No. 720 28 July 2006

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

Transport and Logistics Operations

registered by Organising Field 11, Services, publishes the following qualification and unit standards for public comment.

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

Comment on the qualification and unit standards should reach **SAQA** at the address below and no later ***than*** 24 August 2006. **All** correspondence should be marked Standards Setting – SGB for Transport and Logistics Operations and addressed to

The Director: Standards Setting and Development
**SAQA**
***Attention: Mr. D Mphuthing***
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 431-5144
e-mail: dmphuthing@saqa.co.za

**S BHIKHA**
**DIRECTOR: STANDARDS SETTING AND DEVELOPMENT**

| SAQA QUAL ID | QUALIFICATION TITLE | | |
|---|---|---|---|
| 57407 | National Diploma: Train Driving (Mainline Operations) | | |
| SGB NAME | | ORGANISING FIELD ID | PROVIDER NAME |
| SGB Transport and Logistics Operations | | 11 | |
| QUAL TYPE | | ORGANISING FIELD DESCRIPTION | SUBFIELD |
| National Diploma | | Services | Transport, Operations and Logistics |
| ABET BAND | (MINIMUM CREDITS | NQF LEVEL | QUALIFICATION CLASS |
| Undefined | 240 | Level 5 | Regular-Unit Stds Based |

***PURPOSE AND RATIONALE OF THE QUALIFICATION***

Purpose:

The purpose of the National Diploma: Train Driving (Mainline Operations) NQF Level 5 is to provide service excellence with a focus on safe working in the field of rail transport services. The qualification is the more advanced of a series of qualifications that will form the learning pathway for persons in the rail transport industry (train driving). The qualification provides the broad knowledge, skills and values needed in the rail transport industry (train driving) and will facilitate access to and mobility and progression within the industry.

A learner certified as competent against this qualification will be able to move rail vehicles and/or commodities (freight/passengers) from one point to another safely on rail under any condition in accordance with company-specific policies, procedures and instructions.

Rationale:

In South Africa, government has set as a priority the shifting of as much traffic as possible - both freight and passenger services - from road to rail. A move such as this necessitates the timeous development of the critical competence of train driving that will make the shift of traffic from road to rail sustainable.

Transport services and persons operating within this industry will benefit from this national qualification and its competence standards, which are instrumental to the development and recognition of the foundational, practical and reflexive competence (applied competence) needed to render effective and efficient rail transport services. These services are essential in and to the following domains:

> Enabling the economy.
> Enabling the rendering of passenger services.
> Tourism.
> Linking South Africa with the rest of the SADC Region by rail, which enables cross-border economic activity.
> Enabling vital social services.

Central to the qualification is the development of a culture of safe working.

***RECOGNIZE PREVIOUS LEARNING?***

Y

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

The following is the learning assumed to be in place for the National Diploma: Train Driving (Mainline Operations) NQF Level 5:

Learners accessing this Diploma in Train Driving (Mainline Operations) will have an FETC 4 qualification, inclusive of Mathematics and/or Science.

> Standard: Sign on and off for locomotive crew.
> Standard: Apply first aid protocols.
> Standard: Identify, report and react to hazardous material sub-standard conditions.
> Standard: Demonstrate knowledge and understanding of HIV/AIDS in a workplace and its effects on a business sub-sector, own organization and a specific workplace.
> Standard: Compile Trains.

Recognition of Prior Learning (RPL)

Learners who already work in the train driving industry and who believe that they possess the competencies to enable them to meet all of the outcomes listed in the unit standard will be able to present themselves for assessment against the unit standards of their choice. Once found competent, these learners will be certified as competent and credited.

RPL will allow for accelerated access to further learning and gaining of credits towards a qualification. All RPL is subject to quality assurance by the ETQA and is conducted by a registered assessor.

Access to the qualification:

Access to this qualification is governed by the carefully defined learning assumed to be in place (FETC 4 qualification, inclusive of Mathematics or Science). The learning assumed to be in place forms the essential basis for acquiring the competence described in this qualification and is not intended to be used as an artificial barrier to learning opportunities.

Learners must possess the medical and physical capabilities prescribed in terms of the relevant legislation and policies governing rail transport workers.

Learners who can provide evidence of the learning assumed to be in place, and who possess the necessary medical and physical capabilities may access the qualification or its unit standards.

