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AIDS HELPLINE: 0800-0123-22 Prevention is the cure

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GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATION AUTHORITY (SAQA)

No. 511

6 June 2001

Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In order to proceed with the recognition of Standards Generating Bodies in terms of Government Regulations 19(1)(c) and 22(2) of 28 March 1998, National Standards Body 09 (Health Sciences and Social Services) invites public comment with respect to *the acceptability of the nominees and the representativeness of the key education and training stakeholder interest groups* listed as an SGB applicant below.

In addition, the NSB invites submissions from interested parties wishing to serve on such an SGB. Interested parties should take note of the section on SGB Information below.

All nominations/ applications should be accompanied by curricula vitae.

More information regarding this application may be obtained on the SAQA website or from the SAQA offices.

Comment should reach the NSB at the address below not later than Monday, 2 July 2001. All correspondence should be marked **SGB for Nursing – NSB 09, Health Sciences and Social Services** and be addressed to:

<p>The Director: Standard Setting and Development SAQA <i>Attention: Sharon Vasuthevan</i> Postnet Suite 248 Private Bag X06 Waterkloof 0145 or faxed to 012-482-0907</p>

SGB INFORMATION

As a necessary step in the development and implementation of the National Qualifications Framework, The National Standards Bodies are briefed [regulation 19(1)(c) of 28 March 1998] to recognise or establish Standards Generating Bodies (SGBs).

SGBs shall:

- a. generate standards and qualifications in accordance with the Authority requirements in identified sub-fields and levels;
- b. update and review standards;
- c. recommend standards and qualifications to National Standards Bodies;
- d. recommend criteria for the registration of assessors and moderators or moderating bodies; and
- e. perform such other functions as may from time to time be delegated by its National Standards Body.

Any bodies wishing to nominate representatives, make application to serve on, or make any other submission with regard to the above SGB should note the following information.

SGBs should be composed of organisations, which shall be key education and training stakeholder interest groups and experts in the sub-field. The NSB, when making its final decisions, will have due regard for, among other things, *'the need for representativeness and equity, redress and relevant expertise in terms of the work of the SGBs.'*

Organisations proposing to nominate persons to SGBs should be sensitive to the need for **equity** and **redress**, and shall nominate persons who

- (a) will be able to consider issues of productivity, fairness, public interest and international comparability as related to education and training in the sub-field;
- (b) enjoy credibility in the sub-field in question, who enjoy respect, have the necessary expertise and experience in the sub-field and have the support or backing of the nominating body;
- (c) are able to advocate and mediate the needs and interests of all levels within the sub-field covered by the Standards Generating Body;
- (d) are able to exercise critical judgement at a high level; and
- (e) are committed to a communication process between the Standards Generating Body, the National Standards Body and the Constituency.

**PUBLIC NOTICE BY NSB 09, HEALTH SCIENCES AND SOCIAL SERVICES, OF AN
APPLICATION TO REGISTER AN SGB FOR NURSING**

NSB 09 has received an application to recognise and register an SGB for Nursing for NQF levels 4 – 8.

Proposed Brief of the SGB

1. Develop learning pathways for potential qualifications and unit standards in the area of Nursing from level 4 through to level 8 [Regulation 24 (1)(a)].
2. Generate qualifications and standards in the areas of nursing in terms of requirements of relevant legislation and the establishment of best practices and ethics across the working environment. These will include:
 - Certificate in Nursing (Auxiliary Nurse) at level 4;
 - Certificate in Nursing (Enrolled Nurse) at level 4;
 - Diploma in General Nursing at level 5;
 - Diploma in Nursing Science (General, Psychiatry, Community and Midwifery) at level 6;
 - First Bachelor's degree in Nursing Science (General, Psychiatry, Community and Midwifery) at level 6;
 - Post Basic Diplomas at level 6;
 - Master's and Doctoral degrees at level 8 [Regulation 24 (1)(a)].
3. Ensure that practising professionals are able to fulfil the requirements for registration with the South African Nursing Council [Regulation 24 (1) (e)].
4. Recommend qualifications and standards generated under 1 and 2 above to the NSB [Regulation 24 (1)(c)].
5. Recommend criteria for the registration of assessors and moderators or moderating bodies [Regulation 24 (1)(d)].
6. Liaise with other NSBs and SGBs – within and outside NSB 09 – which have vested interests in the subject of nursing [Regulation 24(1)(e)].
7. Perform such other functions as may from time to time be delegated by NSB 09: Health Sciences and Social Services [Regulation 24 (1)(e)].

PROPOSED COMPOSITION OF THE SGB

NOMINEE	WORKPLACE	NOMINATING BODY	QUALIFICATION / EXPERIENCE
Bellad-Ellis, P	Afrox College of Nursing	Hospital Association of SA (HASA)	BA Cur Hons; 10 years' clinical & 24 years' education experience
Bezuidenhout, M	University of South Africa (UNISA)	UNISA	D Litt et Phil; 14 years' clinical & 17 years' education experience
Bobelo, C	Komani Hospital	Hospital Personnel Association of South Africa (HOSPERSA)	B Cur; 31 years' clinical experience
Dennill, K	Thusano School of Public Health	National Society of Community Nurses	B Cur Hons; 4 years' clinical & 29 years' education experience

Dhlamini, N F	Barberton Hospital	Congress of South African Trade Unions (COSATU)	B Cur; 14 years' clinical experience
Fourie, E	Kimberley Hospital	HOSPERSA	Dips in General Nursing & Midwifery; 20 years clinical & 3 years' management experience
Greef, M	Potchefstroom University for Higher Christian Education	Nursing Education & Training Committee of North West	D Cur; 5 years' clinical & 20 years education experience
Gwele, N	University of Natal	Natal College of Nursing	Ph D; 6 years' clinical & 15 years' education experience
Kaye-Petersen, E	South African Nursing Council (SANC)	SANC	M Cur; 1 year clinical & 24 years education experience
Lebeko, C S	Klerksdorp Hospital	Nursing Education & Training Committee of North West	B A Cur; 19 years' clinical & 1 year management experience
Lewis, W	Rainbow Farm (Pty) Ltd	South African Society of Occupational Health Practitioners (SACOHP)	Ph D; 15 years' clinical, 7 years' education & 3 years' management experience
MacLeod, L	Robin Trust	Society of Private Nursing Practitioners	Adv Dip in N Ed; 12 years' clinical & 7 years' education experience
Mafunisa, A	Northern Province College of Nursing	South African Student Nurses' Organisation	Grade 12; Student Nurse in training
Masipa, A L	University of the North West	University of the North West	M A (Nur Ed); 17 years' clinical & 18 years' education experience
Masita, M I	Manapo Regional Hospital	National Education and Health Allied Workers' Union (NEHAWU)	Cert in Nursing (Enrolled); 5 years' clinical experience
Mazibuko, L	Bara Nursing College	Gauteng Forum for Primary Clinical Practitioners	B A Cur; 23 years' clinical & 10 years' education experience
Mentor, V M P	Dept of Education, Northern Cape	SANC	Higher Education Dip; 10 years' teaching & 3 years' management experience
Mkhize, S	Excelsius Nursing College	Nursing Education & Training Committee of North West	B Cur Hons; 7 years' clinical & 7 years' education experience
Mothupi, P R	Jubilee Hospital	North West Nurse Practitioners Society	14 years' clinical; 6 years' education & 2 years' management experience
Mphele-Ramadi, N G	SANC	SANC	7 years' clinical, 18 years' education & 8 years' management experience
Nel, E C	Consultant	National Oncology Society of Western Cape	M Soc Sc; 13 years education & 5 years' clinical experience
Razak, A	M L Sultan Technikon	Natal Society of Community Nurses	M Cur; 6 years' clinical & 22 years' education experience
Uys, L R	University of Natal	SANC	D Soc Sc; 1 year clinical & 27 years' education experience

Venter, H J F	Wits Technikon	Technikon Nursing Education Departments of South Africa	M Cur; 1 year' clinical & 19 years' education experience
Wentzel, S	Bethlehem Transitional Local Authority	Dihlabeng Local Municipality	M Soc Sc; 13 years' clinical & 5 years' education experience
Young, A M	B G Alexander Nursing College	B G Alexander Nursing College	B A Cur; 5 years' clinical & 18 years' education experience
Zulu, P F F	Democratic Nursing Organisation of South Africa (DENOSA)	DENOSA	B Cur; 6 years' clinical, 9 years' education & 2 years management experience
To be nominated		Disabled People of South Africa	

PUBLIC NOTICE BY NSB 01, AGRICULTURE AND NATURE CONSERVATION, OF AN APPLICATION TO REGISTER AN SGB FOR PRIMARY AGRICULTURE

NSB 01 hereby registers an SGB for Primary agriculture (Farming) in the sub-field of Primary agriculture (Farming) for a period of three years, until 02 April 2004.

BRIEF OF THE SGB

1. Develop learning pathways for potential qualifications and unit standards in the sub-field for Primary agriculture from level 1 through to level 8 [Regulations 24 (1) (e)].
2. Generate the qualifications and standards outlined below for farming in respect of field crops, animal production, horticulture, farm management, maintenance and farm mechanism in accordance with Authority requirements: [Regulations 24 (1) (a)].
 - Certificate in Farming (NQF level 1)
 - Certificate in Farming (NQF level 2)
 - Certificate in Farming (NQF level 3)
 - Certificate in Farming (NQF level 4)
 - Diploma in Farm Management (NQF level 5)
 - First Degree in Agriculture (NQF level 6)
 - Master's and Doctoral Degree in Agriculture (NQF level 8)
3. Recommend the qualifications and standards generated under 2, above to the NSB [Regulation 24 (1) (d)].
4. Recommend criteria for the registration of assessors and moderators or moderating bodies [Regulation 24 (1) (d)].
5. Accept and perform other related functions as requested by NSB 01 [Regulation 24 (1) (e)].

SGB COMPOSITION

Nominee	Workplace	Nominating Body	Experience / Qualifications
Barry, RJ	Department of Economics Affairs, Agriculture and Tourism, Western Cape	Department of Economics Affairs, Agriculture and Tourism, Western Cape	Non-Formal Training, Department of Economics Affairs, Agriculture and Tourism
Booyesen, JH	Winetech	Wine Producers Association of SA	M.Sc Agricultural Extension Services /

			Training
Botha, JJ	Faculty of Agriculture, Horticulture and Nature Conservation	Technikon Pretoria	Doctors Degree Agriculture, Dean, Faculty of Agriculture Horticulture and Nature Conservation, Technikon Pretoria
Crawford, KJ	Elgin Community College	Elgin Community College	B.A (Phy. Ed) HDE (PG)
Carolus, P	Adult Learning Forum, Elgin Community College	Elgin Community College	BA Hons, HTD,
Cesare, I	Technikon SA	Technikon SA	MSc, Teachers Diploma
Downes, MG	Elgin Community College	Elgin Community College	P.M.D Business School, Trainer at Elgin Community College, Agricultural consultant to various farms
Du Plessis, H	Skills for All	Skills for All	Trainer
Engelbrecht, E	Deciduous Fruit Producers' Trust	Deciduous Commodity Organisation Trust	MBA, PR Front Line Course
Faul, A	Madikwe Rural Development program	Employee representative	Rural Development and Training
Ferreira, WA	Grain SA	Grain SA	M.Sc Agric, Courses in Business Management, Nutrition
Ferreira, FM	Vista University	Vista University	MSc, Teachers Diploma, Lecturing
Foli, J	Agricultural College, Fort Cox	Agricultural College, Fort Cox	BSc Hons in Livestock

Geertsema, H	Department Entomology and Nematology, Faculty of Agricultural Sciences and Forestry, University of Stellenbosch	Department Entomology and Nematology, Faculty of Agricultural Sciences and Forestry, University of Stellenbosch	PhD Agriculture, Research in Forest Entomology, Membership of Professional Societies and Committees e.g. Entomological Society of SA in Fossil insects
Hoosen, M	Owen Sitole Agricultural College	Owen Sitole Agricultural College	BSc Agric, Teacher
Kobus, GE	Department of Agriculture and Environmental Affairs, KwaZulu-Natal	Department of Agriculture and Environmental Affairs, KwaZulu-Natal	M.Sc Agric, Special Courses in Artificial Insemination
Leshilo, LW	Department of Education	Department of Education	B Agric, B. ED
Lutge, BU	Cedara College of Agriculture	Department of Agriculture KwaZulu- Natal	B.Sc Agric, Courses in Biological and Ecological modelling, Scientific publications
Marais, AJ	Agricultural College Elsenburg	Agricultural College Elsenburg	M.B.A in Marketing, Strategic management Publicity management and Marketing Research
Mohapi, M	National Department of Agriculture	National Department of Agriculture	MPA, B Com, Teachers Diploma
Moore, HW	South African Sugar Association	South African Sugar Association	B.Sc and Engineering Diploma, Agricultural Trainer
Nesamvuni, E	University of Venda	University of Venda	Ph.D, Lecturing, Research

Ntli, TP	Glen Agricultural College	Glen Agricultural College	Masters Degree in Sustainable Agriculture, Educational papers and Research in Outcomes-based curriculum writing for the Agricultural Colleges
Potgieter, JH	Skills for Africa	Skills for Africa	Courses in Management Training, Financial and Communication
Tshikolomo	Department of Agriculture	Madzivhandila College	BSc Agric, MSc Extension, Lecturing
Van Niekerk, P	Agriculture, Port Elizabeth Technikon	Agriculture, Port Elizabeth Technikon	B Sc (agric) in Animal Production, Training Adviser and Involvement with Agricultural Training, Masters Diploma in Leadership
Zacharias, PJK	Faculty of Science and Agriculture, University of Natal	Faculty of Science and Agriculture, University of Natal	D.Sc Department of Plant Science, Research publications and Community and University activities

No. 513

6 June 2001

Established in terms of Act 38 of 1995**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

Communication Studies and Language level 2 - 4

Registered by NSB 04, Communication Studies and Language, publishes the following unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and the titles and specific outcomes of the unit standards. The unit standards can be accessed via the SAQA web-site at www.saqa.co.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar Street, Brooklyn, Pretoria.

Comment on the qualifications and unit standards should reach SAQA at the address below no later than 2 July 2001. All correspondence should be marked **Standards Setting – SGB for Communication Studies and Language level 2 - 4** and addressed to:

The Director: Standards Setting and Development
SAQA
Attention: Sharon Vasuthevan
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012-482 0907

pp **SAMUEL B.A. ISAACS**
EXECUTIVE OFFICER

FUNDAMENTAL UNIT STANDARDS LEVEL 2 - 4

Field: Communication Studies and Language

Sub-field: Language and Communication Studies, Information (speaking and listening; reading and viewing; writing and presenting), Literature

Unit Standards at NQF Level 2

1. Title: Maintain and adapt oral communication.
2. Title: Access and use information from texts.
3. Title: Write for a defined context.
4. Title: Respond to literary texts (main language).
5. Title: Respond to selected literary texts (additional language).
6. Title: Use language and communication in occupational learning programmes.

Unit Standards at NQF Level 3

7. Title: Accommodate context needs in oral communication.
8. Title: Interpret and use information from texts.
9. Title: Write texts for a range of communicative contexts.
10. Title: Analyse and respond to a variety of literary texts (main language).
11. Title: Interpret a variety of literary texts (additional language).
12. Title: Use language and communication in occupational learning programmes.

Unit Standards at NQF Level 4

13. Title: Engage in sustained oral communication and evaluate spoken texts.
14. Title: Read, analyse and respond to a variety of texts.
15. Title: Write for a wide range of contexts.
16. Title: Evaluate literary texts (main language).
17. Title: Make judgements on selected literary texts (additional language).
18. Title: Use language and communication in occupational learning programmes.

UNIT STANDARD TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 2**1. Title: Maintain and adapt oral communication.**

Credit: 5

Specific Outcome 1.1: Use a variety of strategies to maintain communication.

Specific Outcome 1.2: Adapt speech to accommodate cultural sensitivity without losing own meaning.

Specific Outcome 1.3: Use knowledge of language structures and conventions to shape or decode meaning of unfamiliar vocabulary or constructions.

Specific Outcome 1.4: Organise and present information in a focused and coherent manner.

Specific Outcome 1.5: Identify and explain how speakers influence audiences.

2. Title: Access and use information from texts.**Credit: 5**

Specific Outcome 2.1: Identify main ideas in different text types.

Specific Outcome 2.2: Read and respond to texts for a variety of purposes.

Specific Outcome 2.3: Use a range of reading and viewing strategies to make meaning of texts.

Specific Outcome 2.4: Identify and discuss how language structures and features may influence a reader.

3. Title: Write for a defined context.**Credit: 5**

Specific Outcome 3.1: Write for a specific purpose and audience.

Specific Outcome 3.2: Use grammatical structures and writing conventions to produce coherent and cohesive texts for specific contexts.

Specific Outcome 3.3: Adapt language to suit context.

Specific Outcome 3.4: Draft and edit writing.

4. Title: Respond to literary texts.**Credit: 5**

Specific Outcome 4.1: Identify main ideas in literary texts.

Specific Outcome 4.2: Identify and explain how readers/viewers/listeners are influenced.

Specific Outcome 4.3: Use interpretation of literary texts.

5. Title: Respond to selected literary texts.**Credit: 5**

Specific Outcome 5.1: Use a range of strategies to understand selected literary texts.

Specific Outcome 5.2: Explore the way readers/viewers/listeners are influenced in selected texts.

Specific Outcome 5.3: Demonstrate understanding of literary texts by responding orally and/or in writing.

6. Title: Use language and communication in occupational learning programmes.**Credit: 5**

Specific Outcome 6.1: Access and use available learning resources.

Specific Outcome 6.2: Use learning strategies.

Specific Outcome 6.3: Use occupational learning materials.

Specific Outcome 6.4: Plan and gather relevant information for a given context.

Specific Outcome 6.5: Function in a team.

UNIT STANDARD TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 3**7. Title: Accommodate context needs in oral communication.****Credit: 5**

Specific Outcome 7.1: Interact successfully with audience in oral communication.

Specific Outcome 7.2: Use strategies that capture and retain the interest of an audience.

Specific Outcome 7.3: Identify and respond to manipulative use of language.

8. Title: Interpret and use information from texts.**Credit: 5**

Specific Outcome 8.1: Use a range of reading and viewing strategies to understand the literal meaning of specific texts.

Specific Outcome 8.2: Use strategies for extracting implicit message in texts.

Specific Outcome 8.3: Respond to selected texts in a manner appropriate to the context.

Specific Outcome 8.4: Explore and explain how language structures and features may influence a reader.

9. Title: Write texts for a range of communicative contexts.**Credit: 5**

Specific Outcome 9.1: Write for a specified audience and purpose.

Specific Outcome 9.2: Use linguistic structures and features to produce coherent and cohesive texts for a wide range of contexts.

Specific Outcome 9.3: Draft own writing and edit to improve clarity and correctness.

10. Title: Analyse and respond to a variety of literary texts.
Credit: 5

Specific Outcome 10.1: Analyse and discuss the main ideas in texts.

Specific Outcome 10.2: Identify and explain the values, attitudes and beliefs in texts that influence response.

Specific Outcome 10.3: Discuss the effects of content, language and style on readers' responses in specific texts.

Specific Outcome 10.4: Respond creatively to literary texts.

11. Title: Interpret a variety of literary texts.
Credit: 5

Specific Outcome 11.1: Extract meaning from a variety of literary texts.

Specific Outcome 11.2: Identify and explain features that influence response to texts.

Specific Outcome 11.3: Produce own texts in response to literary texts.

12. Title: Use language and communication in occupational learning programmes.
Credit: 5

Specific Outcome 12.1: Access and use available learning resources.

Specific Outcome 12.2: Use learning strategies.

Specific Outcome 12.3: Use occupational learning materials.

Specific Outcome 12.4: Conduct, analyse and present elementary research findings.

Specific Outcome 12.5: Function in a team.

UNIT STANDARD TITLES AND SPECIFIC OUTCOMES AT NQF LEVEL 4

13. Title: Engage in sustained oral communication and evaluate spoken texts.
Credit: 5

Specific Outcome 13.1: Respond critically yet sensitively as a listener.

Specific Outcome 13.2: Analyse own responses to spoken texts and adjust as required.

Specific Outcome 13.3: Use strategies to be an effective speaker in sustained oral interactions.

Specific Outcome 13.4: Evaluate spoken discourse.

14. Title: Read, analyse and respond to a variety of texts.**Credit: 5**

Specific Outcome 14.1: Analyse and criticise texts produced for a range of purposes, audiences and contexts.

Specific Outcome 14.2: Identify and explain the values, attitudes and assumptions in texts.

Specific Outcome 14.3: Evaluate the effects of content, language and style on readers' responses in specific texts.

15. Title: Write for a wide range of contexts.**Credit: 5**

Specific Outcome 15.1: Write effectively and creatively on a range of topics.

Specific Outcome 15.2: Choose language structures and features to suit communicative purpose/s.

Specific Outcome 15.3: Edit writing for fluency and unity.

16. Title: Evaluate literary texts.**Credit: 5**

Specific Outcome 16.1: Use effective strategies to decode literary texts.

Specific Outcome 16.2: Analyse influences on responses.

Specific Outcome 16.3: Explore and evaluate genre differences.

Specific Outcome 16.4: Use analysis of literary texts in a wide variety of ways.

17. Title: Make judgements on selected literary texts.**Credit: 5**

Specific Outcome 17.1: Engage successfully with selected literary texts to discover meaning.

Specific Outcome 17.2: Explore and explain how certain features influence responses to literary texts.

Specific Outcome 17.3: Produce own texts in response to issues and ideas in literary texts.

18. Title: Use language and communication in occupational learning programmes.

Credit: 5

Specific Outcome 18.1: Access, use and manipulate available learning resources.

Specific Outcome 18.2: Formulate and use learning strategies.

Specific Outcome 18.3: Use occupational learning materials.

Specific Outcome 18.4: Conduct, analyse and present elementary research findings.

Specific Outcome 18.5: Lead and function in a team.

No. 514

6 June 2001



Established in terms of Act 58 of 1995

SOUTH AFRICAN QUALIFICATIONS AUTHORITY.

In accordance with Regulation 24 (c) of the National Standards Bodies Regulation of 28 March 1998, the Standards Generating Body for :

MINING AND MINERALS

Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following unit standards-based qualifications for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications 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 SAQA offices, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the qualifications and unit standards should reach SAQA at the address below and no later than 3rd July 2001. All correspondence should be marked **Standards Setting – SGB for Higher Education and Training and addressed to:**

The Director: Standards Setting and Development
SAQA
Attention: Mrs S. Vasuthevan
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or Fax to 012 482 0907

PP **SAMUEL B.A ISAACS**
EXECUTIVE OFFICER

MINING QUALIFICATIONS AUTHORITY

THE MINING AND MINERALS SGB (M&M SGB)

TOPIC: PROPOSED QUALIFICATIONS FRAMEWORK

Background

At the **M&M SGB** meeting of 12 April 2001, the chairperson of the Qualifications Design Task Team (**QD TT**) tabled a draft proposed Qualifications Framework (**QF**) which reflects a further expansion of the Don Turvey sub-task group's proposed **QF** that was presented at the **QD TT** follow-up Qualifications Design Plenary Workshop on 19 February 2001.

Discussion

In accordance with the conclusions and recommendations of the Report of the Ingqokelela **SQCG** Workshop held in October 2000, the proposed **QF** makes a clear distinction between predominant technical qualifications on the one hand and predominant Supervision/Management/Leadership (**SML**) qualifications on the other hand (see **APPENDIX A**).

The **QF** also makes provision for a unique coded **Practising Person Footprint (PPFs)** for the selection of the appropriate elective options for each qualification in accordance with the recommendations of the **QD TT** Report on Common Vocabulary, Definitions, Concepts:

PRACTISING PERSON FOOTPRINT

QUALIFICATIONS	LICENSING	REGISTRATION	CURRENCY
PPC or PPC	DL or ML	DR or MR	C

LEGEND:

PPQ	=	Practising Person with a Qualification Registered on the NQF
PPC	=	Practising Person with an Agreed Cluster of Unit Standards registered on the NQF
ML	=	Mandatory Licensing
DL	=	Discretionary Licensing
MR	=	Mandatory Registration
DR	=	Discretionary Registration
C	=	Currency of Competence

Commissioned by the Mining Qualifications Authority (MQA).

Both the proposed/indicated **NQF** levels, **PPFs** and qualification nomenclature would have to be substantiated/confirmed by the actual designed qualifications. This reflects the first tier of the **QF** for the two main categories of qualifications namely **Technical** and **SML**.

The second tier of the **QF** envisages making provision for specific (unique) sub-sector needs, e.g.:

<u>ENVISAGED QUALIFICATION</u>	<u>SUB-SECTOR NEEDS</u>
NC in Mining Operations	(a) Underground Hard Rock Operations (b) Underground Coal Operations (c) Surface operations

APPENDICES B and **C** illustrate how the **QF** could be used to meet specific sub-sector needs. The appendix also illustrates the notion of common or generic core components of the envisaged qualifications.

Qualification designers should show diligence in identifying and describing these common (generic) core competencies since they are expected to reduce the sheer numbers of **USs** to be registered on the **NQF**. They will also reflect/be indicative of the portability of the proposed qualifications.

APPENDICES B and **C** also illustrate the use of the elective components of qualifications to make provision for specialisation ("strands") needs, e.g.:

<u>SUB-SECTOR NEEDS</u>	<u>SPECIALISATION/"STRANDS"</u>
Underground Hard Rock Operations	(i) Stopping (ii) Development

Recommendations

The **QD TT** requests the **M&M SGB** to consider/approve the following recommendations:

- (a) The proposed **QF** inclusive of the following aspects:
 - (i) the first tier of qualifications in the two separated broad categories of qualifications namely **TECHNICAL** and **SML**;
 - (ii) the approach at the second tier of the proposed **QF** to provide for specific (unique) sub-sector, vocational or specialisation needs through the notion of common (generic), compulsory and elective components of the qualifications, and
- (b) The allocation of a unique coded **Practising Person Footprint (PPF)** to each proposed qualification.

MINING AND MINERALS SGB
PROPOSED QUALIFICATIONS FRAMEWORK
SUPERVISION/MANAGEMENT/LEADERSHIP

MINE MANAGEMENT/LEADERSHIP			
8	NATIONAL DEGREE IN MINE LEADERSHIP		[PPQ/DL/DR/C]
7	NATIONAL DEGREE IN MINE MANAGEMENT		[PPQ/ML/MR/C]
MINERAL EXCAVATION		METALLURGICAL PROCESSING	SUPPORTIVE SERVICES
			ENGINEERING OTHERS
6	NATIONAL DIPLOMA IN OPERATIONS MANAGEMENT		NATIONAL DIPLOMA IN MINING S/S MANAGEMENT
	[PPQ/ML/DR/C]	[PPQ/DL/--]	[PPQ/ML/DR/C] [PPQ/DL/DR/C]
5	NATIONAL DIPLOMA IN OPERATIONS OVERSEEING		NATIONAL DIPLOMA IN S/S OVERSEEING
	[PPQ/DL/--/C]	[PPQ/DL/--/]	[PPQ/DL/--/] [PPQ/DL/--/]
4	NATIONAL CERT. IN OPERATIONS SUPERVISION		NATIONAL CERTIFICATE IN S/S SUPERVISION
	[PPC/DL/--/]	[PPC/DL/--/]	[PPQ/DL/--/] [PPQ/DL/--/]
3	NATIONAL CERT. IN OPERATIONS SUPERVISION		
	[PPC/DL/--/C]	[PPC/DL/--/]	

LEGEND

PPQ = PRACTISING PERSON WITH QUALIFICATION REGISTERED ON NQF
PPC = PRACTISING PERSON WITH AGREED CLUSTER OF UNIT STANDARDS REGISTERED ON THE NQF
ML = MANDATORY LICENSING
ABET = ADULT BASIC EDUCATION AND TRAINING

DL = DISCRETIONARY LICENSING
DR = DISCRETIONARY REGISTRATION
MR = MANDATORY REGISTRATION

MINING AND MINERALS SGB PROPOSED QUALIFICATIONS FRAMEWORK TECHNICAL QUALIFICATIONS

LEVELS 5-8 ENGINEERING/SCIENTIFIC/SOCIAL SCIENCES QUALIFICATIONS				
8	NATIONAL ADVANCED DEGREE: ENGINEERING/SCIENTIFIC & OTHER QUALIFICATIONS [PPQ/DL/DR/C]			
7	NATIONAL DEGREE ENGINEERING/SCIENTIFIC & OTHER QUALIFICATIONS [PPQ/ML/MR/C]			
6	NATIONAL DEGREE: e.g. BTECH ENGINEERING/SCIENTIFIC & OTHER QUALIFICATIONS [PPQ/ML/MR/C]			
5	NATIONAL DIPLOMA: ENGINEERING/SCIENTIFIC & OTHER QUALIFICATIONS [PPQ/ML/MR/C]			
4 ↑	MINERAL EXCAVATION	METALLURGICAL PROCESSING	SUPPORTIVE SERVICE	
			ENG INSTALLATION/MAINTENANCE	OTHERS
	NATIONAL CERTIFICATE IN MINING OPERATIONS [PPQ/ML/-/C]	NATIONAL CERTIFICATE IN MINERAL PROCESSING [PPQ/DL/-/-]	NC IN SUPPORTIVE SERVICES (e.g. TRADES) [PPQ/ML/-/C]	NC IN SUPPORTIVE SERVICES (e.g. ROCK ENGINEERING) [PPQ/ML/DR/C]
	NATIONAL CERTIFICATE IN MINING OPERATIONS [PPQ/ML/-/C]	NATIONAL CERTIFICATE IN MINERAL BENEFICIATION [PPQ/DL/-/-]	NC IN SUPPORTIVE SERV. (e.g. TRADES) [PPQ/ML/-/C]	NC IN SUPPORTIVE SERVICES (e.g. ROCK ENGINEERING) [PPQ/DL/-/-]
2				
1	NATIONAL GETC [PPQ/DL/-/-]		INTRODUCTION TO MINING (ABET 4/GETC 1)	

