



### 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 NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the unit standard. The unit standard can be accessed via the SAQA web-site at [www.saga.org.za](http://www.saga.org.za). Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 4 October 2004***. All correspondence should be marked **Standards Setting – SGB for Mining and Minerals** and addressed to

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## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

1

Carry out a close electrical inspection on a mini substation

SAQA US ID	UNIT STANDARD TITLE		
116640	Carry out a close electrical inspection on a mini substation		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 1	1

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the requirements pertaining to a close inspection on a mini substation.

**SPECIFIC OUTCOME 2**

Prepare to inspect the mini substation.

**SPECIFIC OUTCOME 3**

Inspect the mini substation.

**SPECIFIC OUTCOME 4**

Perform reporting and housekeeping duties.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

2

**Carry out a detailed electrical inspection on an isolated overhead line**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116644	Carry out a detailed electrical inspection on an isolated overhead line		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 2	3

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Explain the requirements pertaining to the detailed inspection on an isolated overhead line.

##### **SPECIFIC OUTCOME 2**

Prepare to inspect the isolated overhead line.

##### **SPECIFIC OUTCOME 3**

Inspect the overhead line.

##### **SPECIFIC OUTCOME 4**

Test the overhead line and prepare for operation and / or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

3

## Charge shot holes with bulk explosives

SAQA US ID	UNIT STANDARD TITLE		
116667	Charge shot holes with bulk explosives		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the specified requirements pertaining to charging shot holes with bulk explosives.

**SPECIFIC OUTCOME 2**

Prepare to charge shot holes with bulk explosives.

**SPECIFIC OUTCOME 3**

Charge shot holes with bulk explosives.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

4

#### Conduct continuous hazard identification and risk assessment within a workplace

SAQA US ID	UNIT STANDARD TITLE		
116655	Conduct continuous hazard identification and risk assessment within a workplace		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Explain the specified requirements pertaining to continuous hazard identification and risk assessment

##### **SPECIFIC OUTCOME 2**

Prepare for hazard identification.

##### **SPECIFIC OUTCOME 3**

Identify hazards and assess risks.

##### **SPECIFIC OUTCOME 4**

Initiate remedial and follow-up action.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

5

**Demonstrate an understanding of legal terms and requirements related to rockbreaking operations**

SAQA US ID	UNIT STANDARD TITLE		
116659	Demonstrate an understanding of legal terms and requirements related to rockbreaking operations		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain definitions pertaining to rockbreaking operations.

**SPECIFIC OUTCOME 2**

Explain legal requirements related to rockbreaking operations.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

6

**Describe the basic environmental factors of ventilating an underground working place to ensure a safe and healthy working environment**

SAQA US ID	UNIT STANDARD TITLE		
116670	Describe the basic environmental factors of ventilating an underground working place to ensure a safe and healthy working environment		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	3

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Outline the necessity for ventilating a working place.

##### **SPECIFIC OUTCOME 2**

Describe the methods of ventilating a working place.

##### **SPECIFIC OUTCOME 3**

Describe the basic effects on workers and action to be taken in terms of exposure to hazardous enviro

##### **SPECIFIC OUTCOME 4**

Describe the methods of controlling ventilation in a working place and sections thereof.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

7

**Determine environmental thermal conditions in an underground workplace by means of a whirling hygrometer and take appropriate action**

SAQA US ID	UNIT STANDARD TITLE		
116636	Determine environmental thermal conditions in an underground workplace by means of a whirling hygrometer and take appropriate action		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Describe the specified requirements pertaining to measuring thermal conditions by means of a whirling

**SPECIFIC OUTCOME 2**

Prepare to determine thermal conditions by means of a whirling hygrometer in an underground workplace

**SPECIFIC OUTCOME 3**

Determine thermal conditions by means of a whirling hygrometer, record the results and take appropriate

**SPECIFIC OUTCOME 4**

Perform post measurement activities pertaining to the determining of thermal conditions by means of





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

8

**Drill holes for blasting and/or splitting dimension stone blocks using a mechanised drill rig**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116632	Drill holes for blasting and/or splitting dimension stone blocks using a mechanised drill rig		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 2	6

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Demonstrate a basic understanding of drilling holes for blasting and/or splitting dimension stone bl

##### **SPECIFIC OUTCOME 2**

Prepare to drill holes for blasting and/or splitting dimension stone blocks.

##### **SPECIFIC OUTCOME 3**

Drill holes for blasting and/or splitting dimension stone blocks.

