as well as other sectors where radiation monitoring is a key requirement
> Provide a qualification for people who are pursuing a career in the radiation protection fields.

RECOGNIZE PREVIOUS LEARNING?

N

LEARNING ASSUMED TO ***BE IN PLACE***

The qualification design assumes that learners are already competent at:
> NQF Level 2 Mathematic Literacy
> NQF Level 2 Communication
> Balancing constitutional and legal rights of individuals with the competence to legally infringe those rights in the service of maintaining a safe and secure society
> Natural and Physical Sciences at NQF Level 2.

Recognition of Prior Learning (RPL)

This qualification can be achieved wholly, or in part, through recognition of prior learning. Evidence can be presented in a variety of forms, including previous international or local qualifications, reports, testimonials, mentoring, functions performed, portfolios, work records and performance records. As such, evidence should be judged according to the general principles of assessment described in the notes to assessors below. Learners who have met the requirements of any Unit Standard that forms part of this qualification may apply for recognition of prior learning to the relevant Education and Training Quality Assurance body (ETQA). The applicant must be assessed against the specific outcomes and with the assessment criteria for the relevant Unit Standards. A qualification will be awarded should a learner demonstrate that the exit level outcomes of the qualification have been attained.

QUALIFICATION RULES

All the Fundamental Component Unit Standards are compulsory (36 credits).
All the Core Component Unit Standards are compulsory (62 credits).
For the Elective Component learners are required to attain at least 22 credits out of the available 99 credits.

EXIT LEVEL OUTCOMES

1. Communicate in a variety of ways regarding radiation monitoring
2. Obtain radiation and contaminant measurement instruments appropriate for specific contexts
3. Monitor radiation and contaminants according to specified requirements
4. Adhere to radiation protection measures according to given procedures
5. Managing own relations for optimal productivity

ASSOCIATED ASSESSMENT CRITERIA

1.
> Completion of appropriate documentation meet specified requirements
Range: documentation includes work permits, clearance certificates, recording of pre- and post-operational monitoring results, recording of personnel records regarding dosimetry, etc.
> Communication is appropriate for specific audiences and contexts
> Reporting regarding radiation instrument testing and monitoring of radiation and contaminants meets specified requirements .

2.
Range: Instruments are portable hand-held, bench top instruments, and not in-plant/fixed installations; instruments refers also to equipment
> Instruments selected are appropriate for the location of, type of and reason/purpose for measurement
> Instruments are handled safely and according to principles of operation
> Pre and post operational instrument testing meets specified operational, legal and safety, health and environmental requirements
Range: operational requirements relate to the use of sources to check instruments, checking reading range acceptability, confirming instrument setting correctness, applying calibration/correction factors such as efficiency calculations, conversions etc. to instrument readings

3.
Range: radiation, surface contamination, airborne contamination (inc. radon), radioactive waste, environmental samples such as grass, water, air etc. are included in monitoring
> Number bases and measurement units are used correctly when monitoring radiation and contaminants
> Workplace areas are identified correctly according to given area dassification systems
Range: identification includes mapping, area classification, and reasons for classification)
> Surveys are conducted according to specified procedures
> Hazardous conditions are accurately identified
> Results obtained during monitoring are verifiable
> Monitoring take place in the correct locations
> Samples are taken according to procedures
> Handling of samples prevents contamination
> Recording, storage and handover of results to relevant persons meet specified procedural requirements

4.
> Requirements of specified radiation protection programs, procedures, and operations are met
> Occurrences are identified and reported according to specified procedures
> Radiation protection measures are enforced at all times within own area of responsibility
> Segregation and categorisation of radioactive and non radioactive materials is based on specified activity limits in accordance with specified standards
> Radioactive materials handling meets specified requirements
> Control of personal dosimetry meets specified requirements

5.
> Problem solving techniques are justified in terms of specific contexts
> Techniques employed to manage stress are justified in terms of the causes of stress
> Explanation of diversity management meets given criteria

Integrated assessment

The assessment criteria in the unit standards are performance-based, assessing applied competence of

radiation monitoring practitioners, rather than only underpinning knowledge, or only skills. The Critical Cross. Field Outcomes are also achieved in the unit standards. In addition to the competence assessed to achieve the unit standards, learners must demonstrate that they can achieve the outcomes in an integrated manner. They must deal effectively with different and random demands related to radiation monitoring practitioner occupational and learning contexts, to qualify. Assessment approaches used should be appropriate for assessing applied competence of radiation monitoring practitioners. Integrated assessment is meaningful if there are clear relationships between the purpose statement, exit level outcomes and integrated assessment of this qualification.

Learners who qualify must be able to integrate concepts, ideas and behaviours across unit Standards to achieve the purpose of the Qualification. Evidence (as specified in the associated assessment criteria) is required that the learner is able to achieve the Exit Level Outcomes of the qualification as a whole and in an integrated way, and thus its purpose, at the time of the award of the qualification.

Evidence of integration may be presented by learners when being assessed against the unit standards, and separate assessment for integration may not be necessary. Workplace experience can be recognised when assessing towards this qualification. Integrated assessment should include observable performance as well as the quality of thinking behind such performance. Formative assessment can be employed during learning towards the unit standards and during integration to achieve exit level outcomes, to ensure that integration takes place when summative assessment is employed.

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a learner is able to achieve all exit level outcomes of the qualification. The identification and solving of known problems, team work, organising self, using of data, implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

Certain exit level outcomes are measurable and verifiable through assessment criteria assessed in one application. Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the radiation protection environment. Competence will be assessed when conducting formative and summative assessment.

Development of the competencies may be through a combination of formal and informal learning, self-learning, training programmes and work-based application. The practical, applied, foundational and reflexive competencies demonstrated for the group of assessment criteria in this qualification, must prove that the whole competence is more than the sum of the parts of the competencies. Providers should conduct diagnostic and formative assessment. Formative, continuous and diagnostic assessments should also take place in the work place, if applicable. The learner should also be able to assess him or herself and determine readiness for a summative assessment against this qualification.

During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflexive competencies, Input to completing the Integrated Assessment typically makes use of combinations of the following assessment methods:
1. Time-constrained written examinations
2. Coursework Evaluations
3. Continuous Evaluation
4. Practical Evaluation
5. Evaluation of Portfolios of Evidence

The assessment criteria for formative assessment are described in the various unit standards. Formative assessment takes place during the process of learning and assessors should use a range of assessment methods and tools that support each other to assess total competence.

These tools include the following:
> In-situ (on-the-job) observations
> Role-play simulations
> Structured group discussions
> Knowledge tests, exams, case studies, projects, registers, logbooks, workbooks
> Oral report backs (presentations)
> Portfolios of evidence
> Projects

> Experientiallearning
> Working in teams
> Scenario sketching

The assessment methods andlor tools used by the assessor must be fair in a sense that they do not hinder or advantage the learner, valid in a sense that they measure what they intend to measure, reliable in a sense that they are consistent and delivers the same output across a range of learners and practical in a sense that they take into account the available financial resources, facilities, equipment and time.

Summative assessment/terminal assessment is carried out at the end of the learning programme to assess the achievement of the learner. A detailed portfolio of evidence is required to prove the practical, applied and foundational competencies of the learner.
Assessors should keep the following general principles in mind when designing and conducting assessments:
> Focus the initial assessment activities on gathering evidence in terms of the main outcomes expressed in the titles of the Unit Standards to ensure assessment is integrated rather than fragmented. Remember that the learners are declared competent in terms of the qualification purpose and exit level outcomes.
> Where assessment across Unit Standard titles or at Unit Standard title level is unmanageable, then focus assessment around each specific outcome, or groups of specific outcomes. Take special note of the need for integrated assessment,
> Make sure evidence is gathered across the entire range, wherever it applies.

In particular, assessors should assess that the learner demonstrates an ability to consider a range of options by:
> Measuring the quality of the observed practical performance as well as the theory and underpinning knowledge.
> Using methods that are varied to allow the learner to display thinking and decision making in the demonstration of practical performance.
> Maintaining a balance between practical performance and theoretical assessment methods to ensure each is measured in accordance with the level of the qualification.
> Taking into account that the relationship between practical and theoretical components is not fixed, but varies according to the type and level of qualification.

All assessments should be conducted in line with the following well-documented principles:
> Appropriate: The method of assessment is suited to the performance being assessed.
> Fair: The method of assessment does not present any barriers to achievements, which are not related to the evidence.
> Manage: The methods used make for easily arranged cost-effective assessments that do not unduly interfere with learning.
> Integrate into work or learning: Evidence collection is integrated into the work or learning process where this is appropriate and feasible.
> Valid: The assessment focuses on the requirements laid down in the standards; i.e. the assessment is fit for purpose.
> Direct: The activities in the assessment mirror the conditions of actual performance as close as possible.
> Authentic: The assessor is satisfied that the work being assessed is attributable to the learner being assessed.
> Sufficient: The evidence collected establishes that all criteria have been met and that performance to the required Standard can be repeated consistently.
> Systematic: Planning and recording is sufficiently rlgorous to ensure that assessment is fair.
> Open: Learners can contribute to the planning and accumulation of evidence. Learners for assessment understand the assessment process and the criteria that apply.
> Consistent: The same assessor would make the same judgement again in similar circumstances. The judgement made is similar than the judgement that would be made by other assessors

INTERNATIONAL COMPARABILITY

internationally, training In radiation protection and the safe use of radiation sources distinguishes between different types and levels of learning. The International Atomic Energy Agency identifies eight types of learners: qualified experts, radiation protection officers, workers, qualified operators, health professionals, managers, staff of regulatory bodies and emergency response personnel. The equivalent of this qualification is radiation protection officers and qualified operators. The main countries involved in radiation protection tralning internationally are the United States of America (USA) and Australia. In Africa, Ghana, Kenya, Zambia, Tanzania, and Nigeria are involved with radiation protection services and training. In Zambia, a radiation protection Diploma and Degree exists, both at a higher level than this qualification. Zambia also has a Radiation Protection Officer's Training Course, but information regarding this and other

African countries' courses was not available. South Africa is by far the most active country in Africa.

In Australia, training addresses all components contained in this qualification, namely, the nature of ionising radiations and their interactions, quantities (dose, dose rate, activity, half-life), measurements (monitoring, dosimetry, techniques), legal requirements, and principles (time, distance, shielding, and containment). Elective components include specialization regarding open sources (e.g. unsealed radioactive work), closed sources (e.g. industrial density gauge work), X-rays (e.g. security scanner work), construction (e.g. nuclear density gauges), and non destructive testing (e.g. Radiography).

Equivalent training in the USA is focused at a Higher Education level, in the form of continuing education. The courses address concepts such as atoms and nuclei, radiation, radiation units, biological effects of radiation, risk and protection, internal and external radiation protection, dose and exposures, contamination control, sampling, surveying and monitoring, handling and storage of radioactive materials, radioactive waste management, safety and contingency planning, record keeping and reporting. Most of these areas are all addressed, albeit at a less complex level, in the South African qualification. Most USA programs are University based.

ARTICULATION OPTIONS

Vertical articulation is possible with the Further Education and Training Certificate: Radiation Protection NQF Level **4,** Further Education and Training Certificate: Measurement, Control and Instrumentation NQF Level **4 (48919),** National Certificate: Occupational Safety, Hygiene and Environment NQF Level **2 (48804),** National Certificate: Generic Project Management NQF Level **4 (21160),** National Certificate: Nuclear Power Plant Operation NQF Level **4 (23733),** and National Diploma: Fossil Power Plant Process Control NQF Level 5 **(23679).**

Horizontal articulation on the NQF is possible with all NQF Level 3 qualifications through the Fundamental component, and specifically also with the National Certificate: Measurement, Control and Instrumentation NQF Level **3 (48696),** National Certificate: Power Plant Auxiliary Systems Operation NQF Level **3 (23677),** and National Certificate: Wastewater Reticulation Services NQF Level 3 **(48905).**

MODERATION OPTIONS

Moderation of assessment and accreditation of providers shall be at the discretion of a relevant ETQA as long as it complies with the SAQA requirements. The ETQA is responsible for moderation of learner achievements of learners who meet the requirements of this qualification. Particular moderation and accreditation requirements are:
> Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant ETQA or through a Memorandum of Understanding with the relevant ETQA. Providers offering learning towards achievement of any of the unit standards that make up this Qualification must also be accredited through the relevant ETQA accredited by SAQA.
> The ETQA will oversee assessment and moderation of assessment according to their policies and guidelines for assessment and moderation, or in terms of agreements reached around assessment and moderation between the relevant ETQA and other ETQAs and in terms of the moderation guideline detailed here.
> Moderation must include both internal and external moderation of assessments for the qualification, unless the relevant ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described in Unit Standards as well as the integrated competence described in the qualification. All moderators moderating the assessment of a learner for this qualification must be registered with the relevant ETQA
> Internal moderation of assessment must take place at the point of assessment with external moderation provided by a relevant ETQA according to the moderation guidelines and the agreed ETQA procedures.
> Anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

To ensure that national standards are maintained, the final assessment should be conducted on the following basis, which will be under the control of the relevant ETQA:
> Integrated assessment of the learner needs to be undertaken using the necessary assessment tools (viz. ETQA approved assessor guides) to ensure consistent Integrated assessment. The setting of assessor guides can be performed by the ETQA itself or a nominated body or bodies.
> Assessment can be institutional and/or workplace-based, but must be done by a registered assessor.
> ETQA verification (external moderation) will be undertaken as required, to ensure that the quality of NQF standards is maintained nationally.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessment of learner achievements takes place at providers accredited by the relevant ETQA (RSA, 1998b) for the provision of programs that result in the outcomes specified for this qualification. Anyone assessing a learner or moderating the assessment of a learner against this qualification must be registered as an assessor with the relevant ETQA. Assessors registered with the relevant ETQA must comply with the requirements for assessors as prescribed by the relevant ETQA and must carry out the assessment of learners for the qualification and any of the Unit Standards that make up this qualification.

Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

Unit standards associated with the qualification must be used to assess specific and critical cross-field outcomes. During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies

To register as an assessor, the following are required:
> Detailed documentary proof of relevant qualification/s, practical training completed or experience gained at an NQF level above the level of this qualification
> Declared competent in all the outcomes of the National Assessor Unit Standards as stipulated by SAQA, registered as assessors with the relevant ETQA, in accordance with the policies and procedures defined by the ETQA, and certificated by the ETDP SETA or by the relevant ETQA in agreement with the ETDP SETA in this regard
> A minimum of two years practical, relevant occupational experience

NOTES

N/A

UNIT STANDARDS
(Note: A blank space after this line means that the qualification is not based on Unit Standards.)

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	114932 Explain how to manage diversity in the workplace	Lard3	2	Registered
Core	114941 Apply knowledge of HIV/AIDS to a specific business sector and a workplace.	Level 3	4	Registered
Core	114946 Identify causes of stress and techniques to manage it in the workplace	Lwei 3	2	Registered
Core	114952 Apply problem-solving techniques to make a decision or solve a problem in a real life context	Level 3	2	Registered
Core	115093 Control workplace hazardous substances	Level 3	4	Registered
Core	116534 Carry out basic first aid treatment in the workplace	Level 3	2	Registered
Core	119494 Test radiation or contaminant measurement instruments	Level 3	12	Draft - Prep for P Comment
Core	119495 Select radiation or contaminant measurement instruments	Level 3	12	Draft - Prep for P comment
Core	119496 Implement radiation protection measures	Level 3	io	DraR - Prep for P Comment
Core	119497 Collect data regarding radiological conditions	Level 3	12	Draft - Prep for P Comment
Elective	7567 Produce and use spreadsheets for business	Level 3	5	Reregistered
Elective	7570 Produce word processing documents for business	Level 3	5	Reregistered
Elective	7575 Produce presentation documents for business	Level3	5	Reregistered
Elective	10150 Provide assistance in implementing and assuring project work is conducted in accordance with the project quality plan	Level3	6	Reregistered
Elective	12457 Develop learning strategies and techniques	Level 3	3	Registered
Elective	14019 Plan team work functions and complete reports	Level 3	4	Registered
Elective	14036 Describe plant instrumentation and process measurement used on Power Generation plant	Lard3	3	Registered
Elective	114615 Maintain analytical equipment	Level 3	7	Registered
Elective	114620 Demonstrate fault finding techniques on field instrumentation	Lwei 3	a	Registered
Elective	115109 Grade the potential of specified industrial processes to impact on environmental receptors	Level 3	5	Registered

Elective	116523 Demonstrate knowledge of basic occupational hygiene principles	Level 3	2	Registered
Elective	116524 Measure environmental factors and take appropriate action	Level 3	15	Registered
Elective	10981 Supervise work Unit to achieve work unit objectives (individuals and teams)	Level 4	12	Registered
Elective	12066 Operate telemetric and electronic equipment and scientific instrumentation	Level 4	12	Registered
Elective	13705 Describe fundamental instrumentation end measurement equipment associated with nuclear power plant	Level 4	3	Registered
Elective	13727 Operate radioactive liquid waste treatment and handling systems	Level 4	17	Registered
Elective	13801 Operate radioactive gaseous waste handling systems	Level 4	3	Registered
Elective	14058 Describe instrumentation control within a process control system	Level 4	9	Registered
Fundamental	7456 Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5	Reregistered
Fundamental	8968 Accommodate audience and context needs in oral communication	Level 3	5	Reregistered
Fundamental	8969 Interpret and use information from texts	Level 3	5	Reregistered
Fundamental	8970 Write texts for a range of communicative contexts	Level 3	5	Reregistered
Fundamental	8973 Use language and communication in occupational learning programmes	Level 3	5	Reregistered
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	Reregistered
Fundamental	9012 Investigate life and work related problems using data and probabilities	Level 3	5	Reregistered
Fundamental	9013 Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4	Reregistered

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Collect data regarding radiological conditions

SAQA US ID	*UNIT STANDARD TITLE*		
119497	Collect data regarding radiological conditions		
SGB NAME		*NSB 10*	*PROVIDER NAME*
SGB for Radiation Protection		Physical, Mathematical, Computer and Life Sciences	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Physical, Mathematical, Computer and Life Sciences	Physical Sciences
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	12	Level 3	Regular

SPECIFIC OUTCOME 1

Identify monitoring areas according to specified data collection requirements.

SPECIFIC OUTCOME 2

Select locations/points for surveying based on specified operational requirements.

SPECIFIC OUTCOME 3

Collect environmental samples that meet specified quality requirements.

SPECIFIC OUTCOME 4

Measure radiological conditions according to specified measurement requirements.

SPECIFIC OUTCOME 5

Communicate data collection results in specified formats.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Implement **radiation protection measures**

SAQA US ID	*UNIT STANDARD TITLE*		
119496	Implement radiation protection measures		
SGB NAME		*NSB 10*	*PROVIDER NAME*
SGB for Radiation Protection		Physical, Mathematical, Computer and Life Sciences	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Physical, Mathematical, Computer and Life Sciences	Physical Sciences
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 3	Regular

SPECIFIC OUTCOME 1

Segregate radioactive from non-radioactive materials based on specified activity limits.

SPECIFIC OUTCOME 2

Categorise/classify radioactive materials in accordance with specified standards.

SPECIFIC OUTCOME 3

Route radioactive materials to appropriate facilities.

SPECIFIC OUTCOME 4

Control access to radiologically classified areas according to specified requirements.

SPECIFIC OUTCOME 5

Control personal dosimetry according to specified requirements.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Select radiation or contaminant measurement instruments

SAQA US ID	*UNIT STANDARD TITLE*		
119495	Select radiation or contaminant measurement instruments		
SGB NAME		*NSB 10*	*PROVIDER NAME*
SGB for Radiation Protection		Physical, Mathematical, Computer and Life Sciences	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Physical, Mathematical, Computer and Life Sciences	Physical Sciences
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	12	Level 3	Regular

SPECIFIC OUTCOME 1

Gather accurate information regarding measurement areas according to specified procedures.

SPECIFIC OUTCOME 2

Determine type and level of radiation or contaminant to be measured within specific contexts.

SPECIFIC OUTCOME 3

Assess the suitability of instruments for specific measurements.

SPECIFIC OUTCOME 4

Identify instruments appropriate for specific measurements and contexts.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

SAQA US ID	*UNIT STANDARD TITLE*		
119494	Test radiation or contaminant measurement instruments		
SGB NAME		*NSB 10*	*PROVIDER NAME*
SGB for Radiation Protection		Physical, Mathematical, Computer and Life Sciences	
UNIT STANDARD TYPE		*FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Physical, Mathematical, Computer and Life Sciences	Physical Sciences
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	12	Level *3*	Regular

SPECIFIC OUTCOME 1

Identify operational tests according to specified procedures.

SPECIFIC OUTCOME 2

Handle instrument testing sources safely.

SPECIFIC OUTCOME 3

Determine functionality of instruments using specified techniques,

SPECIFIC OUTCOME 4

Record test results accurately and in required formats.