

No. 821

8 August 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 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 full Qualifications and Unit Standards can be accessed via the SAQA web-site at www.saqqa.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 Qualifications and Unit Standards should reach SAQA at the address below and *no later than 8 September 2008*. All correspondence should be marked **Standards Setting – Mining and Minerals** and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:**National Certificate: Rockbreaking: Surface Excavations**

| SAQA QUAL ID | | QUALIFICATION TITLE | |
|-------------------------|---|---|-------------------------|
| 62869 | | National Certificate: Rockbreaking: Surface Excavations | |
| 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 | 141 | Level 3 | Regular-Unit Stds Based |

This qualification replaces:

| Qual ID | Qualification Title | NQF Level | Min Credits | Replacement Status |
|---------|---|-----------|-------------|---|
| 21842 | National Certificate: Surface Mining Rockbreaking | Level 2 | 147 | Will occur as soon as 62869 is registered |
| 57121 | National Certificate: Rockbreaking: Quarrying | Level 3 | 160 | Will occur as soon as 62869 is registered |

PURPOSE AND RATIONALE OF THE QUALIFICATION**Purpose:**

There is a critical need in the industry to equip people with the required competencies to conduct safe and efficient rockbreaking activities in surface excavation to sustain the future of the surface mining industry.

Rockbreaking operations are often conducted under dangerous and difficult conditions, which have to be managed appropriately in order to preserve lives and protection of equipment working in close proximity, and ensure operational efficiency.

The National Certificate in Rockbreaking for Surface Excavations (NQF Level 3) is a statutory requirement in terms of the Mine Health and Safety Act and Regulations for persons conducting rockbreaking operations to be deemed competent.

Learners acquiring this qualification will have an improved understanding of their role and will acquire the applied competencies to consistently and effectively execute their duties by contributing to the surface mining process and adhering to quality, occupational safety and legislative requirements.

The qualification is designed to be flexible and accessible so that people are able to demonstrate the competencies required to work in a safe, healthy and effective manner in a surface mining environment.

Learners credited with this qualification are able to:

- > Communicate and solve problems in a variety of ways.

- > Adhere to occupational safety, health, environmental and legislative requirements.
- > Conduct primary and secondary rockbreaking operations in a safe and proper manner in accordance with legislation requirements.
- > Take control of rockbreaking operations.

Rationale:

The National Certificate in Rockbreaking: Surface Excavations NQF Level 3 is designed to contribute to an effective mining operation, in particular rockbreaking competence in surface excavations. Surface excavations refer to surface mines and quarrying and the surface mining of minerals such as:

- > Copper, coal, vermiculite, carbonates.
- > The quarrying of rock, sand, clay and other industrial minerals and dimension stone.

Rockbreaking activities involve the breaking of rock in a pre-determined sequence to maximise the break of the advancing bench and at the same time minimising damage to the surroundings and to ensure a safe working environment for the production teams. These rockbreaking activities could be undertaken by means of explosives or mechanical means or a combination of both. This qualification provides for both primary and secondary rockbreaking operations in surface excavations in terms of Chapter 4, Explosives Regulations under the Mines Health and Safety Act.

Persons conducting rockbreaking operations require sound technical knowledge of the type of material being mined and its behaviour during breaking with specific reference to geological disconformities, depth, stress regimes, and protection of machinery, equipment and people working in the vicinity of the operations.

This qualification will have a positive impact on the production of minerals and contribute significantly to society in general and the South African economy. Furthermore, the mining industry creates opportunity for many secondary and tertiary mining and minerals related business activities.

The National Certificate in Rockbreaking: Surface Excavations (Level 3) facilitates access for previously disadvantaged groups and other learners to acquire the technical knowledge and skills that are required to conduct rockbreaking operations.

It will enhance the status and employability of the learner within the mining and minerals industry and contribute significantly to his or her performance in terms of both quality and quantity of work output. The qualification also allows for further access, career progression, portability and mobility within and between the different surface mining industries.

The majority of the candidates for this qualification are likely to be working in the mining and minerals sector. The qualification will give them the opportunity to balance their practical skills with the essential knowledge needed to earn a formal qualification in rockbreaking operations. This qualification will provide qualifying learners with the necessary knowledge, understanding and competence to conduct rockbreaking operations.

This is the third in a learning pathway of five qualifications for Surface Mining Operations. The pathway begins with the GETC: Mining and Mineral Processes NQF Level 1 and ends with the National Certificate in Mining Operations NQF Level 5. This qualification series recognises the skills, knowledge and values relevant to a workplace and requires workplace experience.

Qualifying learners will obtain the National Certificate in Rockbreaking: Surface Excavations NQF Level 3 that will enable them to conduct rockbreaking operations.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED IN PLACE

It is assumed that learners are already competent in:

- > Communication and Mathematical Literacy at NQF Level 2.
- > Display understanding of the mechanical and electrical engineering discipline processes and procedures Level 2.
- > Demonstrate knowledge pertaining to basic health and safety principles in and around a workplace L1.
- > Understand the kinds of minerals and related products mined in the South Africa Mining & Minerals Sector and their importance to both the local stakeholders and within the global arena L1.

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.

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.

All such evidence should be judged according to the general principles of assessment described in the note to assessors.

Access to the Qualification:

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

QUALIFICATION RULES**Fundamental:**

- > All the unit standards totalling 36 credits are compulsory and must be achieved.

Core:

- > All the unit standards totalling 65 credits are compulsory and must be achieved.

Electives:

- > Any unit standards totalling 40 credits must be chosen as specified below.

The qualification totals 141 credits.

For the specialisation stream: Surface Mining and Quarrying:

A total of 40 credits must be chosen from the specialization stream:

The following 20 credits must be achieved:

- > ID 230020: Drill small diameter blast holes using a drilling rig and compressor, NQF Level 2, Credits 5.
- > ID 257039: Blast materials in Surface excavations, NQF Level 3, Credits 15.

An additional 20 credits must be chosen from the list below:

- > ID 257017: Transport and distribute explosives using a heavy duty explosives vehicle NQF Level 2, Credits 2.
- > ID 257056: Remove hazardous ground by means of blasting NQF Level 3, Credit 4.
- > ID 257015: Transport and distribute explosives using a Light Delivery Explosives Vehicle, NQF Level 2, Credits 4.
- > ID 257030: Assist blasting operations, NQF Level 2, Credits 4.
- > ID 257026: Drill blast holes in a Surface Mining Operation, NQF Level 3, Credits 15.
- > ID 257040: Dewater blast holes using vehicle mounted dewatering pump, NQF Level 1, Credits 4.
- > ID 110218: Collect, store and issue explosives from a surface magazine, NQF Level 3, Credits 10.
- > ID 257042: Install and maintain a initiating system in a surface mine, NQF Level 2, Credits 2.
- > ID 257041: Bar down loose rocks using appropriate equipment, NQF Level 3, Credits 4.
- > ID 230011: Drill medium diameter blast holes using an hydraulic or pneumatic drilling rig and compressor, NQF Level 2, Credits 5.
- > ID 230013: Conduct face profiling and blast hole surveys, NQF Level 3, Credits 6.
- > ID 257095: Carry out basic surveying and calculations in surface excavations, NQF Level 3, Credits 8.
- > ID 257075: Design blasts for surface excavations, NQF Level 4, Credits 24.
- > ID 230017: Carry out blasting environmental testing, NQF Level 4, Credits 6.
- > ID 230018: Operate a mixer-placer explosives truck, NQF Level 2, Credits 6.
- > ID 257019: Load, transport and place explosive components into blast holes using mixer-placer truck, NQF Level 2, Credits 6.