***QUALIFICATION*** RULES
> All fundamental unit standards: 23 credits
> All core unit standards: 181 credits
> Select at least 1 electric locomotive: 24 credits
> Select at least 1 train brake system: 12 credits

> Total: 240 credits

Train Drivers operate in different contexts. Providers of these qualifications need to ensure the competence required is provided in these contexts.
In a specific operational environment it is normally expected from Train Drivers to operate different trains in one shift, which requires qualifications on different locomotives.
Apart from obtaining the generic competencies required for Train Drivers (fundamental and core unit standards) the learner has specialisation options made possible through appropriate combinations of Electives.

The core unit standard "Apply Road Knowledge principles" will be a prerequisite for performing actual train driver duties in the operational environment. Due to the various topographies of different routes it is impossible to split the contents of the Road Knowledge Principles. Road knowledge learning periods reflected are the minimum allowed due to the complexity of different rail networks and will depend on the learner's ability to cope with the complexity thereof.

The learning period applicable to the core unit standard "Convey Passengers or Freight by Rail" is determined by the minimum trips (Seventy trips) a learner needs to complete before application for certification. During this learning period the theory with regards to the operation instructions, locomotive, brake system (s) and principles of Train Dynamics needs to be integrated within a practical environment

The practical exposure is required to enable a learner/Train Driver to make intelligent decisions with regards to train - and locomotive handling to ensure safe movement of the train on rail.

The following define the rules of combination (core streams) with regards to the different core unit

standards required for this qualification.

Note: To obtain this qualification, learners must complete all the unit standards in the fundamental category and are required to do all credits from the core and titles include:

A combination of locomotives.

At least one Electric and one Dual Locomotive Unit Standard, or Steam and one Diesel Unit standard (where applicable), and:

> Vacuum Brake System.
> Convey Passengers or freight by rail.
> Apply Road Knowledge Principles.
> Apply Train Dynamics and train handling techniques.
> Operate and regulate the safe movement of locomotive.
> Operate safely under or with high voltage equipment.

The practical exposure is required to enable a learner/Train Driver to make intelligent decisions with regards to train and locomotive handling to ensure safe movement of the train on rail. Learners need to select a minimum of **12** credits from the elective category.

***EXIT LEVEL OUTCOMES***

On achieving this qualification, the learner will be able to:

1. Prepare the locomotive for service, operate and regulate the locomotive /locomotive consist safely under/with high voltage equipment.
**2.** Inspect train load consist and test the operation of different train brake systems.
3. Safely operate and regulate different trains on different topographical conditions within different train control systems whilst complying with principles of safe movement on rail.
4. Operate applicable train brake system within company specific instructions and manufacturers specifications.
5. Apply communication protocols related to various designations, descriptions and company terminology.

The critical cross-field outcomes are integrated with the unit standards and assessment criteria of each unit standard were drafted to include assessment of the degree to which critical cross-field competence has been attained. Learner competence can be assessed against a single unit standard or, in cases where learners are enrolled on a skills programme, competence may be assessed against the relevant cluster of standards on which the skills programme is based.

***ASSOCIATED ASSESSMENT CRITERIA***

**1.**
> The preparation of the locomotive/ locomotive consist is executed safely under/with high voltage equipment in accordance with company procedures and manufacturers specifications.
> The operating and regulating of the locomotive/ locomotive consist is executed safely under/with high voltage equipment in accordance with company procedures and manufacturers specifications.
> The correct method for identification, reporting and reacting to sub-standard conditions is followed in accordance with company specific procedures and instructions.
> The correct utilizing of different train control systems and. the correct application of principles of safe movement on rail are complied with in accordance with company specific instructions.

**2.**
> The trainload consist is inspected safely and correctly in accordance with company specific instructions.
> The operation of the applicable brake system is correctly tested in accordance with company specific procedures/instructions and manufacturers specifications.

**3.**
> The correct train dynamics and train handling techniques are applied in accordance with company specific instructions.
> The small-scale graphical displays, audible and visual indications of locomotive gauges, indicators and environmental conditions are correctly interpreted according to company specific instructions and manufacturers specifications.
> The correct method for identification, reporting and reacting to hazardous material sub-standard conditions is followed in accordance with company specific procedures and instructions.
> Passengers or freight is safely conveyed by rail in accordance with the principles of safe movement on rail and in accordance with company specific instructions.

> The correct utilizing of different train control systems and. the correct application of principles of safe movement on rail are complied with in accordance with company specific instructions.

4.
> The audible and visual indications of locomotive gauges, indicators are correctly interpreted.
> The application and recharging of the applicable brake system is executed within company specific instructions and manufacturers specifications.
> The application and recharging of the applicable brake system is executed in accordance with different topographical conditions.
> The operation of the applicable brake system is correctly tested in accordance with company specific procedures/instructions and manufacturers specifications.
> The correct method for identification, reporting and reacting to substandard conditions is followed in accordance with company specific procedures/ instructions and manufacturers specifications.

