No. 1366 **19 December 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

Mining and Minerals

registered by Organising Field 06 – Manufacturing, Engineering and Technology, 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.saqa.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 than 19 January 2009.*** All correspondence should be marked **Standards Setting SGB for Mining and Minerals** and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Small Scale Mining

SAQA QUAL ID	***QUALIFICATION TITLE***		
64909	National Certificate: Small Scale Mining		
ORIGINATOR		***PROVIDER***	
SGB Mining and Minerals			
QUALIFICATION TYPE	***FIELD***	***SUBFIELD***	
National Certificate	6 - Manufacturing, Engineering and Technology	Fabrication and Extraction	
ABET BAND	***MINIMUM CREDITS***	***NQF LEVEL***	***QUAL CLASS***
Undefined	143	Level 2	Regular-Unit Stds Based

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

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

There is international evidence that Small Scale Mining contributes to rural economic development and poverty alleviation (MMSD report, 2002). The National Certificate: Small Scale Mining will assist the process of empowering those who were previously disadvantaged and excluded in obtaining formal certification in mining disciplines.

This qualification is aimed at those responsible for running and operating a Small Scale Mine, and therefore is comprised of all the competencies required to mine. Briefly the core component will address areas such as Occupational Health, Safety and Environment, basic finance and accounting practices, geology and basic maintenance practices.

The specialised electives address the mining process and technology in a range of commodities - quarrying, surface mining, underground hard rock, coal mining and diamond mining.

This qualification will give learners the opportunity to balance their practical skills with the essential knowledge to operate a Small Scale Mine. It is aimed at learners who work or intend to work within a small mining context, and who seek recognition for essential skills in small-scale mining operations.

Learners credited with this qualification are able to:

> Communicate and solve problems in a variety of ways.
> Conduct operations on a Small Scale Mine.
> Demonstrate an understanding of engineering principles in a Small Scale Mine.
> Demonstrate an understanding of basic geological principles.

Rationale:

Small Scale mining is an active part of the South African and International mining economies. Small Scale Mining may be classified as formal (registered, regulated and adhering to legislative frameworks) or informal (often unregistered and not adhering to statutory guidelines).

Formal and informal Small Scale Mining is regionally based and is usually associated with small producing companies although small specialist service companies may fit the definition of small scale. Although formal Small Scale Mining tends to be more stable than the informal sector, it still may be seasonal in nature (dependant on commodity) and therefore the population fluctuates. Small Scale miners are involved in all mineral commodities however the difference is the scale of operations and the level of technology deployed.

Small Scale Mining occurs generally in those mines employing less than 50 people. There has been over the past ten years an increase in Historically Disadvantaged South Africans in the Small Scale sector.

There is a critical need in the industry for competent miners who are able to conduct the operations associated with efficient and safe small-scale mining. It is essential that the sector is regulated and formal qualifications in this field go a long way towards regulation. The aim is to mine the resource optimally and in a sustainable manner in compliance with relevant legislatory requirements.

The majority of the learners for this qualification are likely to be working in the mining and minerals sector however this does not preclude new entrants to this sector. The range of learners will span from informal miners who are operating at a below optimum level through to new entrants to the sector many of whom have a higher level of education than the traditional mining community.

This is the second qualification in a learning pathway of four qualifications for Small Scale Mining operations. This qualification follows on from the General Education and Training Certificate: Mining and Minerals Processes (Small Scale Mining stream.) Learners who have achieved this qualification can progress onto the National Certificate: Small Scale Mining NQF Level 3 - still under development). The pathway ends with the Further Education and Training Certificate: Mining Operations NQF Level 4 (Small Scale Mining stream). This qualification has 4 specialisation streams to follow, based on the different mining environments.

This qualification will enable small-scale miners to mine more efficiently, and in a safe, healthy and environmentally responsible manner.

This qualification can be obtained through recognition of prior learning. There are various entry points into this qualification depending on the learner's level of education and skills/training. It is accessible to all people working in the sector. This qualification is portable and enables the learner to move into other sectors of mining and associated industries.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
It is assumed that learners are already competent in:

> Communication and Mathematical Literacy, NQF Level 1.

Recognition of Prior Learning:

This qualification can be achieved wholly or in part through recognition of prior learning in terms of the criteria laid out above.