For the specialisation stream: Dimension Stone Operations:

The following 37 credits must be achieved:

- > ID 116632: Drill holes for blasting and/or splitting dimension stone blocks using a mechanised drill rig, NQF Level 2, Credits 6.
- > ID 116627: Demonstrate basic understanding of dimension stone geology and mineralogy, NQF Level 3, Credits 16.
- > ID 116614: Conduct blasting operations in dimension stone quarries, NQF Level 3, Credits 15.

An additional 3 credits must be chosen from the list below:

- > ID 116625: Split dimension stone blocks by means of non explosive methods, NQF Level 2, Credits 4.
- > ID 116626: Handle dimension stone blocks by means of front end loader, NQF Level 3, Credits 13.
- > ID 116658: Drill intersecting holes for diamond wire sawing, NQF Level 2, Credits 7.
- > ID 116663: Make saw cuts by means of diamond wire saw, NQF Level 3, Credits 15.
- > ID 230019: Demonstrate and apply knowledge of dimension stone quality and geology to block extraction, NQF Level 3, Credits 21.

EXIT LEVEL OUTCOMES

1. Communicate and solve problems in a variety of ways.
2. Adhere to occupational safety, health, environmental and legislative requirements.
3. Conduct primary and secondary rockbreaking operations in a safe and proper manner in accordance with legislation requirements.
 - > Range: Primary and secondary rockbreaking operations include but are not limited to assessing the geological nature of surface extraction sites.

4. Take control of rockbreaking operations.

Source: National Learners' Records Database

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> Note: The requirements for rockbreaking operations such as marking, drilling and blasting operations in surface mines and quarries are different from those for dimension stone and these will all be determined by the type of operation.

Critical Cross-Field Outcomes:

These are embedded in the unit standards, which make up the qualification and are thus also reflected in the Exit Level Outcomes of the qualification:

Identifying and solving problems in which responses display that responsible decisions using critical thinking have been made.

- > Related to the application of rockbreaking technology and skills.
- > In preparation and during the execution of job activities.
- > Solving familiar rockbreaking problems.

Working effectively with others as a member of a team, group, organisation and community.

- > All tasks and work-related experience are performed within a team environment.
- > Taking into account, the safety of others.
- > Communicating with production, quality control and supervisory personnel and/or clients.

Organising and managing oneself and one's activities responsibly and effectively.

- > Related to planning and preparation of rockbreaking activities and tasks.
- > Adhering to health and safety requirements.

Collecting, analyzing, organizing and critically evaluating information.

- > Related to planning and preparation in order to execute job activities.
- > Completion of technical reports related to the job activity.
- > Solve familiar problems related to rockbreaking tasks at hand.

Communicating effectively using visual, mathematical and/or language skills.

- > During planning, preparation and the execution of job activities.
- > Completion of technical reports related to the job activity.
- > Communicating effectively by verbal explanation.
- > Communicating as a part of a team.

Using science and technology effectively and showing responsibility towards the environment and health of others when:

- > To interact with modern blasting related explosives, accessories and equipment.

Demonstrating an understanding of the world as a set of related systems by recognising the complex and dynamic nature of these systems as well as the inter-relationships and linkages that exist between systems when:

- > To understand the relationship between upstream, downstream and associated processes, and the impact that he may have in each regard.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

- 1.1 Oral communication is maintained and adapted to facilitate rockbreaking operations in accordance with productivity requirements.
- 1.2 Written communication is conducted at an appropriate level for designated target audiences.
- 1.3 Mathematical principles and techniques are applied while performing the tasks related to rockbreaking operations.
- 1.4 Basic mathematical principles are applied to perform calculations and solve routine problems that occur in the workplace.
- 1.5 Problems and solutions are recorded and monitored.

Associated Assessment Criteria for Exit Level Outcome 2:

- 2.1 Occupational health, safety and environmental principles and practices are explained and applied in the workplace.
- 2.2 Hazardous conditions in rockbreaking operations are identified and rectified on a continual basis to ensure the health and safety of persons in the workplace.
- 2.3 Hazardous conditions in rockbreaking operations are monitored and reported on a continual basis to ensure the safety and health of persons.
- 2.4 Explosives and explosive accessories are stored, transported and handled in accordance with mine standards.
- 2.5 Basic first aid treatment to be carried out in the workplace in accordance with legislation.
- 2.6 Fire extinguishers are used in accordance with site specific requirements.

Associated Assessment Criteria for Exit Level Outcome 3:

- 3.1 Knowledge of explosives and accessory types and applications is demonstrated to reflect legal and site specific requirements.
- 3.2 Work areas are prepared and marked for drilling in accordance with legal and site specific requirements.
> Range: Preparation and marking activities include but are not limited to reading and interpreting surface excavation plans.
- 3.3 The workplace is examined and made safe in accordance with legal and site specific requirements.
- 3.4 Shot holes are charged with explosives in preparation for rockbreaking operations.
- 3.5 Misfires are treated to ensure safety in the workplace.
- 3.6 Secondary rockbreaking activities are carried out using explosives and/or mechanical means.

Associated Assessment Criteria for Exit Level Outcome 4:

- 4.1 Marking, drilling and blasting operations are co-ordinated and conducted in surface excavation sites in accordance with set standards.
> Range: Operations include but are not limited to explosives are transported and distributed using a light delivery vehicle, transported and distributed using a heavy duty explosives vehicle, Blast holes are dewatered using a vehicle mounted dewatering pump. Explosive components are loaded, transported and placed into blast holes using mixer-placer truck.
- 4.2 Hazardous ground conditions are identified in surface excavations and appropriate action is taken to safeguard persons, machinery and equipment.
- 4.3 Plant, machinery, equipment and people are protected from rockbreaking activities.
Range: Protection includes but is not limited to rockbreaking fumes and dust, evacuations, barricading, cordoning off.
- 4.4 Reports are compiled and submitted in accordance with legal and site-specific requirements.

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.

It is necessary to ensure that the fundamental part of the qualification is also targeted to ensure that while the competence may have been achieved in a particular context, learners are able to apply it in a range of other contexts and for further learning. The assessment should also ensure that all the critical cross-field outcomes 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 the quarrying rockbreaking.

INTERNATIONAL COMPARABILITY

The following approach was followed when conducting research for comparing against from qualifications elsewhere in the world:

- > Countries with a formal Qualifications Framework, such as the United Kingdom (NVQ and SVQ), Australia and New Zealand.
- > Countries who are reputed to be leaders in a particular field.
- > SADEC countries, which are in geographical proximity to South Africa.
- > Countries with emerging economies (particularly in the mining context).

Mining Regions:

The summary focuses on economic and legal aspects such as mineral rights and licences, but is nevertheless a valuable resource in terms of looking for similar areas to the context in which the International Comparability is being conducted.

North America:

North America is the major producer of gold and silver. Raw mineral production in 1998 was valued at approximately US\$ 70 billion. The industry employs approximately 1 million people. Major companies include Barrick, Newmont and Industrias Penoles.

Europe:

Europe is not a major mining centre. However, it has several established base metal mines in Scandinavia, Ireland and the Iberian Peninsula. Major companies include Boliden and Outokumpu.

Asia:

Asia is a major producer of base metals, PGE's, ferrous metals and coal. Most major producers are state controlled, but foreign investment is being encouraged, in particular by China, India and the CIS.

South America:

South America is a major producer of base and ferrous metals, in particular copper and iron ore. Major companies include Codelco, Barrick, CVRD, Newmont and Rio Tinto.

Africa:

Africa is a major producer of cobalt, gold, PGE's coal, iron ore, and diamonds. Mining accounts for a substantial proportion of several countries GDP's. Major companies include Anglo American, De Beers, Rio Tinto and BHP Billiton.

Australasia:

Australasia is a leading producer of iron ore, gold and base metals. Major companies include BHP Billiton and Rio Tinto.

The training programmes and processes involved in these countries have largely been scrutinised from the perspective of the different models in blasting qualifications and competencies as reflected below.

Blasting Qualifications and Competencies - Different Models:

The core competencies in the NC: Rockbreaking Level 3 relate to rockbreaking or blasting, which would include aspects such as explosives handling, safety and environmental.

The exercise revealed three main models worldwide:

> Traditionally, blasting licences or tickets are issued to applicants meeting strict requirements. Typically a temporary licence is issued and a permanent licence issued after a qualifying period in operations. An examination (verbal, written and/or practical) will be conducted by an appropriate authority. Countries where this is in place include United States of America, Namibia and India.

Typical requirements for a blasting ticket or licence under this model for South Africa would be the same as for Namibia.

Qualifications for Blasting Certificates:

> 11.3 (1) Subject to the provisions of sub-regulation (3), a blasting certificate shall not be issued to any person, unless such person has, on an application made by him or her in such form as may be determined by the Chief Inspector, been admitted as a candidate for, and has passed such examination as may be determined by the Chief Inspector held in such form as may be so determined.

> (2) (a) The examinations shall be held at such times and at such centres as may be fixed by the Chief Inspector and shall be conducted by such examiners as may be appointed by the Chief Inspector.

> (b) The Chief Inspector shall not appoint a person as examiner under paragraph (a), unless such person is the holder of a valid blasting certificate similar to the certificate for which the examination is being conducted.

> (3) No person shall be admitted as a candidate for any examination referred to in sub-regulation (1), unless such person:

- (a) Has attained the age of 18 years.
- (b) Possesses a valid first aid certificate.
- (c) Has been examined by a medical practitioner and a medical certificate issued certifying that he or she is free from deafness, defective vision or any other infirmity, mental or physical, likely to interfere with his or her work.
- (d) Can read and write English.
- (e) Has had, at least, the following number of shifts experience, namely:
 - > 300 shifts for an underground blasting certificate.
 - > 120 shifts for an opencast blasting certificate.

Learners or candidates in these countries (United States of America, Namibia and India) do not achieve formal qualifications, but will undergo workplace-based training either under the auspices of the employer or those of training providers specialising in that particular field. The South African context requires the completion of a formal qualification to be registered as a blaster.

Malaysia; Training Course for Shotfirers:

The Institute of Quarrying in Malaysia - is a Branch of the Institute of Quarrying United Kingdom and conducts the following course "training course for shot-firers" that ensures fully qualified, skilful and competent shot-firers officially recognised throughout Malaysia.

Training Modules Include:

- > Receive, Store and Issue Explosive Materials.
- > Obtain and Transport Explosive Materials.
- > Charge Blast Holes to Specification.
- > Blast to Specification.
- > Deal with Misfires.

In more modern (outcomes based) systems, learners achieve outcomes or vocationally based qualifications which then enable them to be "accredited" as blasters or shotfirers. Due to the legal (and security) implications associated with explosives, there may be other legal requirements relating to individuals, such as criminal records and mental stability. The principles of "currency of competence" and "continuous development" is also generally applied to holders of this qualification.

Qualifications found in this regard include:

- > New Zealand: NC in Extractive Industries - (Shotfiring-Surface).

Relevant Standards include:

- > Store explosives for use in extractive industries - Level 4, Credits 10.
- > Design blasting layouts within quarries and aggregate production areas.
- > Carry out shot-firing operations.

Australia; Australia - Certificate III in Extractive Industries Operations:

Relevant Standards Include:

- > MNQOPS311A Conduct blast survey.
- > MNQOPS312A Conduct blast hole drilling operations.
- > MNQOPS313A Handle and transport explosives.

> MNQOPS413A Conduct shotfiring.

United Kingdom; NVQ Blasting Operations, NVQ Shotfiring Operations - Quarries:

Relevant Standards Include:

- > U1052394 - PR01 - Contribute to an Efficient and Effective Work Environment.
- > U1052390 - PR02 - Contribute to Health and Safety in the Workplace.
- > U1053349 - SF3 - Receive, Store and Issue Explosive Materials.
- > U1053348 - SF4 - Obtain and Transport Explosive Materials.
- > U1053347 - SF5 - Charge Blast Holes to Specification.
- > U1053346 - SF6 - Blast to Specification.
- > U1053345 - SF7 - Deal with Misfires.

Transition from the traditional blasting system to the modern system:

In a number of countries, there is currently a transition from the traditional system to the modern system, in which a dual system is in place or will be in place once the qualifications being developed are registered or endorsed in terms of the relevant bodies.

Transitional arrangements typically entail a phasing out of the traditional blasting licences in terms of new applicants, and then a cut-off date beyond which no further applications will be accepted. Parallel to this the new qualification will be phased in and from a specific date will then become a prerequisite for the issuing of a blasting licence or permit.

Holders of current licences are treated in one of the following ways:

- > Expiry of their blasting licences (e.g. New Zealand).
- > "Top-up" training and assessment in order to comply with the requirements of the relevant qualification (e.g. United Kingdom).

Exemption from the new qualification (i.e. the current licence remains valid (e.g. South Africa). The blasting licence and qualification were subjected to a comparative analysis and deemed to be sufficiently similar in intent and content.

Conclusion:

From the above it can be concluded that the envisaged NC: Rockbreaking: Surface Excavations is in line with current international best practice models. Moreover, the qualification effectively provides for both holders of current blasting licences who may wish to convert or top up to the new qualification.

The NC: Rockbreaking is in line with similar qualifications in other countries in terms of intent and content.

ARTICULATION OPTIONS

This qualification allows for both vertical and horizontal articulation.

Vertical Articulation exists with:

- > FETC: Mining Operations (under development).

Horizontal Articulation exists with:

- > National Certificate: Rockbreaker: Underground Coal NQF Level 3.

MODERATION OPTIONS

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

> 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 this qualification and preferably relevant workplace practical experience.
- > Registration as an assessor with the relevant ETQA.

NOTES

This qualification replaces the following qualifications:

- > 21842, "National Certificate: Surface Mining Rockbreaking", Level 2, 147 credits.
- > 57121, "National Certificate: Rockbreaking: Quarrying", Level 3, 160 credits.

UNIT STANDARDS

| | ID | UNIT STANDARD TITLE | LEVEL | CREDITS |
|-------------|--------|---|---------|---------|
| Fundamental | 119472 | Accommodate audience and context needs in oral/signed communication | Level 3 | 5 |
| Fundamental | 9010 | Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations | Level 3 | 2 |
| Fundamental | 9013 | Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts | Level 3 | 4 |
| Fundamental | 119457 | Interpret and use information from texts | Level 3 | 5 |
| Fundamental | 9012 | Investigate life and work related problems using data and probabilities | Level 3 | 5 |
| Fundamental | 119467 | Use language and communication in occupational learning programmes | Level 3 | 5 |
| Fundamental | 7456 | Use mathematics to investigate and monitor the financial aspects of personal, business and national issues | Level 3 | 5 |
| Fundamental | 119465 | Write/present/sign texts for a range of communicative contexts | Level 3 | 5 |
| Core | 115101 | Address workplace hazards and risks | Level 2 | 4 |
| Core | 116520 | Apply safety, health and environmental principles and procedures in a workplace | Level 2 | 2 |
| Core | 257036 | Demonstrate a basic understanding of explosives and accessories | Level 2 | 2 |

| | ID | UNIT STANDARD TITLE | LEVEL | CREDITS |
|----------|--------|--|---------|---------|
| Core | 257033 | Demonstrate an understanding of support methods in surface mines and quarries | Level 2 | 4 |
| Core | 116533 | Demonstrate basic knowledge and understanding of emergency preparedness and response | Level 2 | 2 |
| Core | 257055 | Identify and demarcate misfires in a surface excavation | Level 2 | 2 |
| Core | 257022 | Make up primer and charge holes | Level 2 | 2 |
| Core | 244378 | Receive, handle, store and issue explosives and accessories at a workplace | Level 2 | 2 |
| Core | 257058 | Time and connect blast initiating systems | Level 2 | 2 |
| Core | 116534 | Carry out basic first aid treatment in the workplace | Level 3 | 2 |
| Core | 257037 | Carry out secondary breaking using explosives in surface excavations | Level 3 | 11 |
| Core | 257023 | Co-ordinate drilling and blasting operations | Level 3 | 10 |
| Core | 230010 | Demonstrate knowledge of the geological nature of surface extraction sites | Level 3 | 6 |
| Core | 257078 | Examine and make safe blasted Surface excavations | Level 3 | 5 |
| Core | 257016 | Examine and make safe non-blasted surface excavations | Level 3 | 4 |
| Core | 257059 | Prepare and mark off work area for drilling | Level 3 | 3 |
| Core | 257057 | Read and interpret surface excavation plans | Level 3 | 2 |
| Elective | 257030 | Assist blasting operations | Level 2 | 4 |
| Elective | 256997 | Break rock using a hydraulic rock breaker | Level 2 | 13 |
| Elective | 10490 | Carry out secondary breaking by mechanical means | Level 2 | 8 |
| Elective | 244376 | Cut mild steel by means of an Oxy-acetylene cutting torch | Level 2 | 3 |
| Elective | 257040 | De-water blast holes using vehicle mounted de-watering pump | Level 2 | 4 |
| Elective | 256998 | Deliver compressed air using a mobile electrical compressor | Level 2 | 4 |
| Elective | 253025 | Demonstrate knowledge and ability to work in a surface mine | Level 2 | 8 |
| Elective | 257021 | Doze material using a rubber wheel dozer | Level 2 | 14 |
| Elective | 116632 | Drill holes for blasting and/or splitting dimension stone blocks using a mechanised drill rig | Level 2 | 6 |
| Elective | 116658 | Drill intersecting holes for diamond wire sawing | Level 2 | 7 |
| Elective | 230011 | Drill medium diameter blast holes using an hydraulic or pneumatic drilling rig and compressor | Level 2 | 5 |
| Elective | 230020 | Drill small diameter blast holes using a percussion drilling rig and compressor | Level 2 | 5 |
| Elective | 257024 | Haul and dump material using a haul truck | Level 2 | 11 |
| Elective | 257077 | Illuminate an area using a lighting plant | Level 2 | 2 |
| Elective | 257042 | Install and maintain an initiating system in a surface mine | Level 2 | 2 |
| Elective | 253582 | Lift and move a load using manual lifting equipment and tackle | Level 2 | 8 |
| Elective | 257034 | Load and offload material using a skid steer loader | Level 2 | 9 |
| Elective | 257031 | Load, Haul and Dump material using a front end loader | Level 2 | 16 |
| Elective | 257035 | Load, haul and dump material using a scraper | Level 2 | 12 |
| Elective | 257019 | Load, transport and place explosives components into blast holes using a mixer-placer truck | Level 2 | 6 |
| Elective | 256995 | Move trailing cable using cable reeler | Level 2 | 8 |
| Elective | 230018 | Operate a mixer-placer explosives truck | Level 2 | 6 |
| Elective | 14911 | Participate in formal meetings | Level 2 | 3 |
| Elective | 12484 | Perform basic fire fighting | Level 2 | 4 |
| Elective | 257029 | Pump water using a De-watering Pump | Level 2 | 4 |
| Elective | 257018 | Relocate machines and equipment using a lowbed | Level 2 | 10 |
| Elective | 116625 | Split dimension stone blocks by means of non explosive methods | Level 2 | 4 |
| Elective | 257060 | Suppress dust using a water bowser | Level 2 | 10 |
| Elective | 257015 | Transport and distribute explosives by means of a light duty explosives vehicle | Level 2 | 4 |
| Elective | 257017 | Transport and distribute explosives using a heavy-duty explosives vehicle | Level 2 | 2 |
| Elective | 257135 | Transport and distribute fuel using a Fuel Bowser | Level 2 | 4 |
| Elective | 257020 | Transport material and equipment using a flat back truck | Level 2 | 10 |
| Elective | 257025 | Transport personnel, material and equipment using Light Delivery Vehicle | Level 2 | 4 |
| Elective | 116937 | Use a Graphical User Interface (GUI)-based spreadsheet application to create and edit spreadsheets | Level 2 | 4 |