5.
> The communication protocols related to various designations, descriptions and company terminology are correctly applied in accordance with company specific instructions.
> Diagnostic and analytical evaluation techniques are correctly applied in accordance with company specific instructions.
> The correct principles, methods and techniques when communicating to various designations, descriptions and company terminology are utilized in accordance with company specific instructions.

Integrated assessment

Learning, teaching and assessment are inextricably linked. Whenever possible the assessment of knowledge, skills, attitudes and values shown in the unit standards should be integrated.

Assessment of the communication, language and mathematics should be conducted in conjunction with other aspects and should use train-driving contexts wherever possible.

Assessment should cover all specific outcomes, embedded knowledge and critical cross-field outcomes. The latter should be integrated with the assessment of specific outcomes and embedded knowledge.

Assessors should conduct formative and summative assessment and assess for applied competence (i.e. integration of practical, foundational and reflexive competence).

> Ongoing / Formative Assessment

This kind of assessment work will typically take place during training and merely serves to guide the learner towards full competence.

Assessment can be done in any agreed upon method of assessment of the knowledge required to perform the various competencies.

> Summative Assessment

To be allowed access to the final qualifying assessment a learner must show that she/he has reached a level of overall integrated competence. The elements of importance here are overall abilities, problem solving capability and safe working. In addition assessors should be satisfied that the learner has achieved that level of competence to be able to take charge of any aspect of train driving.

The learner's ability to demonstrate competence against a partiiular unit standard, under real-life working conditions and in the presence of an assessor, will be assessed. The summative assessment can also be used as a diagnostic assessment tool aimed at identifying the learner's skills gaps.

> Workplace Assessment:

Workplaces can be used for assessment purposes provided that the appropriate facilities, tools, equipment, and support systems are available and accessible to both the assessor and *the* learner. The train driving industry requires workplace assessment for the following reasons:

> Assessment needs to occur in a familiar environment so that the learner is not asked to cope with different equipment and a strange environment at the time of assessment.
> Assessment needs to take place at a time and venue mutually agreed to by the assessor and the learner.

***INTERNATIONAL COMPARABILITY***

Benchmarking was done Burlington North Railway Academic Science School (BNRAS) Canada and Australia Rail. These Rail Road Operators were chosen for their similarity to the railroad setup within RSA.

> BNRAS does not have Unit standards to compare with. However the learning programmes correlate with the contents of learning programmes and syllabi in the SA context.

> Different profiles exist in the rail transport environment within Canada, for example:

> Locomotive engineer vs. Train Driver in RSA.
> Train Dispatcher vs. Train Control Officer in RSA.
> No profile exists for a Train Assistant as within RSA.

> Australia was also in the process of generating Unit Standards for the Train Driver environment and requested us to send them draft versions of the Unit Standards related to the qualification Train Driving (Mainline Operations) to assist them in the generating process.
The only profile, which correlates with RSA, is the so-called Train Driver. Train Assistant does not exist.

> Tranzrail, New Zealand registered recently their unit standards, of which some of them are similar to the unit standards within this qualification; however, specific outcomes differ in totality.

> The qualification was also benchmarked against Scotland and the United Kingdom Qualification Authorities.
Scotland, Ireland and the United Kingdom make use of the same qualification database with mutual understanding agreements.
There is however, no correlation between Train Drivers in South Africa and with those mentioned.
No operating system unit standards exist as well as train brake systems and locomotives for utilization by train drivers.

> Over and above the benchmarking to establish the international comparability of the qualification and unit standards, local and international research around risk factors that influence safe operation has been consulted to ensure the qualification adequately emphasises human factors impacting on safe working. The research consulted as part of the local benchmarking effort is the 1996 SPAD (Signals Passed at Danger) Report commissioned by Spoornet. This research studied the basic causes of SPADs and related incidents, with a focus on the role of the driver. The SPAD Brief was formulated as follows: "To comprehensively investigate and to report with recommendations, on the underlying causes and contributory factors which may lead to the impairment of train driver / crew functioning at critical moments during the shift cycle." In the course of this research a close working relationship and understanding had been established with the following international parties:

> Dr George Kuehn (Rail Simulation and Training Institute, Chicago).
> Simon Folkard (Medical Research Council, Sheffield University, UK).

Local and international academic and research institutions at the time of the research expressed interest in Spoornet's SPAD investigation. The research provided this standards generating body with valuable insight, which is reflected in the qualification and unit standards for train drivers.