##### **SPECIFIC OUTCOME 4**

Finalise drilling operations.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

9

## Drill intersecting holes for diamond wire sawing

SAQA US ID	UNIT STANDARD TITLE		
116658	Drill intersecting holes for diamond wire sawing		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	7

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Demonstrate an understanding of drilling intersecting holes.

**SPECIFIC OUTCOME 2**

Prepare to drill intersecting holes.

**SPECIFIC OUTCOME 3**

Drill intersecting holes.

**SPECIFIC OUTCOME 4**

Finalise and report on the drilling process.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

10

## Make up a flanged pipe section

SAQA US ID	UNIT STANDARD TITLE		
116654	Make up a flanged pipe section		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to making up a flanged pipe section.

**SPECIFIC OUTCOME 2**

Prepare to make up a flanged pipe section.

**SPECIFIC OUTCOME 3**

Make up a flanged pipe section.

**SPECIFIC OUTCOME 4**

Complete the process and prepare for operation and/or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

11

## Mark shot holes for secondary blasting

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116646	Mark shot holes for secondary blasting		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 2	4

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain specified requirements pertaining to the marking of shot holes for secondary blasting.

**SPECIFIC OUTCOME 2**

Prepare to mark shot holes for secondary blasting.

**SPECIFIC OUTCOME 3**

Mark shot holes for secondary blasting.



# SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

12

### Repair a water-cooled busbar system

SAQA US ID	UNIT STANDARD TITLE		
116629	Repair a water-cooled busbar system		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	3

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Explain the factors critical to repairing a water-cooled busbar system.

##### **SPECIFIC OUTCOME 2**

Prepare to repair the busbar system.

##### **SPECIFIC OUTCOME 3**

Repair the busbar system.

##### **SPECIFIC OUTCOME 4**

Test the busbar system and prepare for operation.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

13

## Replace the cutter motor on a wall mining shearer

SAQA US ID	UNIT STANDARD TITLE		
116642	Replace the cutter motor on a wall mining shearer		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	3

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to replacing the cutter motor on a wall mining shearer.

**SPECIFIC OUTCOME 2**

Prepare to replace the cutter motor on a wall mining shearer.

**SPECIFIC OUTCOME 3**

Replace the cutter motor on a wall mining shearer.

**SPECIFIC OUTCOME 4**

Test the wall mining shearer and prepare for operation and/or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

14

#### Replace the insulation of a water-cooled busbar system

SAQA US ID	UNIT STANDARD TITLE		
116624	Replace the insulation of a water-cooled busbar system		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	3

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Explain the factors critical to replace the insulation of a water-cooled busbar system.

##### **SPECIFIC OUTCOME 2**

Prepare to replace the insulation.

##### **SPECIFIC OUTCOME 3**

Replace the insulation.

##### **SPECIFIC OUTCOME 4**

Test the busbar insulation and prepare for operation.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

15

## Replace the shear cylinder on a wall mining shearer

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116639	Replace the shear cylinder on a wall mining shearer		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 2	3

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to replacing the shear cylinder on a wall mining shearer.

**SPECIFIC OUTCOME 2**

Prepare to replace the shear cylinder on a wall mining shearer.

**SPECIFIC OUTCOME 3**

Replace the shear cylinder on a wall mining shearer.

**SPECIFIC OUTCOME 4**

Test the shear cylinder and prepare for operation and/or production.





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

16

**Replace the side frame assembly of a hydraulic/rope shovel**

SAQA US ID	UNIT STANDARD TITLE		
116635	Replace the side frame assembly of a hydraulic/rope shovel		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

### **Specific Outcomes:**

#### **SPECIFIC OUTCOME 1**

Explain the factors critical to replacing the side frame assembly on a hydraulic/rope shovel.

#### **SPECIFIC OUTCOME 2**

Prepare to replace the side frame assembly on a hydraulic/rope shovel.

#### **SPECIFIC OUTCOME 3**

Replace the side frame assembly on a hydraulic/rope shovel.

#### **SPECIFIC OUTCOME 4**

Test the side frame assembly, and prepare for operation and/or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

17

## Split dimension stone blocks by means of non explosive methods

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116625	Split dimension stone blocks by means of non explosive methods		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 2	4

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Demonstrate an understanding of splitting dimension stone blocks by means of non explosive methods.

**SPECIFIC OUTCOME 2**

Prepare to conduct non explosive dimension stone splitting.

**SPECIFIC OUTCOME 3**

Conduct splitting operations.