| | ID | UNIT STANDARD TITLE | LEVEL | CREDITS |
|----------|--------|--|---------|---------|
| Elective | 117924 | Use a Graphical User Interface (GUI)-based word processor to format documents | Level 2 | 5 |
| Elective | 257038 | Use a track dozer to move material | Level 2 | 14 |
| Elective | 13912 | Apply knowledge of self and team in order to develop a plan to enhance team performance | Level 3 | 5 |
| Elective | 257041 | Bar down loose rocks using appropriate equipment | Level 3 | 4 |
| Elective | 257039 | Blast materials in Surface excavations | Level 3 | 15 |
| Elective | 257095 | Carry out basic surveying and calculations in surface excavations | Level 3 | 8 |
| Elective | 110218 | Collect, store and issue explosives from a surface magazine | Level 3 | 10 |
| Elective | 116614 | Conduct blasting operations in dimension stone quarries | Level 3 | 15 |
| Elective | 230013 | Conduct face profiling and blast hole surveys | Level 3 | 6 |
| Elective | 230019 | Demonstrate and apply knowledge of dimension stone quality and geology to block extraction | Level 3 | 21 |
| Elective | 116627 | Demonstrate basic understanding of dimension stone geology and mineralogy | Level 3 | 16 |
| Elective | 244422 | Demonstrate knowledge of the most common harmful gases and vapours | Level 3 | 4 |
| Elective | 257026 | Drill blast holes in a surface mining operation | Level 3 | 15 |
| Elective | 257076 | Excavate and load material using hydraulic excavator | Level 3 | 26 |
| Elective | 257115 | Grade material using a motor grader | Level 3 | 14 |
| Elective | 116626 | Handle dimension stone blocks by means of front end loader | Level 3 | 13 |
| Elective | 257027 | Install support in surface mines and quarries | Level 3 | 7 |
| Elective | 257032 | Load material using a face shovel | Level 3 | 26 |
| Elective | 116663 | Make saw cuts by means of diamond wire saw | Level 3 | 15 |
| Elective | 257028 | Operate Tractor Loader Backhoe | Level 3 | 13 |
| Elective | 117877 | Perform one-to-one training on the job | Level 3 | 4 |
| Elective | 256996 | Relocate material using a dragline | Level 3 | 26 |
| Elective | 257056 | Remove hazardous ground by means of blasting | Level 3 | 4 |
| Elective | 230017 | Carry out blasting environmental testing | Level 4 | 6 |
| Elective | 257075 | Design blasts for surface excavations | Level 4 | 24 |
| Elective | 242810 | Manage Expenditure against a budget | Level 4 | 6 |

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION

None



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Move trailing cable using cable reeler

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 256995 | Move trailing cable using cable reeler | | |
| 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 2 | 8 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|--|-----------|---------|--|
| 10569 | Move Trailing Cable using Cable Reeler | Level 2 | 8 | Will occur as soon as 256995 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding trailing cables using a Cable Reeler.

SPECIFIC OUTCOME 2

Prepare to move trailing cables.

SPECIFIC OUTCOME 3

Move trailing cables.

SPECIFIC OUTCOME 4

Complete the duties pertaining to moving trailing cable operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Relocate material using a dragline

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|------------------------------------|-----------|---------|
| 256996 | Relocate material using a dragline | | |
| 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 | 26 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding to relocate material using a dragline.

SPECIFIC OUTCOME 2

Prepare to relocate material.

SPECIFIC OUTCOME 3

Relocate material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to relocation of material operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|----------------|---|---------|
| Elective 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Break rock using a hydraulic rock breaker

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 256997 | Break rock using a hydraulic rock breaker | | |
| 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 2 | 13 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 115612 | Break rock using a hydraulic Rockbreaker | Level 2 | 13 | Will occur as soon as 256997 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding of rockbreaking using a hydraulic rock breaker.

SPECIFIC OUTCOME 2

Prepare to break rock using a hydraulic rock breaker.

SPECIFIC OUTCOME 3

Break rock using a hydraulic rock breaker.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the rock breaking operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:*Deliver compressed air using a mobile electrical compressor*

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|---|---------|
| 256998 | | Deliver compressed air using a mobile electrical compressor | |
| 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 2 | 4 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding the delivering of compressed air using an electrical mobile compressor.

SPECIFIC OUTCOME 2

Prepare to deliver compressed air.

SPECIFIC OUTCOME 3

Deliver compressed air.

SPECIFIC OUTCOME 4

Complete the duties pertaining the delivering of compressed air.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transport and distribute explosives by means of a light duty explosives vehicle

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257015 | Transport and distribute explosives by means of a light duty explosives vehicle | | |
| 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 2 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11666 | Transport and distribute explosives using a Light Delivery Explosives Vehicle | Level 1 | 4 | Will occur as soon as 257015 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding transporting and distribution of explosives.

SPECIFIC OUTCOME 2

Prepare to transport and distribute explosives.

SPECIFIC OUTCOME 3

Transport and distribute explosives.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the transportation and distribution of explosives operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Examine and make safe non-blasted surface excavations

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257016 | Examine and make safe non-blasted 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 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 115507 | Examine and make safe non-blasted quarry excavations | Level 3 | 4 | Will occur as soon as 257016 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding of significant risk of falls of ground in non-blasted surface excavations.

SPECIFIC OUTCOME 2

Examine non-blasted surface excavations, dumps and stockpiles.

SPECIFIC OUTCOME 3

Declare safe non-blasted surface excavations, dumps and stockpiles.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|------|-------|---|---------|
| Core | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transport and distribute explosives using a heavy-duty explosives vehicle

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257017 | Transport and distribute explosives using a heavy-duty explosives vehicle | | |
| 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 2 | 2 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 9708 | Transport and distribute explosives using a Heavy-Duty Explosives Vehicle | Level 1 | 4 | Will occur as soon as 257017 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding transporting and distribution of explosives using a heavy duty explosives vehicle.

SPECIFIC OUTCOME 2

Prepare to transport and distribute explosives.

SPECIFIC OUTCOME 3

Transport and distribute explosives.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the transportation and distribution of explosives operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Relocate machines and equipment using a lowbed

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|--|---------|
| 257018 | | Relocate machines and equipment using a lowbed | |
| 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 2 | 10 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding relocating machines using a lowbed.

SPECIFIC OUTCOME 2

Prepare to relocate machines and equipment.

SPECIFIC OUTCOME 3

Relocate machines and equipment.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the relocating operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Load, transport and place explosives components into blast holes using a mixer-placer truck

| | | | |
|---|---|----------------------------|----------------|
| SAQA US ID | UNIT STANDARD TITLE | | |
| 257019 | Load, transport and place explosives components into blast holes using a mixer-placer truck | | |
| 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 2 | 6 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11673 | Load, transport and place explosives components into blast holes using a Mixer-Placer Truck | Level 2 | 6 | Will occur as soon as 257019 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding load, transport and place explosives components into blast holes using a mixer-placer truck.

SPECIFIC OUTCOME 2

Prepare to load, transport and place explosives components into blast holes using a mixer-placer truck.

SPECIFIC OUTCOME 3

Load, transport and place explosives components into blast holes using a mixer-placer truck.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the load, transport and place explosives components into blast holes using a mixer-placer truck operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transport material and equipment using a flat back truck

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 257020 | Transport material and equipment using a flat back truck | | |
| 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 2 | 10 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 120444 | Transport material and equipment using a flat back truck with machine mass not exceeding 16 000 kg | Level 2 | 10 | Will occur as soon as 257020 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding transporting material using a flat back truck.

SPECIFIC OUTCOME 2

Prepare to transport material using a flat back truck.

SPECIFIC OUTCOME 3

Transport material and equipment using a flat back truck.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the transport operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Doze material using a rubber wheel dozer***

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|---------------------------|--|----------------|
| 257021 | | Doze material using a rubber wheel dozer | |
| 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 2 | 14 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding dozing material using a rubber wheel dozer.

SPECIFIC OUTCOME 2

Prepare to doze material.

SPECIFIC OUTCOME 3

Doze material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the dozing operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-----------|---|--------------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Make up primer and charge holes

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---------------------------------|-----------|---------|
| 257022 | Make up primer and charge holes | | |
| 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 2 | 2 |

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 explosives handling, transport and storage.

SPECIFIC OUTCOME 2

Make up primer and charge holes.

SPECIFIC OUTCOME 3

Prepare to charge shot holes with explosives and accessories.

SPECIFIC OUTCOME 4

Charge shot holes with explosives.

SPECIFIC OUTCOME 5

Perform post-charging activities.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|------------|---|---------|
| Core 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Co-ordinate drilling and blasting operations

| | | | |
|---|--|------------------|----------------|
| SAQA US ID | UNIT STANDARD TITLE | | |
| 257023 | Co-ordinate drilling and blasting operations | | |
| 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 replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 115615 | Co-ordinate drilling and blasting operations | Level 3 | 26 | Will occur as soon as 257023 is registered |

SPECIFIC OUTCOME 1

Monitor compliance to the drilling and blasting plan.

SPECIFIC OUTCOME 2

Evaluate blasting techniques and options.

SPECIFIC OUTCOME 3

Select appropriate blasting techniques.

SPECIFIC OUTCOME 4

Adhere to safe blasting procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|------|-------|---|---------|
| Core | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Haul and dump material using a haul truck

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257024 | Haul and dump material using a haul truck | | |
| 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 2 | 11 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 10566 | Haul and dump material using Off Highway Rigid Body Rear Dumper with mass exceeding 16 000 Kg | Level 2 | 10 | Will occur as soon as 257024 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding hauling and dumping material using a haul truck.

SPECIFIC OUTCOME 2

Prepare to haul and dump material.

SPECIFIC OUTCOME 3

Haul and dump material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the hauling and dumping operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transport personnel, material and equipment using Light Delivery Vehicle

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 257025 | Transport personnel, material and equipment using Light Delivery Vehicle | | |
| 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 2 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|--|-----------|---------|--|
| 10567 | Transport personnel, material and equipment using Light Delivery Vehicle | Level 1 | 4 | Will occur as soon as 257025 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding transporting of personnel, material and equipment.

SPECIFIC OUTCOME 2

Prepare to transport personnel, material and equipment.

SPECIFIC OUTCOME 3

Transport personnel, material and equipment.

SPECIFIC OUTCOME 4

Monitor the duties pertaining to the transportation of personnel, material and equipment.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Drill blast holes in a surface mining operation

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257026 | Drill blast holes in a surface mining operation | | |
| 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 | 15 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11672 | Drill holes using Track Type Percussion Drill | Level 2 | 6 | Will occur as soon as 257026 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding drilling blast holes in a surface mining operation.

SPECIFIC OUTCOME 2

Prepare to drill blast holes.

SPECIFIC OUTCOME 3

Drill blast holes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the drilling of blast holes.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install support in surface mines and quarries

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|----------------------------|---------|
| 257027 | Install support in surface mines and quarries | | |
| 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 | 7 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 116630 | Install and maintain support in surface mines and quarries | Level 3 | 10 | Will occur as soon as 257027 is registered |

SPECIFIC OUTCOME 1

Demonstrate knowledge of ground support methods for surface mine/quarry excavations.

SPECIFIC OUTCOME 2

Select method and prepare for the support installation.

SPECIFIC OUTCOME 3

Install the ground support.

SPECIFIC OUTCOME 4

Maintain the support.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate Tractor Loader Backhoe

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--------------------------------|-----------|---------|
| 257028 | Operate Tractor Loader Backhoe | | |
| 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 | 13 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--------------------------------|-----------|---------|--|
| 119967 | Operate Tractor Loader Backhoe | Level 1 | 6 | Will occur as soon as 257028 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding operating the Tractor Loader Backhoe.

SPECIFIC OUTCOME 2

Prepare to operate the Tractor Loader Backhoe.

SPECIFIC OUTCOME 3

Operate the Tractor Loader Backhoe.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the loading operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Pump water using a De-watering Pump

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|-------------------------------------|----------------------------|---------|
| 257029 | Pump water using a De-watering Pump | | |
| 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 2 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11125 | Pump water using an Electrical De-watering Pump | Level 1 | 1 | Will occur as soon as 257029 is registered |

SPECIFIC OUTCOME 1

Demonstrate knowledge and understanding regarding pumping water using a de-watering pump.

SPECIFIC OUTCOME 2

Prepare to pump water.

SPECIFIC OUTCOME 3

Pump water.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the de-watering operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Assist blasting operations***

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|----------------------------|---------|
| 257030 | | Assist blasting operations | |
| 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 2 | 4 |

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

SPECIFIC OUTCOME 1

Demonstrate knowledge of explosives and accessories.

SPECIFIC OUTCOME 2

Prepare to charge shot holes.

SPECIFIC OUTCOME 3

Charge shot holes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to assistance in blasting operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Load, Haul and Dump material using a front end loader

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257031 | Load, Haul and Dump material using a front end loader | | |
| 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 2 | 16 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding loading, hauling and dumping material using a front end loader.

SPECIFIC OUTCOME 2

Prepare to load material using a front end loader.