***ARTICULATION OPTIONS***

The qualification lends itself to both horizontal and vertical articulation possibilities, which allow mobility and progression for the learner. Horizontal articulation possibilities lie with other qualifications at the same level in the learning area of transport and logistics operations such as:

> FETC: Transport Management at NQF level 4, ID 49489.
> FETC: Pipeline Operations NQF level 4, ID 49553.

Vertical articulation possibilities can be achieved by continuing up the learning pathway in transport management and generic qualifications such as BA Generic.

***MODERATION OPTIONS***

The moderator has the following functions:

> Monitoring and evaluating the standard of all summative assessments in terms of the ETQA policy.
> To review both substantive and process related matters in the case of an appeal against an assessment decision.
> Maintaining standards by exercising appropriate influence and control over assessors to ensure good

standards of practice.
> Exercising a moderation function in case of a dispute between assessors, or between any assessor and learner.
> Giving written feedback to Workplace Education and Training Committees the relevant ETQA and when required.
> Submitting reports to the ETQA in terms of the ETQA policy.

***CRITERIA FOR THE REGISTRATION OF ASSESSORS***

***Assessors*** must meet the following requirements:

> Anyone assessing a learner or moderating the assessment of a learner against this qualification must be must be registered with relevant ETQA.

> Assessment and moderation of assessment will be overseen by the ETQA according to the ETQA's policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQA's (including professional bodies); and in terms of the moderation guideline detailed immediately below.

> 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 ETQA for this purpose.

> Anyone assessing a learner against this qualification must be trained, qualified, certified and re-certified in accordance with validation regulations relevant to the specific qualification and registered with the relevant ETQA. Be fluent in the official language in which the learner prefers to be assessed.

> Be able to adequately record assessment responses, minutes of meetings between learner and assessor and any other information that may be needed for the performance of moderation activities.

> Be a fair and approachable person and have time available for assessment activities.

> In the event of an outstanding appeal against an assessment decision, (lodged with the ETQA), the assessor will not be allowed to perform further assessments.

***NOTES***

N/A

| | *UNIT STANDARD ID AND TITLE* | *LEVEL* | *CREDITS* | *STATUS* |
|---|---|---|---|---|
| Com | 230402 Operate a train equipped with a vacuum brake system | Level 4 | 12 | Draft - Prep for P Comment |
| Core | 230414 Inspect train bead consist and test operation of train brake systems | Level 4 | 14 | Draft - Prep for P Comment |
| Core | 2—18 Operate, and regulate the safe movement of locomotive/s | Level4 | 10 | Draft - Prep for P Comment |
| Com | 230421 Operate safely under/with high voltage equipment | Level 4 | 4 | Draft - Prep for P Comment |
| Core | 230404 Apply road knowledge principles | Level5 | 52 | Draft - Prep for P Comment |
| Core | 230407 Operate diesel electric locomotive class GM/GE including all upgrades | Level 5 | 24 | Draft - Prep for P Comment |
| Com | 230410 Convey freight or passengers by rail | Level 5 | 57 | Draft - Prep for P Comment |
| Core | 230420 Apply train dynamics and train handling | Level 5 | 8 | Draft - Prep for P Comment |
| Elective | 230405 Operate electric locomotive class 5E1 including all upgrades | Level4 | 24 | Draft - Prep for P Comment |
| Elective | 230401 Operate electric/diesel locomotive 38 class series including all upgrades | Level5 | 24 | Draft - Prep for P Comment |
| Elective | 230403 Operate electric locomotive class 11E 25 kv alternating current | Level 5 | 24 | Draft - Prep for P Comment |
| Elective | 230406 Operate pneumatic two-pipe multiple release train brake system to facilitate safe movement on rail | Level 5 | 12 | Draft - Prep for P Comment |
| Elective | 230408 Operate electric locomotive type 9E 50 kv alternating current including all upgrades | Level5 | 24 | Draft - Prep for P Comment |

