

National Certificate: Rock Engineering: Strata Control Operations NQF Level 2

Introduction: The purpose of this qualification is to equip learners with the theoretical knowledge, technical skills and practical ability to function as a Strata Control Observer within the mining environment. Strata Control Observers assist personnel engaged in mining operations to ensure the stability of mining excavations, thereby providing a safe and productive mining environment. It is also intended to provide the basic building blocks upon which to build a further career in rock engineering. Attaining this qualification will improve the learner's skills, thus increasing his potential employability

Description: The concept of the four different streams, with appropriate elective unit standards, means that the learner can move between the different mining operations areas by completing the necessary elective unit standards. People credited with this qualification will be able to:

- Communicate and solve problems in a variety of ways.
- Demonstrate an understanding of occupational safety, health and environmental standards in the workplace.
- Demonstrate an understanding of fundamental strata control principles.
- Conduct strata control operations and related activities in mining operations.

On a practical level, learners equipped with this qualification will be able to conduct the essential operations associated with the:

- Observation and reporting of ground conditions; mining practices; support measures and requirements.
- Assistance in quality control practices; identification of higher risk areas; collection of geotechnical and monitoring data.
- Assist production personnel in identification and amelioration of rock related hazards.

SAQA Qualification ID: 59549

Target group:

New employees and or existing employees.

Certification:

If competent a competence certificate will be issued by MQA

Duration:

155 Days

Days can be reduced depending on RPL

Entry Level Requirements:

- Minimum Literacy and Numeracy ABET 4 or NQF 1 or RPL, Grade 9

Fundamental: (Could be RPL'd ±2 days per unit standard)

- All 36 credits in the Fundamental Component are compulsory.

Core:

- All 67 credits in the Core Component are compulsory.

Elective: (Could be RPL'd ±2 days per unit standard)

- A minimum of 20 credits at Level 1 or above must be selected from the list of elective unit standards that meet site-specific requirements.

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| LEVEL | TYPE | CREDITS | U/S | Description |
|---------|-------------|---------|------------------------|--|
| Level 2 | Core | 3 | 253014 | Achieve and maintain mining excavation stability with tendon support installation |
| Level 2 | Core | 4 | 253036 | Assess poor quality support installations |
| Level 2 | Core | 2 | 115087 | Conduct a preliminary incident investigation into workplace health, safety and environmental incidents |
| Level 2 | Core | 2 | 253015 | Demonstrate a basic understanding of the concept of a Ground Control District |
| Level 2 | Core | 2 | 252534 | Demonstrate an understanding of geology related to mining |
| Level 2 | Core | 2 | 252775 | Demonstrate an understanding of risk assessment concepts and processes |
| Level 2 | Core | 4 | 252834 | Demonstrate an understanding of rock engineering terminology, theory and mensuration |
| Level 2 | Core | 2 | 252814 | Demonstrate an understanding of rock strengths and relevant testing methods |
| Level 2 | Core | 2 | 252696 | Demonstrate an understanding of support principles |
| Level 2 | Core | 3 | 252616 | Demonstrate an understanding of the generic artificial support types, their characteristics and applications |
| Level 2 | Core | 3 | 252735 | Demonstrate an understanding of the importance of support installation quality |
| Level 2 | Core | 2 | 252854 | Demonstrate an understanding of the interrelationship between rock strength, stress and fracturing |
| Level 2 | Core | 4 | 253026 | Demonstrate an understanding of the principles of monitoring and instrumentation and the ability to take measurements from installed instrumentation |
| Level 2 | Core | 2 | 116533 | Demonstrate basic knowledge and understanding of emergency preparedness and response |
| Level 2 | Core | 4 | 253029 | Demonstrate knowledge of evaluating and ensuring excavation stability when re-opening an excavation after a period of time |
| Level 2 | Core | 3 | 253035 | Demonstrate knowledge of restoring excavation stability following loss of excavation integrity |
| Level 2 | Core | 2 | 253028 | Demonstrate knowledge of various types of pillars and their role as a support medium |
| LEVEL 2 | Core | 8 | 252595 | Inspect compliance to a set standards with regards to ground and support conditions |
| Level 3 | Core | 3 | 252554 | Apply calculations of areas, volumes, masses and weights to simple shapes in strata control |
| Level 3 | Core | 4 | 252774 | Demonstrate an understanding of the effects of the mining process (drilling, blasting and cleaning) on installed support types and the surrounding rock mass |
| Level 3 | Core | 2 | 120337 | Demonstrate knowledge pertaining to the preparation, conducting, recording and follow-up actions of a planned task observation in a working place |
| Level 3 | Core | 4 | 253016 | Read and understand a mine plan and transfer recorded information onto mine plans |
| Level 2 | Fundamental | 5 | 119463 | Access and use information from texts |
| Level 2 | Fundamental | 3 | 9009 | Apply basic knowledge of statistics and probability to influence the use of data and procedures in order to investigate life related problems |
| Level 2 | Fundamental | 3 | 7480 | Demonstrate understanding of rational and irrational numbers and number systems |
| Level 2 | Fundamental | 3 | 9008 | Identify, describe, compare, classify, explore shape and motion in 2-and 3-dimensional shapes in different contexts |
| Level 2 | Fundamental | 5 | 119454 | Maintain and adapt oral/signed communication |
| Level 2 | Fundamental | 5 | 119460 | Use language and communication in occupational learning programmes |
| Level 2 | Fundamental | 2 | 7469 | Use mathematics to investigate and monitor the financial |