SPECIFIC OUTCOME 3

Load, haul and dump material using a front end loader.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the loading, hauling and dumping operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Load material using a face shovel

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|-----------------------------------|---------|
| 257032 | | Load material using a face shovel | |
| 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 | 26 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|--------------------------------------|-----------|---------|--|
| 9704 | Load material using Rope Face Shovel | Level 2 | 26 | Will occur as soon as 257032 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding loading material using a face shovel.

SPECIFIC OUTCOME 2

Prepare to load material.

SPECIFIC OUTCOME 3

Load material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the loading operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Demonstrate an understanding of support methods in surface mines and quarries***

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|----------------------------|---------|
| 257033 | Demonstrate an understanding of support methods in surface mines and quarries | | |
| 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 2 | 4 |

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

SPECIFIC OUTCOME 1

Demonstrate knowledge of factors that influence stability of an excavation.

SPECIFIC OUTCOME 2

Demonstrate an understanding of methods to ensure slope stability in Quarry and Surface mine excavations.

SPECIFIC OUTCOME 3

Explain the principles of support in Surface mines and quarries.

SPECIFIC OUTCOME 4

Monitor support performance.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|------------|---|---------|
| Core 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Load and offload material using a skid steer loader

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257034 | Load and offload material using a skid steer loader | | |
| 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 2 | 9 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|-----------------------------|-----------|---------|--|
| 11018 | Operate a Skid Steer Loader | Level 1 | 4 | Will occur as soon as 257034 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding loading and offloading material using a skid steer loader.

SPECIFIC OUTCOME 2

Prepare to load material using a skid steer loader.

SPECIFIC OUTCOME 3

Load material using a skid steer loader.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the loading and offloading operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|----------------|---|---------|
| Elective 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Load, haul and dump material using a scraper***

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|--|---------|
| 257035 | | Load, haul and dump material using a scraper | |
| 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 2 | 12 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding load, haul and dump material using a scraper.

SPECIFIC OUTCOME 2

Prepare to load, haul and dump material using a scraper.

SPECIFIC OUTCOME 3

Load, haul and dump material using a scraper.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the load, haul and dump operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Demonstrate a basic understanding of explosives and accessories***

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257036 | Demonstrate a basic understanding of explosives and accessories | | |
| 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 2 | 2 |

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

SPECIFIC OUTCOME 1

Identify explosives and accessories.

SPECIFIC OUTCOME 2

Demonstrate understanding of the application of explosives and accessories in surface excavations.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the handling of explosives.

SPECIFIC OUTCOME 4

Adhere to Occupational Health and Safety requirements.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|------------|---|---------|
| Core 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Carry out secondary breaking using explosives in surface excavations

| | | | |
|---|--|------------------|----------------|
| SAQA US ID | UNIT STANDARD TITLE | | |
| 257037 | Carry out secondary breaking using explosives in 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 | 11 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|---|-----------|---------|--|
| 116666 | Carry out secondary breaking using explosives | Level 3 | 11 | Will occur as soon as 257037 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding of secondary breaking.

SPECIFIC OUTCOME 2

Prepare for secondary blasting.

SPECIFIC OUTCOME 3

Conduct secondary blasting operations.

SPECIFIC OUTCOME 4

Carry out post blast procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|------|-------|---|---------|
| Core | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Use a track dozer to move material

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|------------------------------------|---------|
| 257038 | | Use a track dozer to move material | |
| 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 2 | 14 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11016 | Doze material using a Track Dozer with mass exceeding 30 000 kg | Level 2 | 16 | Will occur as soon as 257038 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding dozing material using a track dozer.

SPECIFIC OUTCOME 2

Prepare to move material using a track dozer.

SPECIFIC OUTCOME 3

Move material using a track dozer.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the dozing operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Blast materials in Surface excavations

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 257039 | Blast materials in 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 | 15 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--------------------------------------|-----------|---------|--|
| 230012 | Blast materials in quarry operations | Level 3 | 15 | Will occur as soon as 257039 is registered |

SPECIFIC OUTCOME 1

Explain the blasting operations and requirements.

SPECIFIC OUTCOME 2

Prepare to conduct blasting operations.

SPECIFIC OUTCOME 3

Charge up and initiate the blast.

SPECIFIC OUTCOME 4

Treat and blast misfires.

SPECIFIC OUTCOME 5

Destroy old explosives.

SPECIFIC OUTCOME 6

Conduct post-blasting operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|----------------|---|---------|
| Elective 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

De-water blast holes using vehicle mounted de-watering pump

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257040 | De-water blast holes using vehicle mounted de-watering pump | | |
| 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 2 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11667 | De-water blast holes using Vehicle Mounted De-watering Pump | Level 1 | 4 | Will occur as soon as 257040 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding de-watering of blast holes using a vehicle mounted de-watering pump.

SPECIFIC OUTCOME 2

Prepare to de-water blast holes.

SPECIFIC OUTCOME 3

De-water blast holes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the de-watering operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Bar down loose rocks using appropriate equipment

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 257041 | Bar down loose rocks using appropriate equipment | | |
| 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 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 120443 | Bar down loose rocks using appropriate equipment | Level 3 | 3 | Will occur as soon as 257041 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding Bar down loose rocks using appropriate equipment.

SPECIFIC OUTCOME 2

Prepare to bar down loose rocks.

SPECIFIC OUTCOME 3

Bar down loose rocks.

SPECIFIC OUTCOME 4

Monitor barring operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install and maintain an initiating system in a surface mine

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257042 | Install and maintain an initiating system in a surface 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 2 | 2 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|---|-----------|---------|--|
| 120436 | Install and maintain an initiating system in a surface mine | Level 2 | 2 | Will occur as soon as 257042 is registered |

SPECIFIC OUTCOME 1

Explain the specified requirements pertaining to the installation and maintenance of an initiating system.

SPECIFIC OUTCOME 2

Prepare to install and maintain an initiating system.

SPECIFIC OUTCOME 3

Install and maintain an initiating system.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the installation and maintenance of an initiating system.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Identify and demarcate misfires in a surface excavation***

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257055 | Identify and demarcate misfires in a surface excavation | | |
| 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 2 | 2 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 120441 | Identify and demarcate a misfire in a surface mine | Level 2 | 2 | Will occur as soon as 257055 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding identification and demarcation of misfires.

SPECIFIC OUTCOME 2

Prepare to identify and demarcate misfires.

SPECIFIC OUTCOME 3

Identify and demarcate misfires.

SPECIFIC OUTCOME 4

Complete the duties pertaining to identification and demarcation of misfires.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|------|-------|---|---------|
| Core | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Remove hazardous ground by means of blasting

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 257056 | Remove hazardous ground by means of blasting | | |
| 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 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|--|-----------|---------|--|
| 9714 | Remove hazardous ground by means of blasting | Level 2 | 1 | Will occur as soon as 257056 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding the removal of hazardous ground by means of blasting.