| | | | | |
|---|---|---|---|---|
| Elective | 230409 Operate electric locomotive series 10E including all upgrades | Level 5 | 24 | Draft - Prep for P Comment |
| Elective | 230412 Operate electric motor coach train set 3 kV direct current type 5M2A indudii all upgrades | Level 5 | 24 | Draft - Prep for P Comment |
| Elective | 230413 Operate electronically controlled pneumatic bain air brake system | Level 5 | 12 | Draft - Prep for P Comment |
| Elective | 230415 Operate electric locomotive series 14E including all upgrades | Level 5 | 24 | Draft - Prep for P Comment |
| Elective | 230416 Operate electric locomotive 7E 25 kV alternating current and all upgrades | Level 5 | 24 | Draft - Prep for P Comment |
| Elective | 230417 Operate a bain equipped with a pneumatic controlled air brake system | Level 5 | 12 | Draft - Prep for P Comment |
| Elective | 230419 Operate electric locomotive series 6E including all upgrades | Level 5 | 24 | Draft - Prep for P Comment |
| Fundamental | 7866 Plan, organise and monitor work in own area of responsibility | Level 5 | 3 | Reregistered |
| Fundamental | 8647 Apply workplace communication skills | Level 5 | 10 | Reregistered |
| Fundamental | 8648 Demonstrate an understanding of professional values and ethics | Level 5 | 4 | Reregistered |
| Fundamental | 14522 Analyse and explain the impact of one's personal interactive style on one's relationship with a dient | Level 5 | 6 | Registered |

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### *UNIT STANDARD:* 1

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| **230401** | Operate electric/diesel locomotive 38 class series including all upgrades |

| *SGB NAME* | | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|---|
| SGB Transport and Logistics Operations | | 11 | |
| *UNIT STANDARD TYPE* | | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Services | Transport, Operations and Logistics |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | **24** | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the direct current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 4***

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specifidmanufacturer's instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in order to conduct the brake test and deal with sub-standard conditions in accordance with company specific instructions.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **2**

| ***SAQA US ID*** | ***UNIT STANDARD TITLE*** | | |
|---|---|---|---|
| ***230402*** | Operate a train equipped with a vacuum brake system | | |
| ***SGB NAME*** | | ***ORGANISING FIELD ID*** | ***PROVIDER NAME*** |
| SGB Transport and Logistics Operations | | **11** | |
| ***UNIT STANDARD TYPE*** | | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | | Services | Transport, Operations and Logistics |
| ***ABET BAND*** | ***CREDITS*** | ***NQF LEVEL*** | ***UNIT STANDARD TYPE*** |
| Undefined | **12** | Level 4 | Regular |

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

Identify and explain the purpose and function of the brake equipment on locomotive(s) and wagons fitted with a vacuum brake system.

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

Set up and test locomotive(s) and wagons fitted with a vacuum brake system.

***SPECIFIC OUTCOME 3***

Apply vacuum brake principles to regulate the acceleration and deceleration of a train.

***SPECIFIC OUTCOME*** 4

Monitor and react to visual indicators on the locomotive to ensure the vacuum brake system of the train operates within normal parameters.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 3

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 230403 | Operate electric locomotive class 11E **25** kv alternating current | | |
| *SGB NAME* | | *ORGANISING FIELD ID* | *PROVIDER NAME* |
| SGB Transport and Logistics Operations | | 11 | |
| *UNIT STANDARD TYPE* | | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Services | Transport, Operations and Logistics |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD N P E* |
| Undefined | **24** | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the alternating current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME*** 2

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 3

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 4***

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specifidmanufacturer's instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in order to conduct the brake test and deal with sub-standard conditions in accordance with company specific instructions.

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **4**

### Apply road knowledge principles

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| *230404* | Apply road knowledge principles |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |

| *STANDARD* | *ORGANISING FIELD* | *SUBFIELD* |
|---|---|---|
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | *52* | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Apply gradient knowledge to regulate the acceleration and deceleration of a train.

***SPECIFIC OUTCOME 2***

Apply signal-layout knowledge to regulate the acceleration and deceleration of a train.

***SPECIFIC OUTCOME 3***

Identify and interpret curves and plan train handling principles in advance to ensure the effective control of speed in accordance with the prescribed route, running time and/or timetable and company procedures.

***SPECIFIC OUTCOME*** 4

Apply train/trajectory speed knowledge to regulate the acceleration and deceleration of a train.

***SPECIFIC OUTCOME 5***

Identify different point sets to regulate the acceleration and deceleration of a train.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **5**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| **230405** | Operate electric locomotive class 5E1 including all upgrades | | |
| *SGB NAME* | | *ORGANISING FIELD ID* | *PROVIDER NAME* |
| SGB Transport and Logistics Operations | | 11 | |
| *UNIT STANDARD TYPE* | | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Services | Transport, Operations and Logistics |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | **24** | Level 4 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the direct current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 4***

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specific instructions/manufacturer's specifications.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake system in accordance with manufacturer's specifications/company specific instructions.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** ***6***

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| *230406* | Operate pneumatic two-pipe multiple release train brake system to facilitate safe movement o rail |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |
| ***UNIT STANDARD TYPE*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | 12 | Level 5 | Regular |

***SPECIFIC OUTCOME 1***

Identify and explain the purpose and function of the brake equipment on locomotive(s) and wagons fitted with the pneumatic two pipe multiple release train brake system in accordance with company specific instructions and manufacturers specifications.