Evidence can be presented in a variety of forms, including international or previous local qualifications, reports, testimonials mentioning functions performed, work records, portfolios, videos of practice and performance records.

Access to the Qualification:

Access is open; however it is preferable that learners have completed the General Education and Training Certificate: Mining and Minerals Processes (small-scale mining stream).

QUALIFICATION RULES
A minimum of 143 credits is required to complete the qualification. In this qualification, credits are allocated as follows:

Fundamental:
All unit standards totalling 36 credits must be achieved.

Core:
All unit standards totalling 57 credits must be achieved.

Electives:
Unit standards totaling a minimum of 50 credits must be achieved according to the rules below:

There are four specialisation areas:

> Specialisation Area A: Quarrying.
> Specialisation Area B: Underground Coal Mining.
> Specialisation Area C: Surface Mining.
> Specialisation Area D: Underground Hardrock Mining.

For Specialisation Area A: Quarrying:

The following unit standards (38 credits) must be achieved:

> ID 10484: Demonstrate a basic Understanding of the Aggregates Industry, Level 2, 2 Credits.
> ID 230010: Demonstrate knowledge of the geological nature of surface extraction site, Level 3, 6 Credits.
> ID 115553: Perform standard aggregates physical testing, Level 2, 16 Credits.
> ID 110211: Conduct weighbridge operations, Level 2, 3 Credits.
> ID 257078: Examine and make safe blasted surface excavations, Level 3, 5 Credits.
> ID 257057: Read and interpret surface excavation plans, Level 3, 2 Credits.
> ID 253029: Demonstrate knowledge of evaluating and ensuring excavation stability when re-opening an excavation after a period of time, Level 2, 4 Credits.

A further 12 credits are to be chosen from the rest of the electives to make up a minimum of 143 credits to achieve the qualification.

For Specialization Area B: Coal:

The following unit standards (40 credits) must be achieved:

> ID 9615: Conduct visual inspection of flameproof equipment in an underground coal mine, Level 1, 2 Credits.
> ID 110148: Demonstrate a basic knowledge and understanding of typical underground coal mining processes and layouts, Level 1, 3 Credits.
> ID 110217: Demonstrate knowledge and ability to work in an underground coal mine, Level 1, 8 Credits.
> ID 115092: Measure and record the concentration of flammable and noxious gases and vapours and take appropriate action, Level 2, 2 Credits.

> ID 120323: Analyse a mixture of coal dust and stone dust sample by means of colorimetric method and recommend appropriate remedial action, Level 2, 2 Credits.
> ID 116516: Apply stone dust to inettise coal dust, Level 2, 2 Credits.
> ID 9622: Demonstrate an understanding of the prevention of flammable gas ignition through the use of flame proofing in an underground coal mine, Level 2, 5 Credits.
> ID 9610: Sound and bar down roof and side walls using sounding and barring equipment in an underground coal mine, Level 2, 4 Credits.
> ID 115090: Install explosion barriers to control the propagation of coal dust explosions, Level 2, 2 Credits.
> ID 9613: Ventilate a production section to control gases and dust in an underground coal mine, Level 2, 5 Credits.
> ID 253028: Demonstrate knowledge of various types of pillars and their role as a support medium, Level 2, 2 Credits.
> ID 9611: Conduct statutory examinations in a production section in an underground coal mine, Level 3, 3 Credits.

A further 10 credits are to be chosen from the rest of the electives to make up a minimum of 143 credits to achieve the qualification.

For Specialization Area C: Surface Mining:

The following unit standards (35 credits) must be achieved:

> ID 120437: Demonstrate a basic understanding of health and safety practices on a surface mine, Level 2, 3 Credits.
> ID 120435: Identify hazardous ground conditions in a surface mine and take appropriate action to safeguard persons, machinery and equipment, Level 2, 4 Credits.
> ID 115647: Demonstrate an understanding and operation of water reticulation system in a Surface mine, Level 2, 6 Credits.
> ID 257033: Demonstrate an understanding of support methods in surface mines and quarries, Level 2, 4 Credits.
> ID 257027: Install support in surface mines and quarries, Level 3, 7 Credits.
> ID 257057: Read and interpret surface excavation plans, Level 3, 2 Credits.
> ID 115671: Examine and maintain mine safety in a surface mining context, Level 3, 9 Credits.

