



Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

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

Physical, Mathematical, Computer and Life Sciences

publishes the following qualifications and unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualifications and unit standards. The qualifications 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, Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the qualification and unit standards should reach SAQA at the address *below and no later than 15 August 2005*. All correspondence should be marked **Standards Setting – SGB Environmental Science, Environmental Management and Waste Management** and addressed to

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ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Environmental Practice

SAQA QUAL ID	QUALIFICATION TITLE		
49752	National Certificate: Environmental Practice		
SGB NAME	NSB 10	PROVIDER NAME	
SGB Environmental Sc/ Mgt & Waste Mgt	Physical, Mathematical, Computer and Life Sciences		
QUAL TYPE	FIELD	SUBFIELD	
National Certificate	Physical, Mathematical, Computer and Life Sciences	Environmental Sciences	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	122	Level 3	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification is the third in a series for practitioners in the field of environmental science, environmental management and waste management. This series of qualifications will equip practitioners with the skills, knowledge and values to contribute towards the wise and effective use and management of our natural resources and ecological systems.

The specific purpose of this qualification represents the skills, knowledge and understanding required by competent practitioners to:

- > Operate and maintain complex machinery and equipment in an environmentally responsible manner
- > Apply appropriate environmental principles to prevent, correct or remedy negative environmental impacts
- > Lead a team and work together with others to promote sound environmental practices.

With this understanding, learners will be able to engage productively and responsibly in work or community-related activities in the field of environmental science, environmental management and waste management. This qualification will also serve as a basis for further learning, and will equip learners with the knowledge, skills and values to participate meaningfully in society and contribute towards developing sustainable communities.

This qualification is applicable to a range of contexts within the field of environmental science, environmental management and waste management, such as local government, public and private waste management enterprises, cultural or natural heritage sites, community projects, recycling and recovery of resources, controlling and eradication of invasive and alien species, rural development and site preparation or rehabilitation. It is also suitable for workers with environmental functions in a range of industries such as mining and chemical industry or manufacturing. The following are typical contexts in which this qualification can be assessed:

- > Waste management related activities, eg
 - > Materials recovery and buy-back centres
 - > Waste reception
 - > Landfill operations
- > Water course cleaning, care and maintenance
- > Care of public places, open areas, cultural and natural heritage sites
- > Maintenance of parks and sports fields
- > Community projects and job creation schemes relating to environmental practice
- > General industrial and extraction, ie activities with an environmental care or improvement focus.

Rationale:

South Africa has a need to manage and protect its natural resources and ecological systems, while simultaneously using its resources in a sustainable manner to promote social, physical and economic development.

There is also a need for people as individuals, and as members of social or workplace communities, to become aware of their responsibilities towards the environment and to be empowered to make informed choices regarding their own activities and the impact that these activities have on the environment. There is also a need for people to develop practices which will ensure that their activities, individually and collectively, result in the sustainable use of resources and minimise impact on the environment.

Recent developments in environmental legislation have resulted in an increased demand for practitioners with the necessary skills, knowledge and values to fulfil these legislative requirements.

Such practitioners - as learners, as workers and as members of social communities - need to be equipped to engage with the complexities and challenges which arise from this need to ensure that use and development is socially, ecologically and economically sustainable.

This qualification will enable providers, assessors and learners to plan, implement and measure the outcomes of suitable learning programmes, or to recognize prior learning. It will recognise the skills, knowledge and values of learners who engage actively in activities relevant to the field of environmental science, environmental management and waste management. The qualification is suitable for learners who:

- > Have attended environment related courses and then apply the knowledge gained to activities in a workplace or in a community, or
- > Are already workers and have acquired the skills and knowledge without attending formal courses, or
- > Are already active in the community and have acquired the skills and knowledge without attending formal courses, or
- > Participate in skills programmes and the appropriate work experience or community work, or
- > Are part of a learnership programme which integrates structured learning and work experience, or
- > Acquire their learning through any combination of the above.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

It is assumed that the learner is competent in Communication and Mathematical Literacy at NQF level 2.

Recognition of prior learning:

This qualification may be obtained through the process of RPL. The learner should be thoroughly briefed prior to the assessment and support should be provided to assist the learner in the process of developing a portfolio. While this is primarily a context-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the Exit Level Outcomes.

ACCESS TO THE QUALIFICATION

Access to this qualification is open.

However, it is preferable that learners first complete the National Certificate: Environmental Practice: Level 2 or equivalent before accessing this qualification. The learner will need access to suitable specialised vehicles and/or complex machinery and equipment.

QUALIFICATION RULES

All Fundamental (40) credits and Core (70) credits are compulsory. Then a learner has to choose 12 elective credits from the elective component to make up the minimum required credits of 122. If a learner selects First Aid as an elective all 3 first aid standards should be done.

EXIT LEVEL OUTCOMES

The Exit Level Outcomes for this qualification reflect a combination of Specific Outcomes and Critical Cross-Field Education and Training Outcomes. The way in which the Critical Cross-Field Outcomes have been advanced through the learning required for this qualification is embedded in the way in which the unit standards have been constructed. Critical Cross-Field Outcomes form the basis for acquiring skills, knowledge and values. The application of these in a specific context results in the achievement of Specific

Outcomes. The integration of Specific Outcomes from a variety of unit standards results in the ability to achieve the Exit Level Outcomes.