***SPECIFIC OUTCOME 2***

Identify and explain the purpose of the individual components of the brake equipment fitted on wagons with the pneumatic two pipe multiple release train brake system in accordance with company specific instructions and manufacturers specifications.

***SPECIFIC OUTCOME 3***

Set up and test locomotive(s) and wagons fitted with the pneumatic two pipe multiple release train brake system in accordance with company specific instructions/procedures and manufacturers specifications.

***SPECIFIC OUTCOME 4***

Monitor and react to visual and audible indicators on the locomotive to ensure the pneumatic two pipe multiple release train brake system of the train operates within normal parameters.

***SPECIFIC OUTCOME 5***

Apply pneumatic two pipe multiple release train brake system principles.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **7**

**Operate diesel electric locomotive class GM/GE including all upgrades**

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| **230407** | Operate diesel electric locomotive class GM/GE including all upgrades |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |
| ***UNIT STANDARD TYPE*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and **Logistics** |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | **24** | Level ***5*** | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 4

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME* 6**

Describe, identify and understand the purpose, working and failure of the related brake valves/system in accordance with company specific instructions/manufacturer's specifications.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| *230408* | Operate electric locomotive type 9E 50 kv alternating current including all upgrades |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |
| ***UNIT STANDARD TYPE*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | 24 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the 50 kV alternating current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 4

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specifidmanufacturer's instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in order to conduct the brake test and deal with substandard conditions in accordance with company specific instructions.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **9**

**Operate electric locomotive series 10E including all upgrades**

| ***SAQA US ID*** | ***UNIT STANDARD TITLE*** | | |
|---|---|---|---|
| 230409 | Operate electric locomotive series 10E including all upgrades | | |
| ***SGB*** | | | ***PROVIDER NAME*** |
| SGB Transport and Logistics Operations | 11 | | |
| ***UNIT STANDARD TYPE*** | | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | | Services | Transport, Operatiins and Logistics |
| ***ABET BAND*** | ***CREDITS*** | ***NQF LEVEL*** | ***UNIT STANDARD TYPE*** |
| Undefined | 24 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the direct current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 4

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in accordance with manufacturer's specifications/company specific instructions.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

| SAQA US ID | UNIT STANDARD TITLE | | |
|---|---|---|---|
| 230410 | Convey freight or passengers by rail | | |
| **SGB NAME** | | **ORGANISING FIELD ID** | **PROVIDER NAME** |
| SGB Transport and Logistics Operations | | 11 | |
| **UNIT STANDARD TYPE** | | **ORGANISING FIELD** | **FIELD** |
| Regular | | Services | Transport, Operations and Logistics |
| **ABET BAND** | **CREDITS** | **NQF LEVEL** | **UNIT STANDARD TYPE** |
| Undefined | 57 | Level 5 | Regular |

***SPECIFIC OUTCOME 1***

Conduct the efficiency train brake test under motion to ensure brake systems operate within prescribed safety parameters with due consideration to gradients and road conditions in accordance with company specific procedures.

***SPECIFIC OUTCOME 2***

Identify and react to hazards arising from environmental conditions due to the inclement weather, road traffic, pedestrians and livestock or any natural Occurrence affecting the structure gauge.

***SPECIFIC OUTCOME 3***

Operate a train and apply train-handling principles to maintain safe speed and direction of a train in accordance with the prescribed route, running time/time table and company specific procedures.

***SPECIFIC OUTCOME 4***

Monitor on a continuous basis and act on visual and audible indicators to ensure the electro/mechanical components of the train operate within normal parameters in accordance with company specific requirements.

***SPECIFIC OUTCOME 5***

Apply the principles of POSMOR and/or company train working rules to evaluate and analyse instructions received from train control systems.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| 230412 | Operate electric motor coach train set 3 kV direct current type 5M2A including all upgrades |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |

| *UNIT STANDARD TYPE* | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
|---|---|---|
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | 24 | Level 5 | Regular |

***SPECIFIC OUTCOME 1***

Describe, identify and understand the purpose and layout of the direct current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific motor coach train set in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific motor coach train set in accordance with company specific instructions.

***SPECIFIC OUTCOME 4***

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific motor coach train set in accordance with company specifidmanufacturer's instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in order to conduct the brake test and deal with substandard conditions in accordance with company specific instructions.