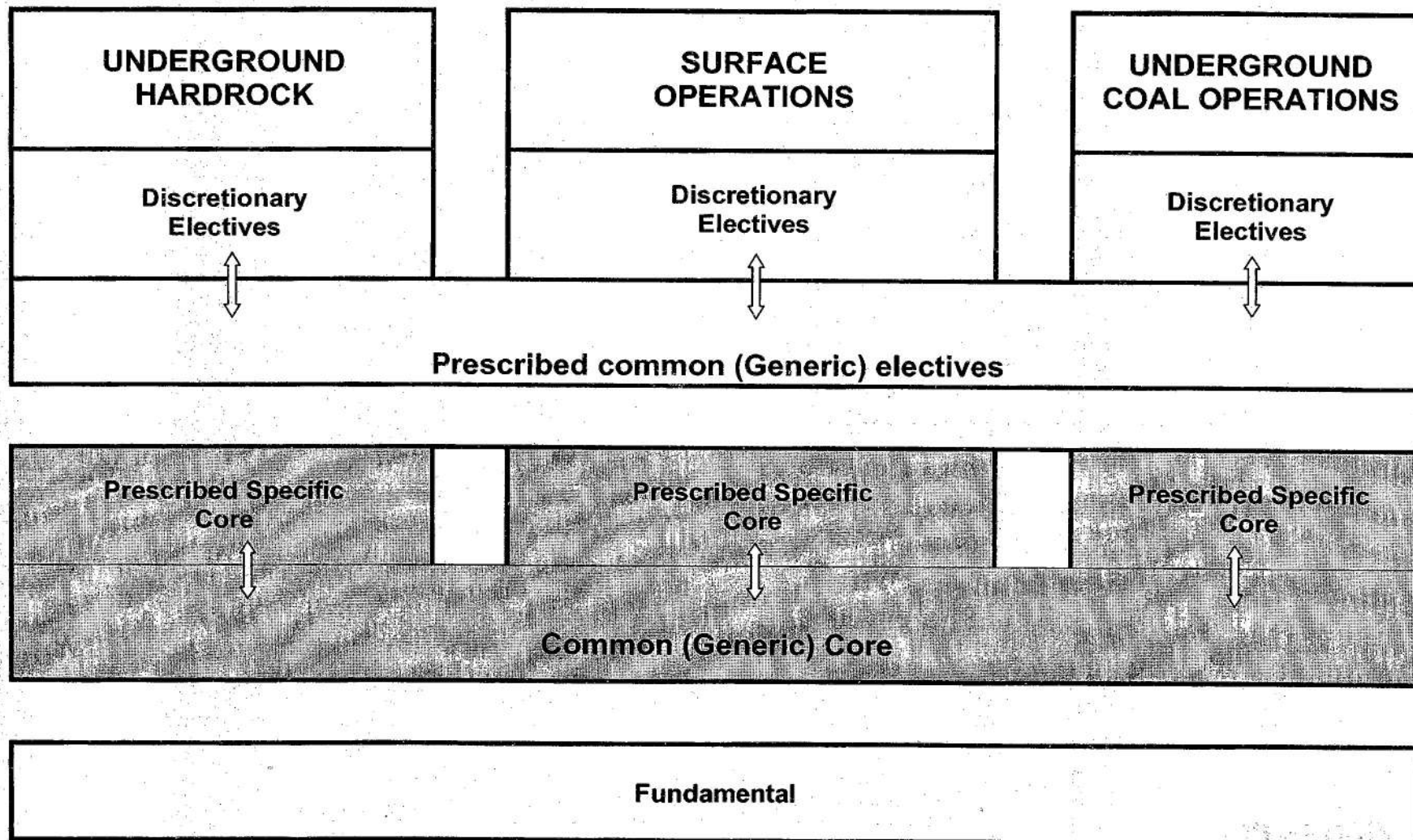
LEGEND

PPQ = PRACTISING PERSON WITH QUALIFICATION REGISTERED ON NQF
 PPC = PRACTISING PERSON WITH AGREED CLUSTER OF UNIT STANDARDS REGISTERED ON THE NQF
 ML = MANDATORY LICENSING
 ABET = ADULT BASIC EDUCATION and TRAINING

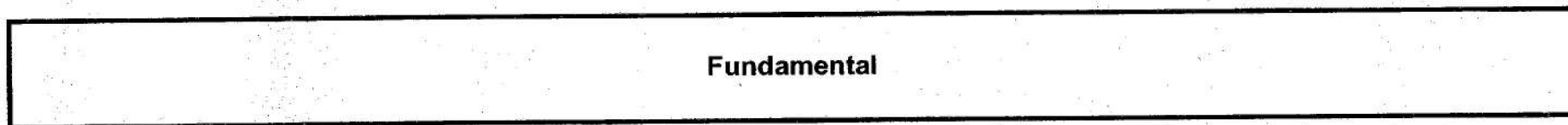
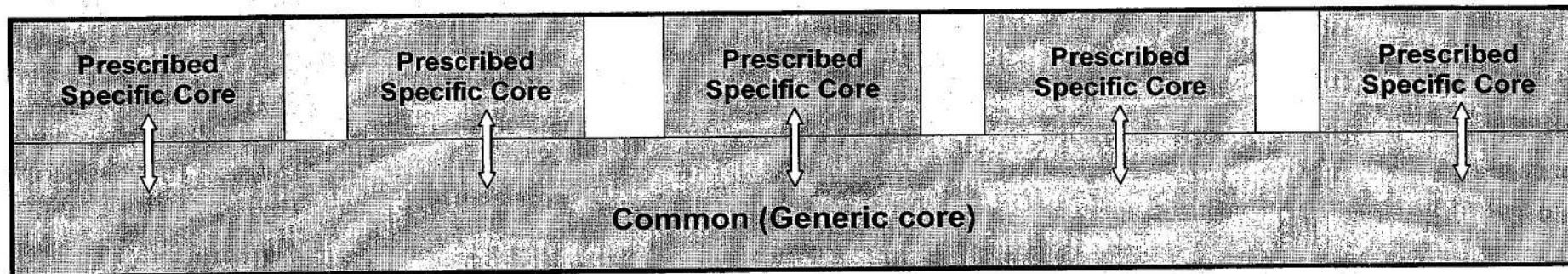
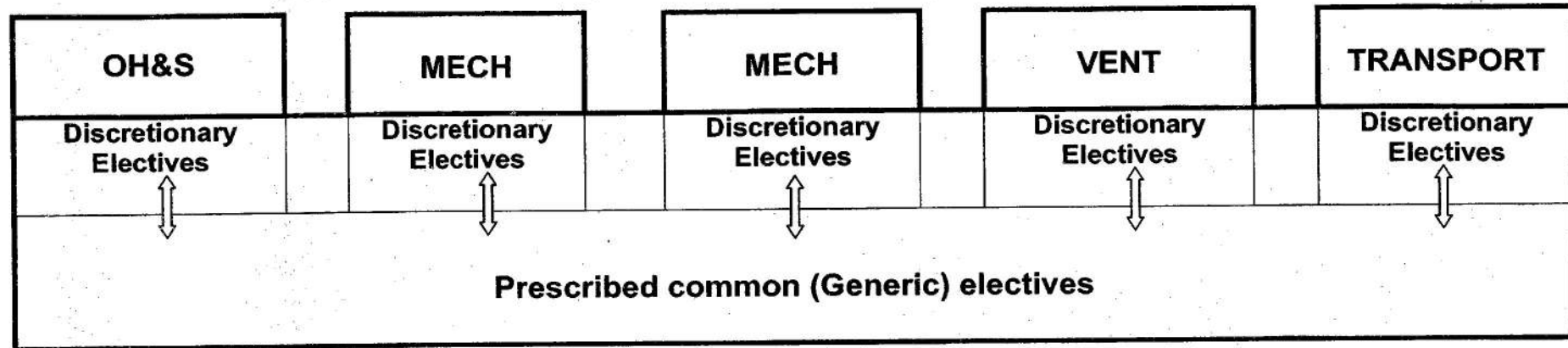
DL = DISCRETIONARY LICENSING
 MR = MANDATORY REGISTRATION
 DR = DISCRETIONARY REGISTRATION
 C = CURRENCY OF COMPETENCY

APPENDIX B

THE DRAFT NATIONAL CERTIFICATE IN MINING OPERATIONS



THE DRAFT NATIONAL CERTIFICATE IN MINING SUPPORT SERVICES



Unit Standards for Gazetting by NSB 06 from the M&M SGB

UNDERGROUND HARDROCK MINING

1. **MnH-G 001 - Follow basic health and safety practices underground. (Level 2/Credit 2)**

SO1: Explain specified requirements pertaining to basic health and safety practices.
SO2: Explain specified requirements pertaining to travelling underground.
SO3: Perform basic health and safety practices.
2. **MnH-G 002 - Join steel ropes by means of splicing. (Level 2/Credit 2)**

SO1: Explain specified requirements pertaining to splicing of steel ropes.
SO2: Prepare to splice steel ropes.
SO3: Splice steel ropes.
3. **MnH-G 003 - Install scraper ropes. (Level 2/Credit 2)**

SO1: Explain specified requirements pertaining to the installation of scraper ropes on scraper winch drums.
SO2: Prepare to install scraper ropes on scraper winch drums.
SO3: Install scraper ropes on scraper winch drums.
4. **MnH-G 004 - Rig scraper ropes for scraping operations in an underground workplace (Level 2/ Credit 5)**

SO1: Explain specified requirements pertaining to the rigging of scraper ropes.
SO2: Prepare to rig scraper ropes.
SO3: Rig scraper ropes.
5. **MnH-G 005 - Install a winch signalling arrangement in an underground workplace. (Level 1/Credit 1)**

SO1: Explain specified requirements pertaining to the installation of a winch-signalling arrangement.
SO2: Prepare to install a winch-signalling arrangement.
SO3: Install a winch signalling arrangement.