**SPECIFIC OUTCOME 4**

Conduct post splitting operations.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

18

**Test for flammable gas in a mining environment by means of a hand held electronic instrument and take appropriate action**

SAQA US ID	UNIT STANDARD TITLE		
116657	Test for flammable gas in a mining environment by means of a hand held electronic instrument and take appropriate action		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 2	2

### **Specific Outcomes:**

#### **SPECIFIC OUTCOME 1**

Describe the specified requirements pertaining to the testing for flammable gas.

#### **SPECIFIC OUTCOME 2**

Prepare to test.

#### **SPECIFIC OUTCOME 3**

Test for flammable gas and take appropriate action.

#### **SPECIFIC OUTCOME 4**

Perform post-testing activities.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

19

Carry out a detailed electrical inspection on a mobile substation

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116634	Carry out a detailed electrical inspection on a mobile substation		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 3	3

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the requirements pertaining to the detailed inspection of a mobile substation.

**SPECIFIC OUTCOME 2**

Prepare to inspect the mobile substation.

**SPECIFIC OUTCOME 3**

Inspect the mobile substation.

**SPECIFIC OUTCOME 4**

Test the mobile substation and prepare for operation and / or production.



# SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

20

Carry out secondary breaking using explosives

SAQA US ID	UNIT STANDARD TITLE		
116666	Carry out secondary breaking using explosives		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	11

### Specific Outcomes:

#### **SPECIFIC OUTCOME 1**

Demonstrate an understanding of secondary breaking in quarries.

#### **SPECIFIC OUTCOME 2**

Prepare for secondary blasting.

#### **SPECIFIC OUTCOME 3**

Conduct secondary blasting operations.

#### **SPECIFIC OUTCOME 4**

Carry out post blast procedures.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

21

## Conduct an issue-based risk assessment within an underground workplace

SAQA US ID	UNIT STANDARD TITLE		
116669	Conduct an issue-based risk assessment within an underground workplace		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the specified requirements pertaining to issue-based risk assessment.

**SPECIFIC OUTCOME 2**

Prepare for risk assessment.

**SPECIFIC OUTCOME 3**

Assess the risks.

**SPECIFIC OUTCOME 4**

Initiate remedial and follow-up action.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

22

## Conduct blasting operations in dimension stone quarries

SAQA US ID	UNIT STANDARD TITLE		
116614	Conduct blasting operations in dimension stone quarries		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Manufacturing and Assembly	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-MNA-0-SGB MM	Regular	Level 3	15

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Demonstrate an understanding of blasting operations in dimension stone quarries.

**SPECIFIC OUTCOME 2**

Prepare to conduct blasting operations in quarries.

**SPECIFIC OUTCOME 3**

Charge up and initiate the blast.

**SPECIFIC OUTCOME 4**

Conduct split blasting in dimension stone quarries.

**SPECIFIC OUTCOME 5**

Treat and/or blast misfires.

**SPECIFIC OUTCOME 6**

Destroy old explosives.

**SPECIFIC OUTCOME 7**

Conduct post-blasting operations.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

23

Connect and initiate a blast of a stope face using shock tube

SAQA US ID	UNIT STANDARD TITLE		
116665	Connect and initiate a blast of a stope face using shock tube		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	3

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the specified requirements regarding the connecting and initiating of a blast in a stope face

**SPECIFIC OUTCOME 2**

Prepare to connect and initiate the blast of a stope face using shock tube.

**SPECIFIC OUTCOME 3**

Connect and initiate the blast of a stope face using shock tube.





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

24

#### Demonstrate basic understanding of dimension stone geology and mineralogy

SAQA US ID	UNIT STANDARD TITLE		
116627	Demonstrate basic understanding of dimension stone geology and mineralogy		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	16

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Demonstrate knowledge of rock forming processes.

##### **SPECIFIC OUTCOME 2**

Demonstrate knowledge of rock and rock forming minerals.

##### **SPECIFIC OUTCOME 3**

Demonstrate knowledge of structural geology related to dimension stone.

##### **SPECIFIC OUTCOME 4**

Map basic structures and project them in three dimensions.

##### **SPECIFIC OUTCOME 5**

Demonstrate and apply knowledge of dimension stone sampling techniques.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

25

**Demonstrate understanding of the principles of blasting operations and rock breaking techniques in an underground hard rock environment**

SAQA US ID	UNIT STANDARD TITLE		
116671	Demonstrate understanding of the principles of blasting operations and rock breaking techniques in an underground hard rock environment		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	9

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the characteristics of explosives and initiation systems.