A further 15 credits are to be chosen from the rest of the electives to make up a minimum of 143 credits for the qualification.

For Specialization Area D: Underground Hardrock Mining:

The following unit standards (44 credits) must be achieved:

> ID 244416: Make safe a workplace by means of barring, Level 2, 3 Credits.
> ID 244453: Demonstrate an understanding of the identification of and dealing with rock strata conditions, Level 2, 5 Credits.
> ID 244389: Treat and remove misfires, Level 2, 2 Credits.
> ID 244368: Determine velocity of air in a workplace by means of the tape method and take appropriate action, Level 2, 1 Credits.
> ID 244422: Demonstrate knowledge of the most common harmful gases and vapours, Level 3, 4 Credits.
> ID 244405: Determine environmental thermal conditions in an underground workplace by means of a whirling hygrometer and take appropriate action, Level 2, 2 Credits.
> ID 244433: Test for flammable gas in a mining environment by means of a hand held electronic instrument and take appropriate action, Level 2, 2 Credits.
> ID 244400: Describe the basic environmental factors of ventilating an underground working place to ensure a safe and healthy working environment, Level 2, 3 Credits.

> ID 244425: Install underground workplace ventilation controls, Level 2, 3 Credits.
> ID 252694: Achieve and maintain mining excavation stability with support in a tabular hard rock stope panel, Level 2, 3 Credits.
> ID 244450: Support and underground working place by means of anchors placed in drill holes, Level 2, 5 Credits.
> ID 252555: Demonstrate an understanding of the hazards associated with the removal of installed support units under various conditions, Level 2, 4 Credits.
> ID 253037: Achieve and maintain mining excavation stability with support installation in shafts, Level 2, 4 Credits.
> ID 244380: Support an underground working place by means of temporary support units, Level 2, 3 Credits.

A further 6 credits are to be chosen from the rest of the electives to make up a minimum of 143 credits for the qualification.

EXIT LEVEL OUTCOMES

1. Communicate and solve problems in a variety of ways.

2. Demonstrate Occupational Health, Safety and Environmental Principles used in Small Scale Mining.

3. Conduct operations on a Small Scale Mine.

4. Demonstrate an understanding of basic maintenance procedures on a Small Scale Mine.

5. Demonstrate an understanding of basic geological principles.

Critical Cross-Field Outcomes:

While performing operations on a small scale mine, qualifying learners are able to:

Identify and solve problems in which response displays that responsible decisions, using critical and creative thinking, have been made by:

> Monitoring operational procedures on a small scale mine in compliance with relevant procedures and quality assurance requirements.
> Applying maintenance procedure in the small scale mining context.
> Responding to non-conformances in a small scale mining environment.
> Responding to emergencies in a small scale mining operation (plant, buildings, process).
> Applying preventative or remedial action in accordance with operating procedures.

Work effectively with others as a member of a team, group, organisation or community by:

> Contributing to team goals and achievements by adhering to agreed working methods and processes.
> Contributing to team efficiency by supporting other team members in the small scale mining environment.
> Adhering to team protocols, codes of conduct and generally promoting a positive team spirit.
> Coordinating one's work with that of others in the direct surrounding area, internal and external operations.

Organise and manage oneself and one's activities responsibly and effectively by:

> Applying operating instructions to control and respond to small scale mining conditions.
> Taking preventive and remedial action to solve operating problems in a small scale mine.

> Adhering to relevant operational procedures on a small scale mine.

Collect, analyse, organise and critically evaluate information by:

> Collating, interpreting and reporting on geological data.
> Understanding and applying routine maintenance requirements.
> Managing records, reports and stock.

Communicate effectively by using mathematical and/or language skills in the modes of oral and/or written presentations by:

> Interpreting, recording and reporting of minerals processing plant data obtained from visual inspections, instrument readings and process control feedback.
> Completing reports, log sheets, shift handover activities and other process control activities effectively, ensuring that all other team members are aware of critical information.
> Preparing and submitting reports, non-conformance reports and other required documentation.
> Working with modern communications technology such as computer messaging, cellular phones and radio systems in a process control environment.