6. **MnH-G 006 - Remove broken rock by means of a scraper winch in an underground workplace. (Level 2/Credit 4)**
- SO1: Explain specified requirements regarding scraping operations.
SO2: Prepare to remove broken rock.
SO3: Remove broken rock.
7. **MnH-G 007 - Remove broken rock by means of a high-pressure water jet unit. (Level 2/Credit 3)**
- SO1: Explain specified requirements pertaining to the removal of broken rock with a high-pressure water jet unit.
SO2: Prepare to remove broken rock with a high-pressure water jet unit.
SO3: Remove broken rock with a high-pressure water jet unit.
8. **MnH-G 008 - Extend tracks by means of jump-sets and sliding rails. (Level 1/Credit 2)**
- SO1: Explain the specified requirements regarding the extension of tracks with jump-sets and sliding rails.
SO2: Prepare to extend jump-sets and sliding rails.
SO3: Extend jump-sets and sliding rails.
9. **MnH-G 009 - Remove broken rock by means of a track-bound loader. (Level 2/Credit 5)**
- SO1: Explain specified requirements pertaining to loader operations.
SO2: Prepare to remove broken rock with a loader.
SO3: Remove broken rock with a loader.
10. **MnH-G 022 - Prepare face for hole marking. (Level 2/Credit 2)**
- SO1: Explain specified requirements pertaining to face preparation
SO2: Prepare for face preparation
SO3: Prepare face
11. **MnH-G 013 - Support an underground working place by means of stick support. (Level 2/Credit 2)**
- SO1: Explain the specified requirements pertaining to the installation of stick support.
SO2: Prepare to install stick support.
SO3: Install stick support.

12. MnH-G 014 - Support an underground working place by means of timber pack support. (Level 2 / Credit 4)

SO1: Explain the specified requirements pertaining to the installation of timber pack support.

SO2: Prepare to install a timber pack support.

SO3: Install a timber pack support.

13. MnH-G 015 - Install and remove a hydraulic prop (Level 2/Credit 3)

SO1: Explain the specified requirements pertaining to the installation and removal of hydraulic support.

SO2: Prepare to install hydraulic support.

SO3: Install and remove hydraulic support.

14. MnH-G 024 - Mark off holes for drilling in an underground development end. (Level 2/Credit 5)

SO1: Explain specified requirements pertaining to the marking off of a development end.

SO2: Prepare to mark off a development end.

SO3: Mark off holes in a development end.

15. MnH-G 016 - Install and remove a mechanical prop. (Level 2/Credit 3)

SO1: Explain the specified requirements pertaining to the installation of mechanical props.

SO2: Prepare to install a mechanical support.

SO3: Install and remove a mechanical support.

16. MnH-G 025 - Drill holes by means of a hand-held rock drill machine. (Level 2/Credit 4)

SO1: Explain the specified requirements pertaining to the drilling of holes

SO2: Prepare for drilling.

SO3: Drill holes.

17. MnH-G 029 - Blast a misfire in a development end. (Level 3/Credit 4)

SO1: Explain specified requirements pertaining to the blasting of a misfire in a development end.

SO2: Prepare to blast a misfire in a development end.

SO3: Blast a misfire in a development end.

18. MnH-G 027 - Charge shot holes with explosives. (Level 3/Credit 4)

SO1: Explain the specified requirements pertaining to the charging of shot holes with explosives.

SO2: Prepare for charging of shot holes.

SO3: Charge shot holes with explosives.

**19. MnH-G 030 - Remove hazardous ground by means of blasting.
(Level 3/Credit 4)**

SO1: Explain specified requirements pertaining to the removal of hazardous ground by means of blasting.

SO2: Prepare to blast hazardous ground.

SO3: Blast hazardous ground.

**20. MnH-G 032 - Remove support by means of blasting.
(Level 3/Credit 4)**

SO1: Explain the specified requirements pertaining to the removal of support by means of blasting.

SO2: Prepare to blast out support.

SO3: Blast out support.

21. MnH-G 034 - Remove an obstruction from an orepass by means of blasting. (Level 3/Credit 4)

SO1: Explain specified requirements pertaining to the removal of an obstruction from an orepass by means of blasting.

SO2: Prepare to remove obstruction from an orepass.

SO3: Remove obstruction from an orepass.

**22. MnH-G 038 - Make safe a workplace by means of barring. (Level 2/
Credit 2)**

SO1: Explain specified requirements pertaining to the barring down of loose rocks.

SO2: Prepare to bar down loose rocks.

SO3: Bar down loose rocks.

SURFACE MINING

**23. MnS-G 001 - Load material using a Hydraulic Face Shovel with
mass not exceeding 50000 kg. (Level 2/Credit 26)**

SO1: Prepare to load material.

SO2: Load material.

SO3: Monitor loading operations.

- 24. MnS-G 002 - Load material using Hydraulic Face Shovel with mass between 50000 kg and 100000 kg. (Level 2/Credit 26)**

SO1: Prepare to load material.
SO2: Load material.
SO3: Monitor loading operations.

- 25. MnS-G 003 - Load material using a Hydraulic Face Shovel with mass exceeding 100000 Kg. (Level 2/Credit 26)**

SO1: Prepare to load material.
SO2: Load material.
SO3: Monitor loading operation.

- 26. MnS-G 004 - Load material using Rope Face Shovel. (Level 2/Credit 26)**

SO1: Prepare to load material.
SO2: Load material.
SO3: Monitor loading operations.

- 27. MnS-G 005 - Excavate and load material using Hydraulic Excavator with mass not exceeding 50000 Kg. (Level 2/Credit 26)**

SO1: Prepare to excavate and load material.
SO2: Excavate and load material.
SO3: Monitor excavating and loading operations.

- 28. Mns-G 006 - Excavate and load material using Hydraulic Excavator with mass between 50000 Kg and 100000 Kg. (Level 2/Credit 26)**

SO1: Prepare to excavate and load material.
SO2: Excavate and load material.
SO3: Monitor excavating and loading operation.

- 29. MnS-G 011 - Transport and distribute explosives using a Light Delivery Explosives Vehicle. (Level 1/Credit 4)**

SO1: Prepare to transport and distribute explosive components.
SO2: Transport and distribute explosive components.
SO3: Monitor transportation and distribution of explosive components.

- 30. MnS-G 012 - Transport and distribute explosives using a Heavy-Duty Explosives Vehicle. (Level 1/Credit 4)**

SO1: Prepare to transport and distribute explosive components.
SO2: Transport and distribute explosive components.
SO3: Monitor transportation and distribution of explosive components.

31. **MnS-G 013 - De-water blast holes using Vehicle Mounted De-watering Pump. (Level 1/Credit 4)**
- SO1: Prepare to de-water blast holes.
SO2: De-water blast holes.
SO3: Monitor de-watering operation.
32. **MnS-G 019 - Load, transport and place explosive's components into blast-holes using a Mixer-Placer Truck. (Level 2/Credit 6)**
- SO1: Prepare to load, transport and place explosives' components into blast holes.
SO2: Load, transport and place explosives' components.
SO3: Monitor loading, transporting and placing of explosives' components operations.
33. **MnS-G 078 - Destroy old explosives in the workplace. (Level 2/Credit 2)**
- SO1: Prepare to destroy old explosives in the workplace.
SO2: Destroy old explosives.
SO3: Monitor destruction of old explosives.
34. **MnS-G 079 - Charge shot holes with explosives and initiate blast. (Level 2/Credit 2)**
- SO1: Prepare to charge shot holes and initiate blast.
SO2: Initiate the blast.
SO3: Monitor charging and blasting operation.
35. **MnS-G 080 - Treat and blast misfires. (Level 2/Credit 2)**
- SO1: Prepare to treat and blast a misfire.
SO2: Treat and blast misfires.
SO3: Monitor the treating and blasting operation.
36. **MnS-G 081 - Remove hazardous ground by means of blasting. (Level 2/Credit 1)**
- SO1: Prepare to remove hazardous ground by means of blasting.
SO2: Remove hazardous ground by blasting.
SO3: Monitor removal of hazardous ground operation.
37. **MnS-G 082 - Prepare and mark off work area for drilling. (Level 1/Credit 1)**
- SO1: Prepare to mark off the workplace for drilling.
SO2: Mark off the workplace to be drilled.
SO3: Monitor the marking off operations for drilling.

METALLURGY

- 38. Met-G 006 - Crush material by means of a jaw crusher.
(Level 2/Credit 3)**

SO1: Demonstrate knowledge relating to crushing material.
SO2: Prepare to crush material.
SO3: Crush material.
SO4: Complete duties pertaining to the crushing process.

- 39. Met-G 007 - Grind material by means of a ball mill.
(Level 3/Credit 6)**

SO1: Demonstrate knowledge relating to crushing material.
SO2: Prepare to crush material.
SO3: Crush material.
SO4: Complete duties pertaining to the crushing process.

- 40. Met-G 008 - Grind material by means of a ball mill.
(Level 3/Credit 6)**

SO1: Demonstrate knowledge relating to grinding material by means of a ball mill.
SO2: Prepare to grind material.
SO3: Grind material.
SO4: Complete duties pertaining to the grinding process.

- 41. Met-G 009 - Grind material by means of a rod mill.
(Level 3/Credit 6)**

SO1: Demonstrate knowledge relating to grinding material by means of a rod mill.
SO2: Prepare to grind material.
SO3: Grind material.
SO4: Complete duties pertaining to the grinding process.