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| | | | | aspects of personal and community life |
| Level 2 | Fundamental | 5 | 9007 | Work with a range of patterns and functions and solve problems |
| Level 2 | Fundamental | 5 | 119456 | Write/present for a defined context |
| Level 1 | Elective | 3 | 252594 | Demonstrate an understanding of the relevant terminology used in mining-range of underground coal, surface, underground hard rock |
| Level 1 | Elective | 6 | 252654 | Demonstrate an understanding of typical surface mining processes and layouts |
| Level 1 | Elective | 8 | 110217 | Demonstrate knowledge and ability to work in an underground coal mine |
| Level 1 | Elective | 3 | 116932 | Operate a personal computer system |
| Level 2 | Elective | 5 | 252874 | Achieve and maintain mining excavation stability with support in a large excavation |
| Level 2 | Elective | 4 | 252694 | Achieve and maintain mining excavation stability with support in a tabular hard rock stope panel |
| Level 2 | Elective | 4 | 253034 | Achieve and maintain mining excavation stability with support in coal-mining panels |
| Level 2 | Elective | 3 | 9811 | Achieve and maintain mining excavation stability with support installation in a high wall open pit or strip mine |
| Level 2 | Elective | 4 | 253027 | Achieve and maintain mining excavation stability with support installation in shafts |
| Level 2 | Elective | 3 | 252794 | Achieve excavation stability with support in a steep mining environment |
| Level 2 | Elective | 3 | 252615 | Achieve excavation stability with support installation in high mining height areas in various geotechnical conditions |
| Level 2 | Elective | 4 | 253037 | Achieve mining excavation stability with support installation in a tunnel development end |
| Level 2 | Elective | 4 | 252555 | Demonstrate an understanding of the hazards associated with the removal of installed support units under various conditions |
| Level 2 | Elective | 3 | 252714 | Demonstrate an understanding of the rehabilitation using topsoil process |
| Level 2 | Elective | 8 | 253025 | Demonstrate knowledge and ability to work in a surface mine |
| Level 2 | Elective | 4 | 253017 | Demonstrate knowledge and understanding of factors that affect gully stability |
| Level 2 | Elective | 5 | 110205 | Demonstrate knowledge of the Mine Health and Safety Act, regulations and definitions |
| Level 2 | Elective | 2 | 252574 | Demonstrate knowledge of various slope failure modes |
| Level 2 | Elective | 4 | 8015 | Executing general office administration |
| Level 2 | Elective | 5 | 244445 | Follow basic health and safety practices underground |
| Level 2 | Elective | 4 | 243650 | Handle waste material in a metallurgical plant |
| Level 2 | Elective | 2 | 110406 | Identify and deal with rock strata conditions when working or travelling within an underground-working place |
| Level 2 | Elective | 4 | 252695 | Identify signs of failure of slopes and haul roads in surface and open pit mines |
| Level 2 | Elective | 3 | 244416 | Make safe a workplace by means of barring |
| Level 2 | Elective | 4 | 14342 | Manage time and work processes within a business environment |
| Level 2 | Elective | 4 | 252734 | Process recorded seismic events |
| Level 2 | Elective | 4 | 9610 | Sound and bar down roof and side walls using sounding and barring equipment in an underground coal mine |
| Level 2 | Elective | 4 | 252754 | Support the blasting operations |
| Level 3 | Elective | 2 | 115749 | Demonstrate knowledge and understanding of strata control |