Use science and technology effectively and critically, showing responsibility towards the environment and health of others by:

> Working according to health and safety regulations; Evident in all Exit Level Outcomes.
> Controlling technologically advanced production equipment according to operating procedures.
> Working and interpreting technologically advanced instrumentation and computer systems.

Demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation by:

> Understanding the impact of upstream, downstream and parallel small scale mining systems upon each other and his own role in each context.
> Requesting assistance from other team members and support personnel.
> Assisting other team members and working together with support personnel to investigate and resolve problem areas.
> Adjusting equipment and machinery while taking cognizance of the impact on other processes.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit level Outcome 1:

1.1. Effective written and verbal communication is demonstrated while performing the tasks related to Small Scale mining.
1.2. Information regarding knowledge, processes and procedures is gathered and applied while performing the tasks related to conducting Small Scale Mining operations.
1.3. Numeracy skills are applied while performing tasks in the operational context.
1.4. Problems and solutions are recorded and monitored for reoccurrence.

Associated Assessment Criteria for Exit level Outcome 2:

2.1. Occupational Health, Safety and Environmental procedures and requirements are understood and explained in line with the needs of the organisation.
2.2. Occupational Health, Safety and Environmental procedures and requirements are applied in line with the needs of a Small Scale Mine.
2.3. Occupational Health, Safety and Environmental conditions are monitored and reported on a continual basis to ensure the safety of persons in the workplace.

Associated Assessment Criteria for Exit level Outcome 3:

3.1. The operational procedures of a Small Scale Mine are understood and explained in terms of the range indicated below.
> Range: Must include but is not limited to Mining processes, Extraction Processes and Business Management.
3.2. The operational procedures are applied in the operational context of a Small Scale Mine.
3.3. Operational procedures are monitored and reported on in line with the needs of a Small Scale Mine.

Associated Assessment Criteria for Exit level Outcome 4:

4.1. Maintenance procedures on a Small Scale Mine are understood, explained and applied according to standard operating procedures.
4.2. Routine maintenance procedures and operations are understood and applied according to manufacturer's instructions.

Associated Assessment Criteria for Exit level Outcome 5:

5.1. Concepts and principles of geology are understood and explained in accordance with the work requirements.
5.2. Basic geological tasks are performed in accordance with the needs and requirements of a Small Scale Mine.

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, and must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

> Observing the learner at work (both in the primary activity as well as other interactions.
> Asking questions and initiating short discussions to test understanding.
> Looking at records and reports in the portfolio and reviewing previous assessments.

In some cases interference will be necessary to determine competence depending on the nature and context within which performance takes place.

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 future learning. The assessment should also ensure that all the critical cross-field outcomes have been achieved.

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes. The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities associated with mining operations in a Small Scale Mine.

INTERNATIONAL COMPARABILITY

Mining occurs in some 80 regions of the world including Africa, South East Asia, South America, India and China to name just a few.

There are no full qualifications in this sector offered anywhere in the world but there are a number of skills development practices in Small Scale mining worldwide and this qualification encompasses the contents of those interventions.

According to the International Labour Organisation (ILO) nearly 13 million people are engaged in Small Scale mining and an estimated 100 million depend on it for their livelihoods.

The Small Scale mining population includes a large proportion of women (an estimated 50%) and in some countries child labour is deployed.

Communities and Small Scale Mining (CASM) is an international organisation formed in 2001 to coordinate activities internationally in the sub sector.

Through a holistic approach, CASM aims to reduce poverty by building sustainable communities in those countries where artisanal and small-scale mining is an important economic activity with positive potential contributions to development.

The strategy to achieve this goal is based on four pillars:

> Better governance and formalization of the sector.
> Initiatives to enhance environmental and technical performance, and socio-economic development.
> Network building for more effective partnerships.
> Knowledge development and best practice sharing.

These strategies are in line with the thinking that has informed the National Certificate: Small Scale Mining, NQF Level 2.

Practical Action Consulting - formerly Intermediate Technology Consultants (ITC) deliver small-scale mining training related to safe and environmentally benign prospection, extraction, processing, value-adding and marketing of mineral materials in various regions all over the world.