- 42. Met-G 010 - Grind material by means of a run of mine ore mill.
(Level 3/Credit 6)**

SO1: Demonstrate knowledge relating to grinding material by means of an autogenous mill.
SO2: Prepare to grind material.
SO3: Grind material.
SO4: Complete duties pertaining to the grinding process.

- 43. Met-G 004 - Crush material by means of a cone-type crusher. (Level 3/Credit 5)**
- SO1: Demonstrate knowledge relating to crushing material.
SO2: Prepare to crush material.
SO3: Crush material.
SO4: Complete duties pertaining to the crushing process.
- 44. Met-G 025 - Maintain inter-stage screens in an absorption process. (Level 2/Credit 2)**
- SO1: Demonstrate knowledge relating to the maintenance of inter-stage screens.
SO2: Prepare to maintain inter-stage screens.
SO3: Maintain inter-stage screens.
SO4: Complete duties pertaining to inter-stage screens maintenance.
- 45. Met-G 026 - Replace cathodes in an electro-winning process. (Level 2/Credit 4)**
- SO1: Demonstrate knowledge relating to the replacement of cathodes.
SO2: Prepare to replace cathodes.
SO3: Replace cathodes.
SO4: Complete duties pertaining to cathodes replacement.
- 46. Met-G 033 - Leach metal-bearing material in an open vessel. (Level 3/Credit 5)**
- SO1: Demonstrate knowledge relating to leaching metal-bearing material in an open vessel.
SO2: Prepare to leach material.
SO3: Leach material.
SO4: Complete duties pertaining to the leaching process.
- 47. Met-G 037 - Elute gold from loaded carbon. (Level 3/Credit 4)**
- SO1: Demonstrate knowledge relating to gold elution.
SO2: Prepare to elute gold.
SO3: Elute gold.
SO4: Complete duties pertaining to the elution process.
- 48. Met-G 200 - Construct a tailings dam catwalk. (Level 3/Credit 7)**
- SO1: Demonstrate knowledge relating to the construction of a catwalk.
SO2: Prepare to construct a catwalk.
SO3: Construct a catwalk.
SO4: Complete duties pertaining to the construction of a catwalk.
- 49. Met-G 201 - Deposit tailings onto a paddock-type dam. (Level 3/Credit 7)**

- SO1: Demonstrate knowledge relating to the deposition of tailings.
- SO2: Prepare to deposit tailings.
- SO3: Deposit tailings using the paddock method.
- SO4: Complete duties pertaining to the deposition of tailings.

50. Met-G 202 - Deposit tailings onto an impoundment-type dam. (Level 2/Credit 7)

- SO1: Demonstrate knowledge relating to the deposition of tailings.
- SO2: Prepare to deposit tailings.
- SO3: Deposit tailings using the impoundment method.
- SO4: Complete duties pertaining to the deposition of tailings.

51. Met-G 203 - Deposit tailings onto a spigot-type dam. (Level 3/Credit 7)

- SO1: Demonstrate knowledge relating to the deposition of tailings.
- SO2: Prepare to deposit tailings.
- SO3: Deposit tailings using the spigot method.
- SO4: Complete duties pertaining to the deposition of tailings.

52. Met-G 204 - Deposit tailings onto a tailings dam by means of cycloning. (Level 3/Credit 7)

- SO1: Demonstrate knowledge relating to the deposition of tailings.
- SO2: Prepare to deposit tailings.
- SO3: Deposit tailings by means of the cycloning method.
- SO4: Complete duties pertaining to the deposition of tailings.

53. Met-G 205 - Maintain routine tailings dam performance records. (Level 2/Credit 4)

- SO1: Demonstrate knowledge relating to the maintaining of routine tailings dam performance records.
- SO2: Prepare to measure routine performance.
- SO3: Conduct routine performance inspection.
- SO4: Complete duties pertaining to the maintaining of a daily logbook.

54. Met-G 206 - Supervise tailings dam operations. (Level 4/Credit 27)

- SO1: Demonstrate knowledge of the purpose and function of the operational aspects of a tailings dam.
- SO2: Plan the deposition and dam development process.
- SO3: Supervise the execution of the operation.
- SO4: Complete duties pertaining to the supervision of tailings dam operations.

55. **Met-G 207 - Monitor tailings dam technical performance parameters. (Level 3/Credit 8)**
- SO1: Demonstrate knowledge relating to the monitoring of tailings dam technical performance parameters.
 - SO2: Prepare to monitor technical performance parameters.
 - SO3: Monitor technical performance parameters.
 - SO4: Complete duties pertaining to the monitoring of the technical performance parameters.
56. **Met-G 208 - Demonstrate the fundamentals of tailings dams. Level one. (Level 3/Credit 18)**
- SO1: The legal and specified requirements pertaining to tailings dams.
 - SO2: Tailings generation and disposal cycle.
 - SO3: Tailings basic properties and behaviour.
 - SO4: Basic concept of tailings dam stability.
 - SO5: Significance of freeboard.
 - SO6: Purpose of the components of a tailings dam.
 - SO7: Relevant types of tailings dams.
57. **Met-G 209 - Demonstrate understanding of the fundamentals of tailings dam. Level two (Level 4/Credit 25)**
- SO1: The legal and specified requirements pertaining to tailings dams.
 - SO2: The tailings generation and disposal cycle.
 - SO3: The fundamental properties and behavior of tailings.
 - SO4: The fundamentals of tailings dam stability.
 - SO5: The significance of freeboard.
 - SO6: The different methods of tailings disposal and the motivation and application thereof.
 - SO7: The purpose and standards of the components of a tailings dam.
58. **Met-G 210 - Mine fine granular material by means of hydraulic Monitoring. (Level 3/Credit 7)**
- SO1: Demonstrate knowledge relating to the hydraulic mining of fine granular material.
 - SO2: Prepare to mine fine granular material.
 - SO3: Mine fine granular material by means of a high-pressure water cannon (monitoring gun).
 - SO4: Complete duties pertaining to the hydraulic mining operation.
59. **Met-G 001 - Transfer material by means of a belt conveyor. (Level 2/Credit 3)**
- SO1: Demonstrate knowledge relating to the transfer of material.
 - SO2: Prepare to transfer material.
 - SO3: Transfer material.
 - SO4: Complete duties pertaining to the material transfer process.

60. Met-G 038 - Elute uranium from loaded resin. (Level 3/Credit 4)

- SO1: Demonstrate knowledge relating to uranium elution.
- SO2: Prepare to elute uranium.
- SO3: Elute uranium.
- SO4: Complete duties pertaining to the elution process.

61. Met-G 039 - Regenerate carbon by means of a rotary kiln. (Level 3/Credit 4)

- SO1: Demonstrate knowledge relating to carbon regeneration.
- SO2: Prepare to regenerate carbon.
- SO3: Regenerate carbon.
- SO4: Complete duties pertaining to the regeneration process.

ASSAYING**62. Ass-G 005 - Determine proximate values of carboniferous materials. (Level 2/Credit 2)**

- SO1: Demonstrate knowledge relating to proximate analysis.
- SO2: Prepare to do proximate analysis.
- SO3: Perform proximate analysis.
- SO4: Complete the process of determining proximate values.

63. Ass-G 009 - Perform a sink-float analysis. (Level 2/Credit 5)

- SO1: Demonstrate knowledge relating to the sink-float process.
- SO2: Prepare for the sink-float process.
- SO3: Perform the sink-float process.
- SO4: Complete the sink-float process.

64. Ass-G 010 - Dissolve solid samples for analysis. (Level 3/Credit 5)

- SO1: Dissolve a sample by means of fusion.
- SO2: Leach soluble matter from a sample.

65. Ass-G 038 - Quantify analyte concentrations in prepared solid samples by means of Emission Spectroscopy. (Level 4/Credit 17)

- SO1: Demonstrate knowledge relating to solid sample analysis by emission spectroscopy.
- SO2: Quantify analyte concentrations in prepared samples.

66. Ass-G 018 - Flux samples in preparation for the fire assay fusion. (Level 2/Credit 6)

SO1: Prepare for fluxing.
SO2: Flux samples in preparation for fusion.

67. **Ass-G 019 - Collect precious metals from a fluxed sample into a metal button by means of the fire assay fusion process. (Level 2/Credit 6)**

SO1: Collect precious metals by means of fusion.
SO2: Deslag the buttons.

68. **Ass-G 020 - Recover precious metals from a lead button by means of the cupellation process. (Level 2/Credit 7)**

SO1: Prepare for cupellation.
SO2: Extract the precious metal prill.

69. **Ass-G 021 - Determine the precious metal content of an assayed sample by high temperature cupellation and weighing (Level 3/Credit 7)**

SO1: Perform the high temperature cupellation process.
SO2: Quantify precious metal prills by mass measurement.

70. **Ass-G 022 - Quantify analyte concentrations in prepared samples by means of Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES). (Level 4/Credit 12)**

SO1: Demonstrate knowledge relating to ICP-OES.
SO2: Quantify analyte concentrations in prepared samples.

71. **Ass-G 023 - Quantify analyte concentrations in samples by means of X-Ray Fluorescence Spectrometry. (Level 3/Credit 9)**

SO1: Prepare samples for quantitative X-ray Fluorescence analysis.
SO2: Quantify analyte concentration in samples.

72. **Ass-G 024 - Quantify analyte concentrations in prepared samples by means of Graphite Furnace Atomic Absorption Spectroscopy. (Level 3/Credit 3)**

SO1: Demonstrate knowledge relating to Graphite Furnace Atomic Absorption Spectroscopy.
SO2: Quantify analyte concentrations in prepared samples.

73. **Ass-G 025** - **Quantify analyte concentrations in prepared samples by means of Ultraviolet-visible Spectrophotometry. (Level 3/Credit 2)**

SO1: Demonstrate knowledge relating to UV-Vis Spectrophotometry.
SO2: Quantify analyte concentrations in prepared samples.