**SPECIFIC OUTCOME 2**

Explain the application of explosives and initiation systems.

**SPECIFIC OUTCOME 3**

Explain the basic principles of rock breaking techniques.



# SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

26

### Fault find and repair a goods hoist

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116648	Fault find and repair a goods hoist		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 3	3

### Specific Outcomes:

#### **SPECIFIC OUTCOME 1**

Explain factors critical to faultfinding and repairing a goods hoist.

#### **SPECIFIC OUTCOME 2**

Prepare to fault find and repair a goods hoist.

#### **SPECIFIC OUTCOME 3**

Fault find and repair the goods hoist.

#### **SPECIFIC OUTCOME 4**

Test the goods hoist and prepare for operation.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

27

## Fault find and repair an elevator

SAQA US ID	UNIT STANDARD TITLE		
116652	Fault find and repair an elevator		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	5

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to faultfinding and repairing an elevator.

**SPECIFIC OUTCOME 2**

Prepare to fault find and repair the elevator.

**SPECIFIC OUTCOME 3**

Fault find and repair the elevator.

**SPECIFIC OUTCOME 4**

Test the elevator and prepare for operation.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

28

#### Handle dimension stone blocks by means of front end loader

SAQA US ID	UNIT STANDARD TITLE		
116626	Handle dimension stone blocks by means of front end loader		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	13

#### Specific Outcomes:

##### **SPECIFIC OUTCOME 1**

Demonstrate a basic understanding of handling dimension stone blocks by means of front end loader.

##### **SPECIFIC OUTCOME 2**

Lift and move quarrying equipment.

##### **SPECIFIC OUTCOME 3**

Extract and handle dimension stone blocks.

##### **SPECIFIC OUTCOME 4**

Load finished blocks into trucks.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

29

## Install an initiating system used in blasting operations underground

SAQA US ID	UNIT STANDARD TITLE		
116651	Install an initiating system used in blasting operations underground		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	4

**Specific Outcomes:****SPECIFIC OUTCOME 1**

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

**SPECIFIC OUTCOME 2**

Prepare to install an initiating system.

**SPECIFIC OUTCOME 3**

Install an initiating system.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

30

#### Install and maintain support in surface mines and quarries

SAQA US ID	UNIT STANDARD TITLE		
116630	Install and maintain support in surface mines and quarries		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	10

#### **Specific Outcomes:**

##### ***SPECIFIC OUTCOME 1***

Demonstrate knowledge of ground support methods for quarry excavations.

##### ***SPECIFIC OUTCOME 2***

Select method and prepare for the support installation.

##### ***SPECIFIC OUTCOME 3***

Install the ground support.

##### ***SPECIFIC OUTCOME 4***

Monitor the support performance.

##### ***SPECIFIC OUTCOME 5***

Maintain the support.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

31

## Make saw cuts by means of diamond wire saw

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
116663	Make saw cuts by means of diamond wire saw		
<b>SGB NAME</b>		<b>ABET BAND</b>	<b>PROVIDER NAME</b>
SGB Mining and Minerals		Undefined	
<b>FIELD DESCRIPTION</b>		<b>SUBFIELD DESCRIPTION</b>	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
<b>UNIT STANDARD CODE</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
MET-FBE-0-SGB MM	Regular	Level 3	15

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Demonstrate an understanding of the diamond wire sawing process.

**SPECIFIC OUTCOME 2**

Set up the diamond wire saw and accessories.

**SPECIFIC OUTCOME 3**

Operate the diamond wire saw.

**SPECIFIC OUTCOME 4**

Finalise and report on the saw cut.





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

32

#### Manufacture explosives on site for quarry operations

SAQA US ID	UNIT STANDARD TITLE		
116661	Manufacture explosives on site for quarry operations		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	8

#### **Specific Outcomes:**

##### ***SPECIFIC OUTCOME 1***

Calculate the amounts of the ingredients needed to manufacture the required explosives.

##### ***SPECIFIC OUTCOME 2***

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

##### ***SPECIFIC OUTCOME 3***

Record and account for both the ingredients and the explosives produced.

##### ***SPECIFIC OUTCOME 4***

Carry out basic maintenance and housekeeping on the mixing equipment.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

33

Plan, organise, lead and control activities in the mining operations process

SAQA US ID	UNIT STANDARD TITLE		
116664	Plan, organise, lead and control activities in the mining operations process		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	10

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Plan activities.

**SPECIFIC OUTCOME 2**

Organise activities.