It was decided to compare the qualification against learning outcomes from the following countries or regions:

Zambia is a member of the SADC community and has a stable post-colonial government. The mining industry has benefited from the expertise of large international companies operating in the country:

> Mozambique, another SADC country, borders on South Africa. The country is still suffering after an extended civil war and huge efforts are being made to restore the economy and infrastructure.
> Madagascar, an island state on the East of Africa, does not have a well-developed infrastructure and many areas are remote and inaccessible. Much of the mining activities take place on a small scale.
> Zimbabwe, a neighbouring country and SADC member, is currently experiencing economic difficulty. Small scale mining offers a living to many people. Zimbabwe has a good educational system.
> Peru is a Southern American state with a developing economy. The mining industry is not well developed.

> India is one of the fastest growing economies of the world. There is however also great poverty and small scale mining is being developed strategically as a means of alleviating poverty.

Zambia:

> Business Development Seminars for Small Scale gemstone miners Zambia (CSA, 2002).

CSA an Irish based consultancy group conducted seminars and field trips for Small Scale gemstone miners in Zambia. Each participant was asked to prepare a business plan for their own operation which was then critiqued and evaluated.

Mozambique:

> Artisanal mining baseline study, Mozambique (CSA, 2003).

This CSA managed project involved providing technical assistance in the areas health and safety, and environmental issues for Small Scale miners in the province of Zambezia, Mozambique. The project also evaluates the capacity of the ministry to implement a regulatory framework for Small Scale miners.

Madagascar:

> Artisanal Mining baseline study, Madagascar (CSA, 2003).

This CSA managed training forms part of the World banks Reform of the mining sector programme and covered areas such as health and safety, technical capacity, environmental standards and income and livelihoods. The gold sales chain was analysed from each province and resulted in the design of a taxation framework for the gold sales chain.

Zimbabwe:

> Women in mining project, Zimbabwe (Intermediate Technology Group, 1999).

This project involved a training school which offered courses in geology, mining, law, processing and marketing. Lecturers were drawn from universities and state ministries.

Peru:

> Educating artisanal mining children, Peru (US department of labour, 2002).

World learning assisted in setting up educational programmes for children who were assisting their parents in artisanal mining in Peru. The project involved community participation and liaison with school authorities so as to formalise the educational inputs.

India:

> Promoting cleaner production in the Indian Small Scale mining industry (Ghose,M,2003).

India is among the top ten mineral producing nations in the World and approximately 90% of production is based on small mines. This study outlines the need for cleaner production techniques given the poor safety and environmental standards of Small Scale miners.

> Small Capacity Plants in Latin America (Ottley,1991).

This study looks at the reasons for poor performance of small processing plants in Latin America. This includes: lack of capital, lack of spare parts, inaccurate sampling methods, inadequate training and lack of government support.

Training and skills development:

Typical competencies covered by the various programmes are:

> Formalisation of the sector (legal registration etc).
> Business planning.
> Technical support.
> Occupational Health and safety.
> Environmental including environmental impact assessment studies and management.
> Socio-economic surveying of mining communities and key constraints analysis.
> Livelihoods analysis and participatory needs assessment (drawing on the sustainable livelihoods framework).
> Geological exploration, in particular, ore reserve estimation and mining geology.
> Mine design and mine planning, including production and marketing.
> Mine ventilation.
> Mining closure.
> Mineral processing efficiencies.
> Gemstone identification and value-adding.
> Marketing of mineral productions.
> Exploration, exploitation and processing techniques.
> Policy research and strategy formulation from the perspective of small scale miners.

The National Certificate: Small Scale Mining, NQF Level 2 covers all of the above themes. The educational component is covered in the fundamentals.

Conclusion:

The National Certificate: Small Scale Mining, NQF Level 2 qualification compares favourably with the courses offered in other countries particularly in India and other SADC regions.

ARTICULATION OPTIONS
This qualification articulates vertically with the following qualifications:

> ID 62869: National Certificate: Rockbreaker: Surface Excavations, NQF Level 3.
> ID 49014: National Certificate: Rockbreaking: Underground Hardrock, NQF Level 3.
> ID 21812: National Certificate: Mining Operations: Underground Coal, NQF Level 3.