Exit level outcome 1

> Operate and maintain specialised vehicles and/or complex machinery and equipment.

> Range: Includes movable and static equipment for material treatment and processing functions which include consolidating, packaging (collection and handling), transferring and transporting materials, waste treatment and recycling, waste disposal, etc.

Exit level outcome 2

> Apply principles of environmental monitoring to identify anomalies and report on conditions and incidents related to the learner's area of responsibility, and implement appropriate action.

Exit level outcome 3

> Use and handle resources in a sustainable way within the framework of applicable standards

> Range: Resources include natural resources, materials, energy, waste, etc. Handle includes transporting, storing, disposing of, classifying, etc. This outcome also includes an awareness of primary or fundamental pollution control equipment for soil, air, water, noise and energy. Standards are levels of performance set by the organisation, by legislation or by regulations.

Exit level outcome 4

> Provide input for environmental management processes.

> Range: Environmental management processes refer to planning, trend analysis, monitoring, auditing and reporting in terms of statutory requirements, etc. Input refers to collected data such as measurements, maintenance records, samples, material usage, etc

Exit level outcome 5

> Interact with supervisor and lead a team within an operational context.

> Range: Lead includes coordinating, scheduling, planning, organising, and evaluating operational activities. The team is led to complete routine tasks.

Exit level outcome 6

> Communicate with supervisors, the public, customers and colleagues to pass on information and to resolve problems or complaints.

ASSOCIATED ASSESSMENT CRITERIA

Assessment criteria associated with Exit level outcome 1

> Operations related to the process are monitored and controlled in terms of safety, health and environmental considerations.

> Range: The process includes activities such as operating an incinerator; handling effluent; using truck-mounted materials handling and compacting equipment; operating forklifts; liquid bulk loading; baling, compacting and shredding waste; checking and testing samples; monitoring and checking the quality of materials; mixing and preparing ingredients and chemicals; monitoring the flow and quality of materials and ingredients; monitoring and controlling the use of consumables.

> Operational incidents, events and problems are identified and addressed appropriately.

> The process is monitored and adjustments are made to maintain operational standards.

> Procedures are followed and enforced correctly.

> The product produced or service delivered meets operational requirements specified.

> Range: Product refers to results of an action or process, eg compacted materials. Service refers to work done to prevent, correct or remedy environmental impacts, eg operating an incinerator. Operational requirements refer to those standards set at the site by the team, by the organisation and by legislation or regulation.

Assessment criteria associated with Exit level outcome 2

- > Basic principles of environmental monitoring and inspection are demonstrated in practice.
 - > Range: Awareness of monitoring and measuring techniques for environmental parameters.
- > Appropriate tools and protocols are used to measure conformance to quality standards and to identify deviations.
 - > Range: Conformance and deviations relate to components and interrelationships between components of the environment and include the impact of human activities on the components of the environment. (All references to the impact of human activities on the environment implicitly include the subsequent impact of the degraded environment on human health and well-being in accordance with accepted definitions of the environment.) Used: where applicable, includes selecting appropriate tools and protocols.
- > Action plans to address the deviations are developed and implemented, and their outcomes evaluated.
- > Deviations from set standards are prevented, corrected, or remedied
 - > Range: Prevented, corrected, or remedied includes early detection and appropriate solutions (ie within the learner's capacity and authority) Standards are levels of performance set by the organisation, by legislation or by regulations.

Assessment criteria associated with Exit level outcome 3

- > Preventive measures are applied to control the impact of incorrectly used and handled resources on the environment.
 - > Range: Includes management of impacts.
- > Safety, health, security and environmental safeguards are applied, monitored and controlled at all times.
- > Use of resources is monitored and controlled on an on-going basis.
 - > Range: Includes application of relevant environmental management tools and protocol.
- > Resources are used in a sustainable manner.
 - > Range: Includes identifying opportunities for, and optimising, wise use of resources.

Assessment criteria associated with Exit level outcome 4

- > Data input equipment is selected, used and maintained.
 - > Range: Data input equipment can range from hand held data recording equipment to weighbridges, etc.
- > Relevant, accurate data is collected, recorded and managed.
 - > Range: Includes sample collection, taking measurements, reporting, etc.
- > The purpose of the environmental management processes and the relevance of the data is explained.
 - > Range: Includes basic knowledge and understanding of EMS audit principles and of the requirements of the information system as defined in relevant environmental standards.

Assessment criteria associated with Exit level outcome 5

- > Tasks and resources are allocated, and productivity and quality of work is monitored and controlled on an on-going basis.
 - > Range: Includes knowledge of employment conditions, job descriptions, time sheets, etc.
- > Interpersonal skills are demonstrated at all times.
 - > Range: Includes approachability, leadership skills, establishing and maintaining relationships, resolving conflict.
- > Health, safety and environmental standards are ensured at all times.
- > Team targets are met within quality standards.

Assessment criteria associated with Exit level outcome 6

- > Appropriate responses are made to public and customer comments.
 - > Range: Public and customer includes the community.
- Appropriate responses include recording, providing information, referring to supervisor, etc, and include knowledge of the type of communication which should be referred to a higher level of authority.