MINERAL SURVEYING

74. **Sur-G 005(Val)** - **Prepare a sample for assaying. (Level 3/Credit 5)**

SO1: Demonstrate knowledge of preparation procedures.
SO2: Dry the samples.
SO3: Crush the samples.
SO4: Complete the work sequence.

75. **Sur-G 006(Val)** - **Cut face sections with a rock cutting saw for mineral evaluation purposes. (Level 3/Credit 6)**

SO1: Demonstrate knowledge of face² sampling principles.
SO2: Prepare to cut a sample section.
SO3: Cut a sample section.
SO4: Check and report.

76. **Sur-G 007(Val)** - **Mark off and map face sections for mineral evaluation purposes. (Level 4/Credit 11)**

SO1: Demonstrate knowledge of sampling and valuation terminology.
SO2: Prepare to mark off face.
SO3: Mark off face sample sections.
SO4: Map the face.
SO5: Check and report.

77. **Sur-G 206** - **Perform tape surveys. (Level 4/Credit 7)**

SO1: Demonstrate knowledge of tape surveying principles.
SO2: Prepare to perform a tape survey.
SO3: Perform a tape survey.

78. **Sur-G001(Val)** - **Collect a face sample for mineral evaluation purposes. (Level 1/Credit 4)**

SO1: Demonstrate knowledge of sampling principles.
SO2: Prepare to collect a face sample.
SO3: Collect, bag and identify face samples for mineral evaluation purposes.

- 79. Sur-G002(Val) - Screen a sample by particle size distribution. (Level 2/Credit 6)**
- SO1: Demonstrate knowledge of screening principles.
SO2: Prepare to screen the broken material.
SO3: Screen the broken material.
- 80. Sur-G003(Val) - Quarter a sample for mineral evaluation purposes. (Level 2/Credit 4)**
- SO1: Demonstrate knowledge of quartering principles.
SO2: Prepare for quartering.
SO3: Quarter a broken material.
- 81. Sur-G004(Val) - Chip face samples section from a mineral exposure for mineral evaluation purposes. (Level 3/Credit 5)**
- SO1: Demonstrate knowledge of sampling principles.
SO2: Prepare to chip face sample sections.
SO3: Chip face sample sections.
- 82. Sur-G 201 - Attend to a survey point in an underground environment. (Level 2/Credit 5)**
- SO1: Demonstrate knowledge of surveying terminology.
SO2: Prepare to attend a survey point.
SO3: Identify and attend a survey point.
- 83. Sur-G 202 - Attend to a survey point in an underground environment (Level 2/Credit 6)**
- SO1: Demonstrate knowledge of surveying terminology.
SO2: Prepare to install survey point.
SO3: Position and install survey point.
- 84. Sur-G 203 - Plot and project survey points. (Level 4/Credit 8)**
- SO1: Demonstrate knowledge of surveying terminology.
SO2: Prepare to plot and project a survey point.
SO3: Plot and project a survey point.
- 85. Sur-G 204 - Establish side-grade pegs in a flat development end. (Level 4/Credit 8)**
- SO1: Demonstrate knowledge of grades and gradient terminology.
SO2: Prepare to establish sidegrade pegs.
SO3: Establish sidegrade pegs.
SO4: Check and report.

MINING AND EXPLORATION GEOLOGY**86. Geo-G 092 - Locate a surface geographical position.
(Level 4/Credit 7)**

- SO1: Demonstrate the knowledge required for locating a surface geographical position.
- SO2: Plan and prepare to locate a surface geographical position.
- SO3: Locate a surface geographical position.
- SO4: Clean up and compile a report.

87. Geo-G 095 - Sample stream sediment material for economic and environmental purposes. (Level 4/Credit 11)

- SO1: Demonstrate the knowledge required to sample soil material.
- SO2: Plan and prepare to sample soil material.
- SO3: Sample soil material.
- SO4: Rehabilitate the sampling area and compile reports.

88. Geo-G001 - Prepare borehole chips for logging and sample purposes. (Level 2/Credit 5)

- SO1: Demonstrate the knowledge required to prepare (handle and lay out) borehole chips correctly for logging and sampling purposes.
- SO2: Prepare to lay out the borehole chips.
- SO3: Lay out the borehole chips.
- SO4: Clean up and report.

**89. Geo-G002 - Prepare borehole cores logging and sample purposes.
(Level 3/Credit 5)**

- SO1: Demonstrate the knowledge required to correctly prepare (handle and lay out) borehole core.
- SO2: Prepare to lay out the borehole core.
- SO3: Lay out the borehole core.
- SO4: Clean up and report.

**90. Geo-G 705 - Identify and verify the selected mining horizon.
(Level 3/Credit 3)**

- SO1: Demonstrate the knowledge required to identify the selected mining horizon.
- SO2: Plan and prepare to identify the selected mining horizon.
- SO3: Identify and verify the selected mining horizon.
- SO4: Compile and submit reports.

91. **Geo-G 706 - Supervise the rehabilitation of a geological exploration site.(Level 4/Credit 14)**
- SO1: Demonstrate the knowledge required to rehabilitate geological exploration sites.
SO2: Plan and prepare to supervise the rehabilitation of a geological exploration site.
SO3: Supervise the rehabilitation activity.
SO4: Conduct post-rehabilitation activities, and compile and present completion reports.
92. **Geo-G 708 - Cut borehole core with a mounted circular saw for logging and sampling purposes. (Level 3/Credit 2)**
- SO1: Demonstrate the knowledge required for cutting borehole core with a mounted circular saw.
SO2: Prepare to cut borehole core.
SO3: Cut and handle borehole core.
SO4: Clean up and compile and submit reports.
93. **Geo-G 710 - Sample stream sediment material for economic and environmental purposes. (Level 5/Credit 12)**
- SO1: Demonstrate the knowledge required to sample stream sediment material.
SO2: Plan and prepare to sample stream sediment material.
SO3: Sample the stream sediment material.
SO4: Clean up and compile and submit reports.
94. **Geo-G 711 - Sample soil material for economic and environmental Purposes. (Level 4/Credit 12)**
- SO1: Demonstrate the knowledge required to sample soil material.
SO2: Plan and prepare to sample soil material.
SO3: Sample soil material.
SO4: Clean up the sampling area and compile and submit reports.

GEMSTONE PROCESSING

95. **DIP-G 0340 - Make a complete bottom on sawn diamond gemstones. (Level 2/Credit 18)**
- SO1: Identify the equipment and tools used to make a complete bottom on diamond gemstones and describe their application.
SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
SO3: Set and clamp diamond gemstones for bottom making.

SO4: Polish and finish the four bottom corners, pavilions and sixteen halves on diamond gemstones.

SO5: Conduct post-bottom-making cleaning, checking and security activities.

96. DIP-G 0346 - Prepare and polish tables on makeable diamond gemstones. (Level 2/Credit 5)

SO1: Identify the equipment and tools used to prepare and polish tables on diamond gemstones and describe their application.

SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.

SO3: Set and clamp diamond gemstones for preparing and polishing tables.

SO4: Prepare and polish table facets on diamond gemstones according to instructions from the Marker.

SO5: Conduct post-prepare-and-polish-tables cleaning, checking and security activities.

97. DIP-G 0353 - Polish top halves on sawn diamond gemstones. (Level 2/Credit 4)

SO1: Identify the equipment and tools used to add the top halves to diamond gemstones and describe their application.

SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.

SO3: Set and clamp diamond gemstones for top halves.

SO4: Finish the final sixteen top halves on diamond gemstones.

SO5: Conduct post-top-half cleaning, checking and security activities.

98. DIP-G 0355 - Make complete tops on makeable diamond gemstones. (Level 2/Credit 9)

SO1: Identify the equipment and tools used to make complete tops on diamond gemstones and describe their application.

SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.

SO3: Set and clamp diamond gemstones for top making.

SO4: Polish and finish the four top corners, four bazeels, eight stars and sixteen top halves on diamond gemstones.

SO5: Conduct post-top-making cleaning, checking and security activities.

99. DIP-G 0359 - Polish stars on makeable diamond gemstones. (Level 2/Credit 2)

SO1: Identify the equipment and tools used to add stars to diamond gemstones and describe their application.

SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.

SO3: Set and clamp diamond gemstones for making stars.

SO4: Polish the eight star facets on diamond gemstones.

SO5: Conduct post-star-making cleaning, checking and security activities.

100. DiP-G 0341 - Prepare and polish tables on sawn diamond gemstones. (Level 2/Credit 5)

- SO1: Identify the equipment and tools used to prepare and polish tables on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for preparing and polishing tables.
- SO4: Prepare and polish table facets on diamond gemstones according to instructions from the Marker.
- SO5: Conduct post-prepare-and-polish-tables cleaning, checking and security activities.

101. DiP-G 0342 - Bottom block sawn diamond gemstones. (Level 2/Credit 8)

- SO1: Identify the equipment and tools used to perform bottom blocking on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Locate into tangs diamond gemstones that have been set in appropriate pots.
- SO4: Prepare the four bottom corners and pavilions on diamond gemstones.
- SO5: Conduct post-bottom-blocking cleaning, checking and security activities.

102. DiP-G 0343 - Polish top halves on sawn diamond gemstones. (Level 2/Credit 6)

- SO1: Identify the equipment and tools used to perform bottom lapping on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for bottom lapping.
- SO4: Finish the four bottom corners and four pavilions on diamond gemstones.
- SO5: Conduct post-bottom-lapping cleaning, checking and security activities.

103. DiP-G 0344 - Make complete tops on makeable diamond gemstones. (Level 2/Credit 4)

- SO1: Identify the equipment and tools used to polish the bottom halves on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for bottom halves.
- SO4: Finish the sixteen bottom halves on diamond gemstones.
- SO5: Conduct post-bottom-half cleaning, checking and security activities.

104. DiP-G 0345 - Make complete bottoms on makeable diamond gemstones. (Level 2/Credit 1)

- SO1: Identify the equipment and tools used to make complete bottoms on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for bottom making.
- SO4: Polish and finish the four bottom corners, pavilions and sixteen halves on diamond gemstones.
- SO5: Conduct post-bottom-making cleaning, checking and security activities.