***SPECIFIC OUTCOME 7***

Identify, describe and understand the function of the motor coach train set control communication signals in accordance with company specific instructions.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **12**

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| 230413 | Operate electronically controlled pneumatic train air brake system |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| **SGB** Transport and Logistics Operations | 11 | |

| *UNIT STANDARD TYPE* | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
|---|---|---|
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | 12 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

**Identify** and explain the purpose and function of the brake equipment on locomotive(s) and on wagons fitted with electronically controlled pneumatic(ECP) train brake system.

***SPECIFIC OUTCOME 2***

Set up, test locomotive(s) fitted with electronically controlled pneumatic(ECP) brake and distributed power(DP) systems to ensure it operates within the prescribed safety parameters in accordance with company specific procedures.

***SPECIFIC OUTCOME 3***

Apply electronically pneumatic controlled air brake principles (including Distribution of Traction Power) to regulate the acceleration and deceleration of a train.

***SPECIFIC OUTCOME 4***

Monitor and react to visual and audible indicators on the locomotive to ensure the electronically controlled pneumatic air brake system of the train operates within normal parameters.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **13**

| ***SAQA US ID*** | ***UNIT STANDARD TITLE*** | | |
|---|---|---|---|
| **230414** | Inspect train load consist and test operation of train brake systems | | |
| ***SGB NAME*** | | ***ORGANISING FIELD ID*** | ***PROVIDER NAME*** |
| SGB Transport and Logistics Operations | | 11 | |
| ***UNIT STANDARD TYPE*** | | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | | Services | Transport, Operations and Logistics |
| ***ABET BAND*** | ***CREDITS*** | ***NQF LEVEL*** | ***UNIT STANDARD TYPE*** |
| Undefined | 14 | Level **4** | Regular |

***SPECIFIC OUTCOME*** 1

Inspect coupling devices and or equipment for security and connection and deal with conspicuous defects in accordance with company specific instructions and procedures.

***SPECIFIC OUTCOME 2***

Inspect the train for service worthiness and deal with sub-standard conditions to the train compilation in accordance with company specific instructions and procedures.

***SPECIFIC OUTCOME* 3**

Conduct brake system test before departure to ensure brake system operates within prescribed safety parameters in accordance with company specific instructions and procedures.

***SPECIFIC OUTCOME* 4**

Deal with brake system related defects on the locomotive(s) and/or train in accordance with company specific instructions and procedures.

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **14**

**Operate electric locomotive series 14E including all upgrades**

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| 230415 | Operate electric locomotive series 14E including all upgrades |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |
| ***UNIT STANDARD N P E*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD N P E* |
|---|---|---|---|
| Undefined | 24 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the alternating current/direct current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 4

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in accordance with manufacturer's specifications/company specific instructions.

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **15**

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| **230416** | Operate electric locomotive 7E **25 kV** alternating current and all upgrades |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| **SGB** Transport and Logistics Operations | 11 | |
| ***UNIT STANDARD TYPE*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD N P E* |
|---|---|---|---|
| Undefined | **24** | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the alternating current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 4***

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specifid manufacturer's instructions.

***SPECIFIC OUTCOME 5***

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Describe, identify and understand the purpose, working and failure of the brake valve system in order to conduct the brake test and deal with substandard conditions in accordance with company specific instructions.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **16**

**Operate a train equipped with a pneumatic controlled air brake system**

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| **230417** | Operate a train equipped with a pneumatic controlled air brake system |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | **11** | |
| ***UNIT STANDARD TYPE*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and Logistics |

| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
|---|---|---|---|
| Undefined | **12** | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Identify and explain the purpose and function of the brake equipment on locomotive(s) and wagons fitted with a pneumatic controlled air brake system.

***SPECIFIC OUTCOME 2***

Set up and test locomotive(s) and wagons fitted with a pneumatic controlled air brake system for empty and loaded trains.

***SPECIFIC OUTCOME* 3**

Apply pneumatic controlled air brake principles to regulate the acceleration and deceleration of a train.

***SPECIFIC OUTCOME*** 4

Monitor and react to visual and audible indicators on the locomotive to ensure the pneumatic controlled air brake system of the train operates within normal parameters.

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **17**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 230418 | Operate, and regulate the safe movement of locomotive/s | | |
| *SGB NAME* | | *ORGANISING FIELD ID* | *PROVIDER NAME* |
| SGB Transport and Logistics Operations | | 11 | |
| *UNIT STANDARD TYPE* | | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Services | Transport, Operations and Logistics |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 10 | Level 4 | Regular |

***SPECIFIC OUTCOME 1***

Assess surroundings, environmental conditions and authorised instructions to determine if safe movement of a locomotive can be conducted in accordance with company specific procedures.