**SPECIFIC OUTCOME 3**

Lead activities.

**SPECIFIC OUTCOME 4**

Control activities.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

34

## Repair a rectifier panel

SAQA US ID	UNIT STANDARD TITLE		
116623	Repair a rectifier panel		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	5

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to repairing a rectifier panel.

**SPECIFIC OUTCOME 2**

Prepare to repair the rectifier panel.

**SPECIFIC OUTCOME 3**

Repair the rectifier panel.

**SPECIFIC OUTCOME 4**

Test the rectifier panel and prepare for operation.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

35

## Repair a rotary packer

SAQA US ID	UNIT STANDARD TITLE		
116656	Repair a rotary packer		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to repairing a rotary packer.

**SPECIFIC OUTCOME 2**

Prepare to repair the rotary packer.

**SPECIFIC OUTCOME 3**

Repair the rotary packer.

**SPECIFIC OUTCOME 4**

Test the rotary packer and prepare for operation and/or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

36

## Repair a saturable core starter

SAQA US ID	UNIT STANDARD TITLE		
116633	Repair a saturable core starter		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	4

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to repairing a saturable core starter.

**SPECIFIC OUTCOME 2**

Prepare to repair the saturable core starter.

**SPECIFIC OUTCOME 3**

Repair the saturable core starter.

**SPECIFIC OUTCOME 4**

Test the saturable core starter and prepare for operation.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

37

## Repair a screw pump

SAQA US ID	UNIT STANDARD TITLE		
116650	Repair a screw pump		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	2

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to repairing a screw pump.

**SPECIFIC OUTCOME 2**

Prepare to repair the screw pump.

**SPECIFIC OUTCOME 3**

Repair the screw pump.

**SPECIFIC OUTCOME 4**

Test the screw pump and prepare for operation and/or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

38

#### Replace a PTFE (poly-tetra-fluoro-ethylene) bellows in a chemical plant

SAQA US ID	UNIT STANDARD TITLE		
116631	Replace a PTFE (poly-tetra-fluoro-ethylene) bellows in a chemical plant		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	3

#### **Specific Outcomes:**

##### **SPECIFIC OUTCOME 1**

Explain the factors critical to replacing a PTFE bellows in a chemical plant.

##### **SPECIFIC OUTCOME 2**

Prepare to replace a PTFE bellows in a chemical plant.

##### **SPECIFIC OUTCOME 3**

Replace a PTFE bellows in a chemical plant.

##### **SPECIFIC OUTCOME 4**

Test the PTFE bellows and prepare for operation and/or production.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

39

## Replace a glass pipe section in a chemical plant

SAQA US ID	UNIT STANDARD TITLE		
116628	Replace a glass pipe section in a chemical plant		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	3

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the factors critical to replacing a glass pipe section in a chemical plant.

**SPECIFIC OUTCOME 2**

Prepare to replace a glass pipe section in a chemical plant.

**SPECIFIC OUTCOME 3**

Replace a glass pipe section in a chemical plant.

**SPECIFIC OUTCOME 4**

Test the glass pipe section and prepare for operation and/or production.





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

40

Time connect and initiate a blast of a stope face using electric/electronic delay detonators

SAQA US ID	UNIT STANDARD TITLE		
116660	Time connect and initiate a blast of a stope face using electric/electronic delay detonators		
SGB NAME	ABET BAND	PROVIDER NAME	
SGB Mining and Minerals	Undefined		
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	6

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the specified requirements regarding the timing, connecting and initiating of a blast of a s

**SPECIFIC OUTCOME 2**

Prepare to time, connect and initiate the blast of a stope face using electric/electronic delay deto

**SPECIFIC OUTCOME 3**

Time, connect and initiate the blast of a stope face using electric/electronic delay detonators.



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

## UNIT STANDARD:

41

Time, connect and initiate a blast of a development end using shock tube

SAQA US ID	UNIT STANDARD TITLE		
116668	Time, connect and initiate a blast of a development end using shock tube		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Mining and Minerals		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Manufacturing, Engineering and Technology		Fabrication and Extraction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
MET-FBE-0-SGB MM	Regular	Level 3	3

**Specific Outcomes:****SPECIFIC OUTCOME 1**

Explain the specified requirements regarding the timing, connecting and initiating of a blast in a d

**SPECIFIC OUTCOME 2**

Prepare to time, connect and initiate the blast of a development end using shock tube.

**SPECIFIC OUTCOME 3**

Time, connect and initiate the blast of a development end using shock tube.