This qualification articulates horizontally with the following qualifications:

> ID 49013: National Certificate: Mining Operations: Underground Hardrock, NQF Level 2.
> ID 60349: National Certificate: Mining Technical Support, NQF Level 2.

MODERATION OPTIONS
> Anyone assessing a learner or moderating the assessment of a learner against the qualification must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body.

> Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant Education, Training, Quality, Assurance (ETQA) Body, or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.

> Moderation must include both internal and external moderation of assessments, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described in the associated unit standards.

> 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.

CRITERIA FOR THE REGISTRATION OF ASSESSORS
Assessors should be in possession of:

> An appropriate qualification above the level of the qualification and preferably relevant workplace practical experience.
> Registration as an assessor with the relevant ETQA.

NOTES
N/A

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119463	Access and use information from texts	Level 2	5
Fundamental	9009	Apply basic knowledge of statistics and probability to influence the use of data and procedures in order to investigate life related problems	Level 2	3
Fundamental	7480	Demonstrate understanding of rational and irrational numbers and number systems	Level 2	3
Fundamental	9008	Identify, describe, compare, classify, explore shape and motion in 2-and 3-dimensional shapes in different contexts	Level 2	3
Fundamental	119454	Maintain and adapt oral/signed communication	Level 2	5
Fundamental	119460	Use language and communication in occupational learning programmes	Level 2	5
Fundamental	7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	Level 2	2
Fundamental	9007	Work with a range of patterns and functions and solve problems	Level 2	5
Fundamental	119456	Write/present for a defined context	Level 2	5
Core	13999	Demonstrate an understanding of basic accounting practices	Level 1	4
Core	115101	Address workplace hazards and risks	Level 2	4
Core	119554	Apply environmental management tools to assess impacts	Level 2	5
Core	116520	Apply safety, health and environmental principles and procedures in a workplace	Level 2	2
Core	115087	Conduct a preliminary incident investigation into workplace health, safety and environmental incidents	Level 2	2
Core	14353	Conduct basic financial transactions	Level 2	3
Core	7106	Conduct minor routine and breakdown maintenance on equipment and machines	Level 2	6
Core	252534	Demonstrate an understanding of geology related to mining	Level 2	2
Core	116533	Demonstrate basic knowledge and understanding of emergency preparedness and response	Level 2	2
Core	119669	Match new venture opportunity to market needs	Level 2	6
Core	10468	Monitor Plant and Equipment	Level 2	9
Core	115091	Monitor compliance to safety, health and environmental requirements in a workplace	Level 2	2
Core	12484	Perform basic fire fighting	Level 2	4
Core	12483	Perform basic first aid	Level 2	4