105. DiP-G 0347 - Make complete bottoms on makeable diamond gemstones. (Level 2/Credit 8)

- SO1: Identify the equipment and tools used to perform bottom blocking on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Locate into tangs diamond gemstones that have been set in appropriate pots.
- SO4: Prepare the four bottom corners and pavilions on diamond gemstones.
- SO5: Conduct post-bottom-blocking cleaning, checking and security activities.

106. DiP-G 0348 - Bottom lap makeable diamond gemstones (Level 2/Credit 6)

- SO1: Identify the equipment and tools used to perform bottom lapping on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for bottom lapping.
- SO4: Finish the four bottom corners and four pavilions on diamond gemstones.
- SO5: Conduct post-bottom-lapping cleaning, checking and security activities.

107. DiP-G 0349 - Polish bottom halves on makeable diamond gemstones. (Level 2/Credit 4)

- SO1: Identify the equipment and tools used to polish the bottom halves on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for bottom halves.
- SO4: Finish the sixteen bottom halves on diamond gemstones.
- SO5: Conduct post-bottom-half cleaning, checking and security activities.

108. DiP-G 0350 - Make complete tops on sawn diamond gemstones (Level 2/Credit 13)

- SO1: Identify the equipment and tools used to make complete tops on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for top making.
- SO4: Polish and finish the four top corners, four bazeels, eight stars and sixteen top halves on diamond gemstones.
- SO5: Conduct post-top-making cleaning, checking and security activities.

**109. DiP-G 0351 - Top block sawn diamond gemstones
(Level 2/Credit 7)**

- SO1: Identify the equipment and tools used to perform top blocking on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Select an appropriate pot, set diamond gemstones and locate in tangs.
- SO4: Prepare the four top corners and bazeels on diamond gemstones.
- SO5: Conduct post-top-blocking cleaning, checking and security activities.

**110. DiP-G 0352 - Top lap sawn diamond gemstones.
(Level 2/Credit 5)**

- SO1: Identify the equipment and tools used to perform top lapping on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for top lapping.
- SO4: Finish the four top corners and four bazeels on diamond gemstones.
- SO5: Conduct post-top-lapping cleaning, checking and security activities.

**111. DiP-G 0354 - Polish stars on sawn diamond gemstones.
(Level 2/Credit 4)**

- SO1: Identify the equipment and tools used to add stars to diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for making stars.
- SO4: Polish the eight star facets on diamond gemstones.
- SO5: Conduct post-star-making cleaning, checking and security activities.

**112. DiP-G 0356 - Top block makeable diamond gemstones.
(Level 2/Credit 7)**

- SO1: Identify the equipment and tools used to perform top blocking on diamond gemstones and describe their application.

- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Select appropriate pots, set diamond gemstones and locate in tangs.
- SO4: Prepare the four top corners and bazeels on diamond gemstones.
- SO5: Conduct post-top-blocking cleaning, checking and security activities.

**113. DiP-G 0357 - Top lap makeable diamond gemstones.
(Level 2/Credit 3)**

- SO1: Identify the equipment and tools used to perform top lapping on diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for top lapping.
- SO4: Finish the four top corners and four bazeels on diamond gemstones.
- SO5: Conduct post-top-lapping cleaning, checking and security activities.

**114. DiP-G 0358 - Polish top halves on makeable diamond gemstones.
(Level 2/Credit 4)**

- SO1: Identify the equipment and tools used to add the top halves to diamond gemstones and describe their application.
- SO2: Demonstrate knowledge of the structure of diamond gemstones and the implications for polishing.
- SO3: Set and clamp diamond gemstones for top halves.
- SO4: Finish the sixteen top halves on diamond gemstones.
- SO5: Conduct post-top-half cleaning, checking and security activities.

ROCK ENGINEERING

115. Roc-G001 - Make a working place safe in a long and short wall in a coal panel. (Level 3/Credit 3)

- SO1: Demonstrate knowledge of examinations and making safe.
- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

116. Roc-G002 - Make a working place safe in a coal pillar extraction panel. (Level 3/Credit 3)

- SO1: Demonstrate knowledge of examinations and making safe.
- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

- 117. Roc-G003 - Make a working place safe in a bord and pillar coal mining panel. (Level 3/Credit 3)**
- SO1: Demonstrate knowledge of examinations and making safe.
SO2: Prepare for visual and physical examinations and to make safe.
SO3: Conduct a visual examination.
SO4: Conduct a physical examination.
SO5: Make safe.
- 118. Roc-G004 - Make a working place safe in a tabular hard rock stope in shallow geo-technical conditions. (Level 3/Credit 3)**
- SO1: Demonstrate knowledge of examinations and making safe.
SO2: Prepare for visual and physical examinations and to make safe.
SO3: Conduct a visual examination.
SO4: Conduct a physical examination.
SO5: Make safe.
- 119. Roc-G005 - Make a working place safe in a tabular hard rock stope in deep geo-technical conditions. (Level 3/Credit 3)**
- SO1: Demonstrate knowledge of examinations and making safe.
SO2: Prepare for visual and physical examinations and to make safe.
SO3: Conduct a visual examination.
SO4: Conduct a physical examination.
SO5: Make safe.
- 120. Roc-G006 - Make a large excavation safe in shallow geo-technical conditions. (Level 3/Credit 3)**
- SO1: Demonstrate knowledge of examinations and making safe.
SO2: Prepare for visual and physical examinations and to make safe.
SO3: Conduct a visual examination.
SO4: Conduct a physical examination.
SO5: Make safe.
- 121. Roc-G007 - Make a large excavation safe in deep geo-technical conditions. (Level 3/Credit 3)**
- SO1: Demonstrate knowledge of examinations and making safe.
SO2: Prepare for visual and physical examinations and to make safe.
SO3: Conduct a visual examination.
SO4: Conduct a physical examination.
SO5: Make safe.
- 122. Roc-G008 - Make a workplace safe in a vertical shaft. (Level 3/Credit 3)**
- SO1: Demonstrate knowledge of examinations and making safe.

- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

**123. Roc-G009 - Make a workplace safe in an incline or decline shaft.
(Level 3/Credit 3)**

- SO1: Demonstrate knowledge of examinations and making safe.
- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

124. Roc-G010 - Make a workplace safe in a highwall, openpit or strip mine. (Level 3/Credit 3)

- SO1: Demonstrate knowledge of examinations and making safe.
- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

**125. Roc-G011 - Make a workplace safe in a tunnel development end in shallow geo-technical conditions.
(Level 3/Credit 3)**

- SO1: Demonstrate knowledge of examinations and making safe.
- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

126. Roc-G012 - Make a workplace safe in a tunnel development end in deep geo-technical conditions. (Level 3/Credit 3)

- SO1: Demonstrate knowledge of examinations and making safe.
- SO2: Prepare for visual and physical examinations and to make safe.
- SO3: Conduct a visual examination.
- SO4: Conduct a physical examination.
- SO5: Make safe.

127. Roc-G 016 - Achieve and maintain mining excavation stability with support in a tabular hard rock stope panel in shallow geo-technical conditions. (Level 2/Credit 3)

- SO1: Demonstrate knowledge of support installation to achieve excavation stability.
- SO2: Prepare for installation.
- SO3: Install support.

SO4: Conduct a post-installation procedure.

- 128. Roc-G 017 - Achieve and maintain mining excavation stability with support in a tabular hard rock stope panel in deep geo-technical conditions. (Level 2/Credit 3)**

SO1: Demonstrate knowledge of support installation to achieve excavation stability.

SO2: Prepare for support installation.

SO3: Install support.

SO4: Conduct a post-installation procedure.

- 129. Roc-G 018 - Achieve and maintain mining excavation stability with support in a large excavation in shallow geo-technical conditions. (Level 2/Credit 3)**

SO1: Demonstrate knowledge of support installation to achieve excavation stability.

SO2: Prepare for support installation.

SO3: Install support.

SO4: Conduct a post-installation procedure.

- 130. Roc-G 019 - Achieve and maintain mining excavation stability with support in a large excavation in deep geo-technical conditions. (Level 2/Credit 3)**

SO1: Demonstrate knowledge of support installation to achieve excavation stability.

SO2: Prepare for support installation.

SO3: Install support.

SO4: Conduct a post-installation procedure.

- 131. Roc-G 020 - Achieve and maintain mining excavation stability with support installation in a vertical shaft. (Level 2/Credit 3)**

SO1: Demonstrate knowledge of support installation to achieve excavation stability.

SO2: Prepare for support installation.

SO3: Install support.

SO4: Conduct a post-installation procedure.

- 132. Roc-G 021 - Achieve and maintain mining excavation stability with support installation in an incline or decline shaft. (Level 2/Credit 3)**

SO1: Demonstrate knowledge of support installation to achieve excavation stability.

SO2: Prepare for support installation.

- SO3: Install support.
- SO4: Conduct a post-installation procedure.

133. Roc-G 022 - Achieve and maintain mining excavation stability with support installation in a high wall open pit or strip mine. (Level 2/Credit 3)

- SO1: Demonstrate knowledge of support installation to achieve excavation stability.
- SO2: Prepare for support installation.
- SO3: Install support.
- SO4: Conduct a post-installation procedure.

134. Roc-G 023 - Achieve and maintain mining excavation stability with support installation in a tunnel development end in shallow geo-technical conditions. (Level 2/Credit 3)

- SO1: Demonstrate knowledge of support installation to achieve excavation stability.
- SO2: Prepare for support installation.
- SO3: Install support.
- SO4: Conduct a post-installation procedure.

135. Roc-G 024 - Achieve and maintain mining excavation stability with support installation in a tunnel development end in deep geo-technical conditions. (Level 2/Credit 3)

- SO1: Demonstrate knowledge of support installation to achieve excavation stability.
 - SO2: Prepare for support installation.
 - SO3: Install support.
 - SO4: Conduct a post-installation procedure.
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