SPECIFIC OUTCOME 2

Prepare to remove hazardous ground by means of blasting.

SPECIFIC OUTCOME 3

Remove hazardous ground by means of blasting.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the removal of hazardous ground by means of blasting.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Read and interpret surface excavation plans***

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257057 | Read and interpret surface excavation plans | | |
| 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

Understand the surface excavation plan layout and features.

SPECIFIC OUTCOME 2

Interpret surface excavation plans.

SPECIFIC OUTCOME 3

Record data on plans.

SPECIFIC OUTCOME 4

Perform relevant calculations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|------|-------|---|---------|
| Core | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Time and connect blast initiating systems

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257058 | Time and connect blast initiating systems | | |
| 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 2 | 2 |

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 explosives handling, transport and storage.

SPECIFIC OUTCOME 2

Explain the specified requirements pertaining to the installation and maintenance of an initiating system.

SPECIFIC OUTCOME 3

Prepare to connect blast initiating system.

SPECIFIC OUTCOME 4

Install the blast initiating system and time the blast.

SPECIFIC OUTCOME 5

Perform post-installation activities.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|------------|---|---------|
| Core 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Prepare and mark off work area for drilling

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257059 | Prepare and mark off work area for drilling | | |
| 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 replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11128 | Prepare and mark off work area for drilling | Level 2 | 1 | Will occur as soon as 257059 is registered |

SPECIFIC OUTCOME 1

Demonstrate knowledge and understanding regarding marking off a work area for drilling.

SPECIFIC OUTCOME 2

Prepare to mark off drill holes.

SPECIFIC OUTCOME 3

Mark off drill holes.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the marking off operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|------------|---|---------|
| Core 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Suppress dust using a water bowser

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|------------------------------------|---------|
| 257060 | | Suppress dust using a water bowser | |
| 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 2 | 10 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding suppressing dust using a water bowser.

SPECIFIC OUTCOME 2

Prepare to suppress dust using a water bowser.

SPECIFIC OUTCOME 3

Suppress dust using a water bowser.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the dust suppressing operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|----------------|---|---------|
| Elective 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Design blasts for surface excavations

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---------------------------------------|-----------|---------|
| 257075 | Design blasts 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 4 | 24 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|-------------------------------------|-----------|---------|--|
| 230016 | Design blasts for quarry operations | Level 4 | 24 | Will occur as soon as 257075 is registered |

SPECIFIC OUTCOME 1

Explain legal requirements relating to blasting in surface excavations.

SPECIFIC OUTCOME 2

Explain the types, application and selection of explosives, initiation systems and accessories used and required in surface excavations.

SPECIFIC OUTCOME 3

Explain the drilling equipment required and their applications in surface excavations.

SPECIFIC OUTCOME 4

Explain the factors influencing blast design and their impacts on surface excavations.

SPECIFIC OUTCOME 5

Design safe and efficient blasting.

SPECIFIC OUTCOME 6

Estimate the likely environmental effects of the blasts.

SPECIFIC OUTCOME 7

Monitor the blasting performances and take appropriate actions.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|----------------|---|---------|
| Elective 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Excavate and load material using hydraulic excavator

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|--|-----------|---------|
| 257076 | Excavate and load material using hydraulic excavator | | |
| 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 | 26 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 9705 | Excavate and load material using Hydraulic Excavator with mass not exceeding 50000 Kg | Level 2 | 26 | Will occur as soon as 257076 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding the excavation and loading of material using a hydraulic excavator.

SPECIFIC OUTCOME 2

Prepare to and excavate material.

SPECIFIC OUTCOME 3

Excavate and load material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the excavating and loading operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Illuminate an area using a lighting plant

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257077 | Illuminate an area using a lighting 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 2 | 2 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11698 | Illuminate an area using a Lighting Plant | Level 1 | 1 | Will occur as soon as 257077 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding illuminating an area using a lighting plant.

SPECIFIC OUTCOME 2

Prepare to illuminate an area.

SPECIFIC OUTCOME 3

Illuminate an area using a lighting plant.

SPECIFIC OUTCOME 4

Complete the duties pertaining to illumination.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Examine and make safe blasted Surface excavations

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257078 | Examine and make safe blasted 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 | 5 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 115535 | Examine and make safe blasted quarry excavations | Level 3 | 5 | Will occur as soon as 257078 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding of significant risk of falls of ground in surface excavations.

SPECIFIC OUTCOME 2

Examine blasted surface excavations plus dumps and stockpiles.

SPECIFIC OUTCOME 3

Declare safe blasted surface excavations; dumps and stockpiles.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| ID | QUALIFICATION TITLE | LEVEL |
|------------|---|---------|
| Core 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Carry out basic surveying and calculations in surface excavations

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257095 | Carry out basic surveying and calculations in 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 replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|--------|--|-----------|---------|--|
| 230014 | Carry out basic surveying and calculations in quarries | Level 3 | 8 | Will occur as soon as 257095 is registered |

SPECIFIC OUTCOME 1

Explain basic surveying practices in surface excavations.

SPECIFIC OUTCOME 2

Perform basic surveying tasks.

SPECIFIC OUTCOME 3

Transfer data from excavation plans into the field.

SPECIFIC OUTCOME 4

Conduct basic calculations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:***Grade material using a motor grader***

| SAQA US ID | | UNIT STANDARD TITLE | |
|---|--------------------|-------------------------------------|---------|
| 257115 | | Grade material using a motor grader | |
| 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 | 14 |

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

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding grading material using a Motor Grader.

SPECIFIC OUTCOME 2

Prepare to grade material.

SPECIFIC OUTCOME 3

Grade material.

SPECIFIC OUTCOME 4

Complete the duties pertaining to the grading operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

| | ID | QUALIFICATION TITLE | LEVEL |
|----------|-------|---|---------|
| Elective | 62869 | National Certificate: Rockbreaking: Surface Excavations | Level 3 |



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Transport and distribute fuel using a Fuel Bowser

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|-----------|---------|
| 257135 | Transport and distribute fuel using a Fuel Bowser | | |
| 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 2 | 4 |

This unit standard replaces:

| US ID | Unit Standard Title | NQF Level | Credits | Replacement Status |
|-------|---|-----------|---------|--|
| 11697 | Transport and distribute fuel using Off-Highway Fuel Bowser | Level 1 | 4 | Will occur as soon as 257135 is registered |

SPECIFIC OUTCOME 1

Demonstrate an understanding regarding transporting and distribution of fuel.

SPECIFIC OUTCOME 2

Prepare to transport and distribute fuel.

SPECIFIC OUTCOME 3

Transport and distribute fuel using fuel bowser.

SPECIFIC OUTCOME 4

Monitor the duties pertaining to the distribution and transportation of fuel.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

None