

COM Strata Control Certificate - Massive Metalliferous Option

Practical Assessment Competency Matrix



Candidate Name:

Mentors Name:

Mentor's COMRMC Number:

Date candidate started work on logbook:

Date of examination:

		Date Attained	Signed off by Candidate	Signed off by Mentor
1	<u>Computer Skills</u>			
1.01	Demonstrate the ability to use MS Word or similar on a basic level			
1.02	Demonstrate the ability to use MS Excel or similar on a basic level			
1.03	Demonstrate the ability to use MS PowerPoint or similar on a basic level			
1.04	Demonstrate the ability to use MS Outlook or similar on a basic level			
2	<u>Administrative and Underlying Skills</u>			
2.01	Demonstrate knowledge of MHSA with specific reference to rock engineering-related aspects			
2.02	Demonstrate an understanding of what, in terms of section 23 of the MHSA regulations, constitutes a rock-related "dangerous occurrence" that needs to be reported			
2.03	Demonstrate knowledge and awareness of the format, content and requirements of the Code of Practice to combat rock-related accidents and incidents			
2.04	Demonstrate knowledge and understanding of the functions and responsibilities of the rock engineering department as detailed in your mine's Code of Practice			
2.05	Demonstrate knowledge and understanding of the geological and geotechnical characteristics of your mine as described in the Code of Practice e.g. geological lithology, prominent geological structures, typical rock strengths, rock mass characteristics, in-situ stress field.			
2.06	Demonstrate knowledge and understanding of the mining process, both on a macro (exploration to marketing) and micro (mining cycle) scale			
2.07	Demonstrate knowledge and understanding of different mining methods and layouts applicable to the mining of massive orebodies.			
2.08	Demonstrate a high-level knowledge and understanding of the roles and responsibilities of different departments / functions on your mine, particularly the technical services departments			
2.09	Demonstrate knowledge and awareness of different types explosives typically used, their methods of initiation, typical blast rounds / patterns used in mines and the importance of optimal drilling and blasting practice in achieving and maintaining excavation stability			
2.10	Demonstrate knowledge of different classes (e.g. crush, yield, stable), types (e.g. grid pillars, bracket pillars, regional pillars, etc.) and functions of pillars used in mines			
2.11	Demonstrate knowledge of tributary area theory and the ability to calculate tributary areas and percentage extraction for pillars			
2.12	Demonstrate knowledge of different factors affecting pillar stability			
2.13	Explain the difference between primary, secondary, and tertiary support			
2.14	Demonstrate knowledge and understanding of support-related terminology such as "stiff", "soft", "yielding", "stable", "crush", "pre-tensioned", etc.			
2.15	Demonstrate knowledge of typical support standards and patterns for different types of mines			
2.16	Demonstrate knowledge and understanding of installation (and removal where relevant) procedures for typical support types			
2.17	Demonstrate knowledge and understanding of the appearance, components, performance characteristics (load / deformation behaviour), benchmark cost and specific areas of application for different support types, including but not limited to: tendons, cable anchors and trusses, elongates, matpacks, grout packs, area coverage such as straps and mats, wire mesh, lacing rope, TSL & shotcrete			
2.18	Demonstrate knowledge and understanding of the equipment to be used and procedure to be followed when carrying out commonly used practical rock engineering testing e.g. point load tests, tendon support pull tests			
2.19	Demonstrate knowledge and understanding of the typical laboratory-type tests used to determine rock properties (e.g. Uniaxial Compressive Strength testing, Brazilian disc indirect tensile strength testing, Triaxial strength testing, shear box testing, etc.) and the requirements to be followed when collecting and preparing samples for such testing			
2.20	Demonstrate knowledge and understanding of the purpose and function of common rock engineering-related monitoring instruments (e.g. closure and ride stations, load cell, closure logger, extensometer, stress cell, borehole camera, petroscope, ground penetrating radar, etc.)			
2.21	Demonstrate understanding of the difference between standards, procedures, and guidelines			
2.22	Demonstrate knowledge and awareness of typical rock engineering control systems e.g. daily communication with different departments, report control, contractor management, etc.			