***SPECIFIC OUTCOME 2***

Determine, whilst moving, on a continuous basis from visual and audible indicators whether the electro/mechanical components of the locomotive operate within normal parameters in accordance with company specific requirements.

***SPECIFIC OUTCOME 3***

Apply the principles of POSMOR and/or company train working rules to evaluate and analyse instructions received from train control systems.

***SPECIFIC OUTCOME 4***

Operate a locomotive consist and apply train handling principles to maintain safe speed and direction in accordance with the prescribed route, running time/time table and company specific procedures.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **18**

**Operate electric locomotive series 6E including all upgrades**

| ***SAQA US ID*** | ***UNIT STANDARD TITLE*** |
|---|---|
| 230419 | Operate electric locomotive series 6E including all upgrades |

| ***SGB NAME*** | | ***ORGANISING FIELD ID*** | ***PROVIDER NAME*** |
|---|---|---|---|
| SGB Transport and Logistics Operations | | 11 | |
| ***UNIT STANDARD TYPE*** | | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | | Services | Transport, Operations and Logistics |
| ***ABET BAND*** | ***CREDITS*** | ***NQF LEVEL*** | ***UNIT STANDARD TYPE*** |
| Undefined | 24 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Describe, identify and understand the purpose and layout of the direct current overhead equipment in accordance with company specific safety instructions.

***SPECIFIC OUTCOME 2***

Describe, identify and understand the purpose and layout of the external equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Describe, identify and understand the purpose and layout of the internal equipment of the specific locomotive in accordance with company specific instructions.

***SPECIFIC OUTCOME 4***

Describe, identify and understand the purpose and working of the auxiliary equipment of the specific locomotive in accordance with company specifidmanufacturer's instructions.

***SPECIFIC OUTCOME*** 5

Describe, identify and understand the purpose and layout of the high-tension equipment in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 6

Describe, identify and understand the purpose, working and failure of the brake valve system in order to conduct the brake test and deal with substandard conditions in accordance with company specific instructions.

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 19

**Apply train dynamics and train handling**

| *SAQA US ID* | *UNIT STANDARD TITLE* |
|---|---|
| 230420 | Apply train dynamics and train handling |

| *SGB NAME* | *ORGANISING FIELD ID* | *PROVIDER NAME* |
|---|---|---|
| SGB Transport and Logistics Operations | 11 | |
| ***UNIT STANDARD TYPE*** | ***ORGANISING FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | Services | Transport, Operations and Logistics |
| ***ABET BAND*** ***CREDITS*** | ***NQF LEVEL*** | ***UNIT STANDARD TYPE*** |
| Undefined ***8*** | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Define and explain physical concepts related to train dynamics and train handling concepts in accordance with company specific instructions.

***SPECIFIC OUTCOME 2***

Define and identify different gradients and gradient forces impacting on train handling in accordance with company specific instructions.

***SPECIFIC OUTCOME 3***

Interpret and understand a small-scale graphical display in accordance with company specific instructions.

***SPECIFIC OUTCOME*** 4

Define and explain physical locomotive, Train and line characteristics in accordance with company specific instructions.

***SPECIFIC OUTCOME 5***

Identify and describe the different trains related to train dynamics and train handling in accordance with company specific instructions.

***SPECIFIC OUTCOME 6***

Define and describe the general principles of train handling and train handling techniques in accordance with company specific instructions.

SAQA

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** **20**

**Operate safely under/with high voltage equipment**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 230421 | Operate safely under/with high voltage equipment | | |
| *SGB NAME* | | *ORGANISING FIELD ID* | *PROVIDER NAME* |
| SGB Transport and Logistics Operations | | 11 | |
| *UNIT STANDARD TYPE* | | *ORGANISING FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Services | Transport, Operations and Logistics |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 4 | Level 4 | Regular |

***SPECIFIC OUTCOME*** 1

Work safely in the vicinity of or near overhead track equipment.

***SPECIFIC OUTCOME 2***

Identify and react to signs and warning boards related to high-voltage overhead track equipment.

***SPECIFIC OUTCOME 3***

Operate a high-voltage isolating and earthing switch safely and correctly.

***SPECIFIC OUTCOME*** 4

Perform shunting movements to comply with the company specific electrical safety instructions.

***SPECIFIC OUTCOME 5***

Handle equipment correctly and safely under high-voltage overhead track equipment.

***SPECIFIC OUTCOME 6***

Identify OHTE and report related sub standards conditions.