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Core	260982	Acquire authorization needed for small-scale prospecting and mining	Level 3	2
Elective	9615	Conduct visual inspection of flameproof equipment in an underground coal mine	Level 1	2
Elective	110148	Demonstrate a basic knowledge and understanding of typical underground coal mining processes and layouts	Level 1	3
Elective	110217	Demonstrate knowledge and ability to work in an underground coal mine	Level 1	8
Elective	116527	Demonstrate knowledge pertaining to basic health and safety principles in and around a workplace	Level 1	2
Elective	117867	Managing files in a Graphical User Interface (GUI) environment	Level 1	3
Elective	116932	Operate a personal computer system	Level 1	3
Elective	117902	Use generic functions in a Graphical User Interface (GUI)-environment	Level 1	4
Elective	252694	Achieve and maintain mining excavation stability with support in a tabular hard rock stope panel	Level 2	4
Elective	253027	Achieve and maintain mining excavation stability with support installation in shafts	Level 2	4
Elective	253037	Achieve mining excavation stability with support installation in a tunnel development end	Level 2	4
Elective	120323	Analyse a mixture of coal dust and stone dust sample by means of colorimetric method and recommend appropriate remedial action	Level 2	2
Elective	113924	Apply basic business ethics in a work environment	Level 2	2
Elective	116516	Apply stone dust to inertise coal dust	Level 2	2
Elective	10490	Carry out secondary breaking by mechanical means	Level 2	8
Elective	110211	Conduct weighbridge operations	Level 2	3
Elective	10481	Crush materials by means of primary crushing	Level 2	8
Elective	13222	Deal with safety, health and environmental emergencies in the workplace	Level 2	4
Elective	10484	Demonstrate a basic understanding of the aggregates industry	Level 2	2
Elective	115647	Demonstrate an understanding and operation of water reticulation systems in a surface mine	Level 2	6
Elective	120437	Demonstrate an understanding of basic health and safety practices related to surface mines	Level 2	3
Elective	257033	Demonstrate an understanding of support methods in surface mines and quarries	Level 2	4
Elective	252555	Demonstrate an understanding of the hazards associated with the removal of installed support units under various conditions	Level 2	4
Elective	244453	Demonstrate an understanding of the identification of and dealing with rock strata conditions	Level 2	5
Elective	9622	Demonstrate an understanding of the prevention of flammable gas ignition through the use of flame proofing in an underground coal mine	Level 2	5
Elective	254495	Demonstrate an understanding of the principal rock groups, their origins and characteristics	Level 2	5
Elective	253029	Demonstrate knowledge of evaluating and ensuring excavation stability when re-opening an excavation after a period of time	Level 2	4
Elective	253028	Demonstrate knowledge of various types of pillars and their role as a support medium	Level 2	2
Elective	244400	Describe the basic environmental factors of ventilating an underground working place to ensure a safe and healthy working environment	Level 2	3
Elective	253837	Describe the history of the diamond processing industry	Level 2	2
Elective	253806	Describe the structure of the diamond processing industry	Level 2	2
Elective	244405	Determine environment thermal conditions in an underground workplace by means of a whirling hygrometer and take appropriate action	Level 2	2
Elective	244368	Determine velocity of air in a workplace by means of the tape method and take appropriate action	Level 2	1
Elective	230020	Drill small diameter blast holes using a percussion drilling rig and compressor	Level 2	5

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	9617	Drill work face using hand held drilling equipment in an underground coal mine	Level 2	4
Elective	253821	Explain the requirements for the security of diamonds	Level 2	2
Elective	120435	Identify hazardous ground conditions in a surface mine and take appropriate action to safeguard persons, machinery and equipment	Level 2	4
Elective	115090	Install explosion barriers to control the propagation of coal dust explosions	Level 2	2
Elective	244425	Install underground workplace ventilation controls	Level 2	3
Elective	244416	Make safe a workplace by means of barring	Level 2	3
Elective	115092	Measure and record the concentration of flammable and noxious gases and vapours and take appropriate action	Level 2	2
Elective	115553	Perform standard aggregates physical tests	Level 2	16
Elective	254406	Recover diamonds by means of hand sorting	Level 2	6
Elective	9610	Sound and bar down roof and side walls using sounding and barring equipment in an underground coal mine	Level 2	4
Elective	244450	Support an underground working place by means of anchors placed into drilled holes	Level 2	5
Elective	244420	Support an underground working place by means of packs	Level 2	5
Elective	244380	Support an underground working place by means of temporary support units	Level 2	3
Elective	244433	Test for flammable gas in a mining environment by means of a hand held electronic instrument and take appropriate action	Level 2	2
Elective	244389	Treat and remove misfires	Level 2	2
Elective	110199	Use a microscope to examine diamond gemstones	Level 2	1
Elective	119913	Use a personal budget to manage own money	Level 2	3
Elective	9613	Ventilate a production section to control gases and dust in an underground coal mine	Level 2	5
Elective	8000	Apply basic business principles	Level 3	9
Elective	260981	Conduct mineral and ore sampling on a small scale mine	Level 3	3
Elective	9611	Conduct statutory examinations in a production section in an underground coal mine	Level 3	3
Elective	115093	Control workplace hazardous substances	Level 3	4
Elective	253796	Demonstrate a basic understanding of the use of tools and equipment used for processing diamonds	Level 3	2
Elective	110212	Demonstrate a working knowledge of the Diamonds Act and understanding of the Minerals Act in relation to diamonds	Level 3	8
Elective	254501	Demonstrate an understanding of the principal mineral groups and their characteristics	Level 3	3
Elective	230010	Demonstrate knowledge of the geological nature of surface extraction sites	Level 3	6
Elective	244422	Demonstrate knowledge of the most common harmful gases and vapours	Level 3	4
Elective	115671	Examine and maintain mine safety in a surface mining context	Level 3	9
Elective	257078	Examine and make safe blasted Surface excavations	Level 3	5
Elective	257027	Install support in surface mines and quarries	Level 3	7
Elective	260984	Manufacture explosives on-site for surface excavations	Level 3	8
Elective	260979	Mine ore/coal on a hand-got (manual) small scale mine	Level 3	6
Elective	260977	Process materials in a mobile screening plant	Level 3	10
Elective	257057	Read and interpret surface excavation plans	Level 3	2
Elective	256702	Recover diamonds by means of a grease belt	Level 3	4
Elective	253855	Understand the characteristics of gem diamonds	Level 3	10
Elective	253817	Use a loupe to examine diamond gemstones	Level 3	8

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Process materials in a mobile screening plant

SAQA US ID	*UNIT STANDARD TITLE*		
260977	Process materials in a mobile screening plant		
ORIGINATOR		*PROVIDER*	
SGB Mining and Minerals			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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 the principles related to the screening of materials.

SPECIFIC OUTCOME 2
Prepare the plant for screening materials.

SPECIFIC OUTCOME 3
Screen material.

SPECIFIC OUTCOME 4
Erect and dismantle a mobile screening plant.

SPECIFIC OUTCOME 5
Follow basic health, safety and environmental practices during screening.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	64909	National Certificate: Small Scale Mining	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Mine ore/coal on a hand-got (manual) small scale mine

SAQA US ID	*UNIT STANDARD TITLE*		
260979	Mine ore/coal on a hand-got (manual) small scale mine		
ORIGINATOR		*PROVIDER*	
SGB Mining and Minerals			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

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

SPECIFIC OUTCOME 1
Demonstrate an understanding of mining ore/coal on a hand-got (manual) small-scale mine.

SPECIFIC OUTCOME 2
Obtain information necessary to mine ore/coal on a hand-got (manual) small-scale mine.

SPECIFIC OUTCOME 3
Source all the necessary equipment to mine ore/coal on a hand-got (manual) small-scale mine.

SPECIFIC OUTCOME 4
Mine ore/coal on a hand-got (manual) small-scale mine.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	64909	National Certificate: Small Scale Mining	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Conduct mineral and ore sampling on a small scale mine

SAQA US ID	*UNIT STANDARD TITLE*		
260981	Conduct mineral and ore sampling on a small scale mine		
ORIGINATOR		*PROVIDER*	
SGB Mining and Minerals			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
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
Demonstrate knowledge and understanding of mineral and ore sampling on a small-scale mine.

SPECIFIC OUTCOME 2
Prepare for sampling on a small-scale mine.

SPECIFIC OUTCOME 3
Conduct sampling on a small-scale mine.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	64909	National Certificate: Small Scale Mining	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Acquire authorization needed for small-scale prospecting and mining

SAQA US ID	*UNIT STANDARD TITLE*		
260982	Acquire authorization needed for small-scale prospecting and mining		
ORIGINATOR		*PROVIDER*	
SGB Mining and Minerals			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	2

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

SPECIFIC OUTCOME 1
Demonstrate knowledge and understanding on how to obtain authorization for small-scale prospecting and mining operation.

SPECIFIC OUTCOME 2
Obtain prospecting and mining permits.

SPECIFIC OUTCOME 3
Obtain authorization to access area from landowner.

SPECIFIC OUTCOME 4
Submit application to DME.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	64909	National Certificate: Small Scale Mining	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Manufacture explosives on-site for surface excavations

SAQA US ID	*UNIT STANDARD TITLE*		
260984	Manufacture explosives on-site for surface excavations		
ORIGINATOR		*PROVIDER*	
SGB Mining and Minerals			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Fabrication and Extraction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	8

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

SPECIFIC OUTCOME 1
Calculate the amounts of the ingredients needed to manufacture the required explosives.

SPECIFIC OUTCOME 2
Collect and mix the components into a uniformly blended explosives product.

SPECIFIC OUTCOME 3
Record and account for both the ingredients and the explosives produced.

SPECIFIC OUTCOME 4
Carry out basic maintenance and housekeeping on the mixing equipment.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	64909	National Certificate: Small Scale Mining	Level 2