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2.23	Demonstrate knowledge and understanding of report types and formats in a rock engineering-related context (e.g. pro-forma template vs memorandum vs formal report)			
2.24	Demonstrate the ability to communicate effectively with a range of people, using written communication (reports and e-mails), one-on-one and/or small-group (1 - 5 persons) verbal communication and large-group (more than 5 persons) presentation of information.			
2.25	Demonstrate knowledge and understanding of mud - forming material, and its impact on massive mining environment.			
2.26	Demonstrate knowledge and understanding of mudrush, mudpush and air blast in massive mining environment.			
2.27	Demonstrate knowledge and understanding of draw control.			
3	Technical / Field Work Skills			
3.01	Locate yourself and determine positions and orientations of underground workings using mine plans			
3.02	Conduct and record systematic observations of underground working places			
3.03	Measure and record support installation distances and patterns (clinorule / tape / distometer)			
3.04	Identify common rock types relevant to your mine / region, as well as common geological structures			
3.05	Identify localised strata control hazards (e.g. geological structures, stress-induced or other fractures, blast damage, etc.), assess their impact / potential impact and rate the associated risk using a simple (High, Medium or Low) risk ranking approach and recommend remedial action.			
3.09	Identify support-related deviations / shortcomings (e.g. poor installation quality, non-compliance to standard, failing / damaged / corroded support units) and recommend remedial action.			
3.10	Conduct, record and plot geotechnical mapping of underground working places			
3.11	Conduct, record, plot and interpret results of rock mass ratings using various rating schemes (MRMR; Q tunneling)			
3.12	Conduct, record, plot and interpret results of geotechnical core logging using various schemes			
3.13	Assess the adequacy of the installed support measures to address the prevailing ground conditions and identified strata control-related hazards, recommend remedial measures if required.			
3.14	Investigate sites / areas that require secondary and/or tertiary support, recommend the appropriate support type/system, calculate area and/or volume of the relevant site to determine quantities of material required, prioritise secondary / tertiary support work, compile the necessary job request / support order and evaluate the quality / compliance to recommendation of completed work.			
3.15	Coach mining teams and supervisors regarding identified hazards and proposed remedial action			
3.16	Transfer information recorded during underground site inspections to underground plans			
3.17	Compile a formal written report based on findings from an underground inspection			
3.18	Carry out a non-underground technical investigation (e.g. an assessment of the compliance to specification of a batch of timber delivered to the mine) and compile a formal report			
3.19	Carry out a FOG accident / incident investigation, sketch and describe the fall, identify the cause/s of the fall and compile the related report			

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3.20	Identify common plan symbols and explain the coordinate system used on mine plans			
3.21	Read and interpret information from mine plans in various formats and scales			
3.22	Determine strike , dip direction and dip from a mine plan			
3.23	Draw sections along selected positions on mine plans			
3.24	Plot offset measurements on mine plans			
3.25	Examine mine plans, identify deviations from typical layouts and good practice, identify potential problems due to mining configuration and/or geological structures			
3.26	Participate in various workplace start-up assessments (e.g. pre-ledge inspection, bord/panel /re-development re-start, etc.) and issue-based risk assessments			
3.27	Participate in various planning meetings, e.g. "G-sheet" or development planning etc., identify local hazards and recommend remedial actions.			
3.28	Compile, record, plot and interpret working place risk ratings from planning sessions			
3.29	Calculate the support capability / energy absorption capacity of different individual support units, based on load/deformation graphs provided.			
3.30	Assess whether support units delivered to the mine meet the specification (surface/underground)			
3.31	Install commonly-used rock engineering-related monitoring instruments (e.g. closure and ride station, load cell, closure logger, extensometer), take and record readings, plot and interpret recorded data.			

Declarations:

Candidate: I hereby declare that I have fulfilled all the abovementioned criteria and can prove record thereof upon request by any examiner representing SANIRE or SANIRE Council Education Portfolio Member

Candidate Name:

Candidate Signature:

Mentor: I hereby declare that I have ensured that the candidate has fulfilled all the abovementioned criteria and he/she can prove record thereof upon request by any examiner representing SANIRE or SANIRE Council Education Portfolio Member

Mentor Name:

Mentor Signature: