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DEPARTMENT OF MINERAL RESOURCES
MINE HEALTH & SAFETY INSPECTORATE

GUIDELINE FOR COMPILATION OF A MANDATORY CODE OF PRACTICE ON THE PROVISION OF PERSONAL PROTECTIVE EQUIPMENT FOR WOMEN IN THE SOUTH AFRICAN MINING INDUSTRY

________________________________________
Chief Inspector of Mines

DATE:

REVISION DATE:
## CONTENTS OF GUIDELINE

### PART A: THE GUIDELINE

1. FOREWORD 3
2. LEGAL STATUS OF GUIDELINES AND CODES OF PRACTICE 4
3. THE OBJECTIVE OF THIS GUIDELINE 4
4. DEFINITIONS 4
5. SCOPE 4
6. MEMBERSHIP OF TASK GROUP PREPARING THE GUIDELINE 5

### PART B: AUTHOR’S GUIDE

### PART C: FORMAT AND CONTENT OF THE CODE OF PRACTICE

1. TITLE PAGE 6
2. TABLE OF CONTENTS 6
3. STATUS OF THE COP 6
4. MEMBERS OF DRAFTING COMMITTEE 6
5. GENERAL INFORMATION 7
6. TERMS AND DEFINITIONS 7
7. RISK MANAGEMENT 7
8. ASPECTS TO BE ADDRESSED IN THE MANDATORY COP 8
8.1 ROLES AND RESPONSIBILITIES 9
8.2 SELECTION, PROVISION AND MAINTENANCE 9
8.3 TRAINING 10

### PART D: IMPLEMENTATION

1. IMPLEMENTATION PLAN 11
2. COMPLIANCE WITH THE COP 11
3. ACCESS TO THE COP AND RELATED DOCUMENT 11

### ANNEX 1: PPE FOR WIM IN SAMI (SIM100904) 12

### ANNEX 2: COMMON HAZARDS AT MINES AND POSSIBLE PPE 13

### ANNEX 3: PPE FOR WIM SELECTION GUIDELINES 14-15
PART A: THE GUIDELINE

1. FOREWORD

Over the last decade there has been an increase of women being employed in the mining industry, particularly underground and in jobs previously exclusively performed by men. This increase of women in the previously male dominated environment has led to many challenges. One of these challenges that have confronted women is the use of the personal protective equipment (PPE) that has not taken the female anthropometric characteristics into account.

As a result many areas of the work environment within the South African mining industry are unsuitable for deploying female employees because suitable PPE may be a problem. PPE equipment generally has been designed to suit the male physique. Women in mining have special health and safety needs resulting from their unique anatomical and physiological makeup. Additionally, there is scarcity of published data on the health and safety concerns and issues of women in mining.

The findings of workshops held in 2013/2014 by independent researches indicated that often PPE available for use at mines is unsuitable for female workers and sometimes poses health and safety challenges. This implies that female mine workers do not have adequate protection against risks from work-related hazards while their personal comfort and work performance may be compromised. The results of the workshops indicate that WIM often face health and safety challenges related to the PPE currently provided, because of its design. This has also led to WIM being dissatisfied with their PPE.

As indicated in SIMRAC SIM 100904 there is a possible association between the type of PPE used by women and increased vulnerability to skin conditions such as contact dermatitis, chaffing and rashes including bacterial and fungal infections. The situation is further exacerbated by the unique coping mechanisms (e.g. use of nylon tights and thick wool socks as undergarments), that WIM have been compelled to practice in order to adjust/correct the ill-fitting PPE. These unorthodox adjustments further increase the risk of infections, chaffing and rashes.

The selection, provision and use of PPE in the workplace should not only be based on hazard identification and risk assessment processes, but should incorporate ergonomic and comfort aspects of users so as to guarantee PPE efficiency for all workers. This approach will ensure that the specificities of female anthropometrics are accommodated. The hazards identified will determine the body part that is to be protected and therefore the PPE required. The PPE could include, but is not limited to, head protection, eye/face protection, hand/arm protection, body (torso) protection, foot protection, respiratory protection, vibration and hearing protection and thermal protection. (Refer to Annex 3: Table on Common Hazards at Mines and possible PPE. This Annex is intended for information purposes only.)
2. LEGAL STATUS OF GUIDELINES AND CODES OF PRACTICE

In accordance with section 9(2) of the MHSA an employer must prepare and implement a COP on any matter affecting the health or safety of employees and other persons who may be directly affected by activities at the mines if the Chief Inspector of Mines requires it. These COPs must comply with any relevant guideline issued by the Chief Inspector of Mines (section 9(3)). Failure by the employer to prepare or implement a COP in compliance with this guideline is a breach of the MHSA.

3. THE OBJECTIVE OF THIS GUIDELINE

The objective of this guideline is to provide guidance to the employer at every mine to compile a mandatory COP which would assist employers in providing suitable PPE for WIM.

4. DEFINITIONS AND ACRONYMS

In this guideline for a COP the following definitions and acronyms are used:

“CIOM” means Chief Inspector of Mines;

“COP” means a Code of Practice;

“DMR” means Department of Mineral Resources;


“PPE” means Personal Protective Equipment;

“SIMRAC” means the Safety in Mines Research Advisory Committee;

“SOP” means standard operating procedures at the mine;

“SUITABLE” means appropriate in terms of size and fit, type of work place hazards, purpose and nature of work to be undertaken and gender anthropometrics.

“WIM” means Women in Mining, i.e. female employees working at mines;

5. SCOPE

This guideline for a mandatory COP covers the roles and responsibilities of different persons; the selection and provision of PPE; and the training requirements in respect of PPE for WIM.
6. MEMBERSHIP OF TASK GROUP

This guideline was prepared by an MRAC task team on the provision of personal protective equipment for women in the mining industry.

The following members served on the task team:

State:
Ms. F.B. Senabe (Chairperson)

Employers:
Ms. H.R Motsotsoana
Mr. J.C. Smith
Mr. J. Soden
Ms. E. van der Wath
Ms. M. Wilson
Ms. M. Van Zyl
Mr. S. Mostert

Labour:
Ms. N.T Klaas
Adv. J.P. Jansen van Vuuren

PART B: AUTHOR’S GUIDE

1. The COP must, where possible, follow the sequence laid out in Part C “Format and Content of the mandatory COP”. The pages as well as the chapters and sections must be numbered to facilitate cross-reference. Wording must be unambiguous and concise.

2. It should be indicated in the COP and on each annex to the COP whether:

2.1. The annex forms part of the guideline and must be complied with or incorporated in the COP or whether aspects thereof must be complied with or incorporated in the COP, or

2.2. The annex is merely attached as information for consideration in the preparation of the COP (i.e. compliance is discretionary).

3. When annexes are used the numbering should be preceded by the letter allocated to that particular annex and the numbering should start at one (1) again. (e.g. 1, 2, 3, A1, A2, A3…).

4. Whenever possible illustrations, tables, graphs and the like should be used to avoid long descriptions and/or explanations.

5. When reference has been made in the text to publications or reports, references to these sources must be included in the text as footnotes or side notes as well as in a separate bibliography.
PART C: FORMAT AND CONTENT OF THE MANDATORY CODE OF PRACTICE.

1. TITLE PAGE

The COP should have a title page reflecting at least the following:

1.1 Name of mine;
1.2 The heading of the COP: The provision of personal protective equipment for women in the South African mining industry;
1.3 A statement to the effect that the COP was drawn up in accordance with the guideline DMR (reference number) issued by the CIOM;
1.4 The mine’s reference number for the COP;
1.5 Effective date; and
1.6 Revision dates.

2. TABLE OF CONTENTS

The COP must have a comprehensive table of contents.

3. STATUS OF MANDATORY CODE OF PRACTICE

Under this heading the COP must contain statements to the effect that:

3.1 The mandatory COP was drawn up in accordance with Guideline DMR ….. (reference number) issued by the CIOM;
3.2 This is a mandatory COP in terms of sections 9(2) and (3) of the MHSA;
3.3 The COP may be used in an incident/accident investigation/inquiry to ascertain compliance and also to establish whether the COP is effective and fit for purpose
3.4 The COP supersedes all previous relevant COPs;
3.5 All managerial instructions or recommended procedures (voluntary COPs) and standards on the relevant topics must comply with the COP and must be reviewed to assure compliance.

4. MEMBERS OF DRAFTING COMMITTEE

4.1 In terms of section 9(4) of the MHSA the employer must consult with the health and safety committee on the preparation, implementation or revision of any COP.
4.2 It is recommended that the employer should, after consultation with the relevant stakeholders in terms of the MHSA, appoint a committee responsible for the drafting of the COP.
4.3 The members of the drafting committee assisting the employer in drafting the COP should be listed giving their full names, designations, affiliations and experience. This
committee should include competent persons sufficient in number to effectively draft the COP.

5. GENERAL INFORMATION

The general information relating to the mine must be stated in this paragraph. The following minimum information must be provided:

5.1 A brief description of the mine and its location;

5.2 The commodities produced;

5.3 The mining methods/mineral excavation processes;

5.4 A description of the systems used at the mine in connection with the issuing of PPE equipment; and (revisit once paragraph 8 is completed).

5.5 Other relevant COPs.

6. TERMS AND DEFINITIONS

Any word, phrase or term of which the meaning is not absolutely clear or which will have a specific meaning assigned to it in the COP, must be clearly defined. Existing and/or known definitions should be used as far as possible. The drafting committee should avoid jargon and abbreviations that are not in common use or that have not been defined or clearly described. The definitions section should also include acronyms and technical terms used in the COP.

7. RISK MANAGEMENT

7.1 Section 11 of the MHSA requires the employer to identify hazards, assess the health and safety risks to which employees may be exposed while they are at work, record the significant hazards identified and risk assessed.

7.2 The COP must address how the significant risks identified in the risk assessment process must be dealt with, having regard to the requirements of sections 11(2) and (3) that, as far as reasonably practicable, attempts should first be made to eliminate the risk, thereafter to control the risk at source, thereafter to minimise the risk and thereafter, insofar as the risk remains, to provide PPE and to institute a program to monitor the risk.

7.3 A proper hazard identification and risk assessment must be conducted on all the activities at the mine. The information must be kept readily available at the mine.

7.4 To assist the employer with the hazard identification and risk assessment, all possible relevant information such as Annual Medical reports, occupational injury statistics, relevant research reports, design criteria, performance figure protocols, guiding documentation for practitioners and relevant standards should be obtained and considered.
7.5 In addition to the periodic review required by section 11(4) of the MHSA, the COP should be reviewed and updated, if required, after every serious incident/accident involving the use of PPE, or if significant changes are introduced to procedures, mining and ventilation layouts, mining methods, plant or equipment and material.

8. ASPECTS TO BE ADDRESSED IN THE MANDATORY CODE OF PRACTICE

The COP must set out how the significant risks in relation to PPE for WIM identified and assessed in terms of the risk assessment process referred to in paragraph 7.1 above will be addressed. The COP must cover at least the aspects set out below unless there is no significant risk associated with that aspect at the mine.

8.1. Roles and responsibilities of different persons

The COP should set out the roles and responsibilities of the various different persons involved in the processes to ensure that suitable PPE is provided to WIM at the mine. These roles and responsibilities could include the following:

8.1.1 Employer

8.1.1.1 Ensure that the required and appropriate PPE for each activity performed by WIM is available at the mine. In this regard, PPE should be provided which is serviceable and appropriate to the risks, local operational procedures, culture and environmental conditions;

8.1.1.2 Ensure that training is provided on the selection of appropriate PPE for use at the mine, on when the different types of PPE are to be used and the correct use of the different types of PPE;

8.1.1.3 Ensure that procedures are established and implemented and facilities provided that will ensure proper maintenance of PPE;

8.1.1.4 Ensure that suitable facilities are provided for the storage, transport and cleaning of PPE;

8.1.1.5 Ensure that a documented monitoring system is established and maintained on the appropriateness and effectiveness of PPE used by WIM at the mine.

8.1.2 Managers and Supervisors

Managers/Supervisors are responsible for ensuring effective day to day use of PPE by the WIM falling under their supervision. This could include the following:

8.1.2.1 Familiarise themselves and the WIM falling under their supervision with the content of this COP which is relevant to them.

8.1.2.2 Ensure that specific assessments are carried out for both the risk to be protected against and the different types of PPE that could be used to
protect WIM from that risk. On this basis the suitability of the selected PPE against the risk should be assessed.

8.1.2.3 Ensure that WIM receive suitable and sufficient information, instruction and training with regard to PPE supplied to them.

8.1.2.4 Ensure the proper use, storage, maintenance, cleaning, examination, repair and replacement of PPE.

8.1.3 WIM

WIM have personal responsibilities to ensure the effectiveness of any safe system of work provided. In particular they must:

8.1.3.1 Ensure that PPE provided is used, maintained and cleaned in accordance with the training, instruction and information received.

8.1.3.2 Return PPE after use to storage facilities provided for it. If this is not possible, to take reasonable steps to safeguard the condition of PPE when temporarily stored elsewhere.

8.1.3.3 Regularly examine PPE and report any defect, damage or loss to their manager/ supervisor.

8.1.3.4 Inform their manager/ supervisor of any medical or other conditions that may affect their ability to wear or use PPE.

8.1.3.5 Report to their manager/ supervisor, problems with the equipment or suggested improvements to SOPs, which may reduce the requirement for PPE, or improvements in the design or application of PPE.

8.2. Selection, provision and maintenance

The COP should set out measures to ensure that suitable PPE for WIM is selected and provided, and that such PPE for WIM is properly maintained, which measures should include:

8.2.1 identifying all areas in which PPE for WIM may be required;

8.2.2 identifying the types of PPE for WIM which would provide suitable protection against the identified hazards;

8.2.3 identifying appropriate inner/underwear for the different types of PPE for WIM;

8.2.4 ensuring the correct PPE for WIM is issued to each female employee in terms of:

8.2.4.1 size and fit;

8.2.4.2 type of workplace hazards;

8.2.4.3 purpose of PPE; and
8.2.4.4 nature of work to be undertaken.

8.2.5 ensuring PPE for WIM is regularly maintained to remain fully functional for its intended use;

8.2.6 ensuring PPE for WIM is timeously replaced when no longer fully functional for its intended use; and

8.2.7 ensuring the use and effectiveness of the PPE is monitored, including with regard to fit, comfort and maximum protection from the identified hazards for WIM.

8.3 Training

The COP must set out measures to ensure that WIM are properly trained in the use of PPE provided to them, which should include the following:

8.3.1 identifying appropriate persons to carry out training for WIM on the use of PPE and the qualifications, experience and other requirements to be met by such persons;

8.3.2 conducting training in two phases for all WIM who are required to wear PPE:

8.3.3.1 general training should include:

• When and why personal protective equipment is necessary;
• What type of personal protective equipment is necessary;
• How properly to put on, take off, adjust and wear PPE;
• The limitations of the PPE; and
• The proper care, maintenance, useful life and disposal of the PPE.

8.3.3.2 site specific training (to be conducted by direct supervisors and documented) should include:

• What type of PPE is necessary for each job;
• How properly to put on, take off, adjust and wear PPE;
• How to obtain PPE; and
• Departmental cleaning, maintenance and replacement procedures.

8.3.3 ensuring that each trainee demonstrates correct use of PPE before being allowed to perform work requiring the use of PPE.

8.3.4 ensuring that retraining is done, where required, when:

8.3.4.1 new equipment or processes are introduced that could create new or additional hazards; and

8.3.4.2 there have been changes in the workplace or PPE that renders previous training obsolete.
8.3.5 ensuring, if any employee who has been trained does not have the understanding or skills required to use the PPE properly, that such employee is retrained and the retraining is documented.

PART D: IMPLEMENTATION

1. IMPLEMENTATION PLAN

1.1 The employer must prepare an implementation plan for its COP that makes provision for issues such as organizational structures, responsibilities of functionaries and programs and schedules for this COP that will enable proper implementation of the COP. (A summary of and a reference to, a comprehensive implementation plan may be included).

1.2 Information may be graphically represented to facilitate easy interpretation of the data and to highlight trends for the purpose of risk assessment.

2. COMPLIANCE WITH THE CODE OF PRACTICE

The employer must institute measures for auditing, monitoring and ensuring compliance with the COP.

3. ACCESS TO THE CODE OF PRACTICE AND RELATED DOCUMENTS

3.1 The employer must ensure that a complete COP and related documents are kept readily available at the mine for examination by any affected person.

3.2 A registered trade union with members at the mine or where there is no such union, a health and safety representative on the mine, or if there is no health and safety representative, an employee representing the relevant stakeholders on the mine, must be provided with a copy on request. A register must be kept of such persons or institutions with copies to facilitate updating of such copies.

3.3 The employer must ensure that all employees are fully conversant with those sections of the COP relevant to their respective areas of responsibility.
ANNEX 1

1. Personal Protective Equipment for Women in the South African Mining Industry (SIM100904)
ANNEX 2
Table on Common Hazards at Mines and possible PPE
(This Annex is intended for information purposes only.)

<table>
<thead>
<tr>
<th>Body part protection</th>
<th>Common hazards in mines</th>
<th>Type of PPE protection required</th>
</tr>
</thead>
</table>
| Head protection       | - Impact from rock falls and flying objects  
                        - Impact from falling spillage, debris from conveyor system or crane  
                        - Impact from falling tools  
                        - Bumping head against walls, haulage, etc  
                        - Hair entanglement in rotating machinery                                                                                                                  | Safety helmets  
                        Bump caps  
                        Hair nets                                                                                                                                                    |
| Face and eye protection | - Chemical and metal splash  
                         - Airborne particles and dusts  
                         - Projectiles (flying fragments and chips)  
                         - Gases and vapours  
                         - Radiation                                                                                                                                                  | Safety spectacles  
                         Goggles  
                         Face shields  
                         Visors                                                                                                                                                    |
| Hands/arm protection  | - Abrasions, cuts and punctures, impact  
                        - Temperature extremes (cold/heat)  
                        - Chemical substances  
                        - Electric shock  
                        - Skin infection, disease contamination  
                        - Hand/arm vibration                                                                                                                                          | Gloves  
                        Gauntlets  
                        Mitts  
                        Wrist cuffs  
                        Armlets  
                        Barrier creams                                                                                                                                            |
| Body Protection (Torso) | - Temperature extremes and adverse weather  
                         - Chemical and metal splash  
                         - Spray from pressure leaks or spray guns  
                         - Impact or penetration  
                         - Contaminated dust  
                         - Excessive wear  
                         - Entanglement of own clothing                                                                                                                                 | Conventional and disposable overalls  
                         Boiler suits  
                         Clothing for cold, heat and bad weather  
                         Clothing to protect against machinery  
                         High visibility jackets, vests  
                         Harnesses, life jackets                                                                                                                                       |
| Foot and Leg protection | - Wet and slipping  
                         - Electrostatic build-up  
                         - Cuts and punctures  
                         - Falling objects  
                         - Chemical and metal splash  
                         - Abrasion                                                                                                                                                  | Safety boots and shoes with protective toe caps, penetration-resistant mid-sole  
                         Gaiters  
                         Leggings, spats                                                                                                                                            |
| Hearing Protection    | - Noise                                                                                                                                                                                                                  | Ear muffs  
                         Earplugs                                                                                                                                                    |
| Respiratory Protection | - Dust (e.g. crystalline silica and coal dusts)  
                         - Gas, vapour  
                         - Oxygen deficient atmospheres  
                         - Welding fumes                                                                                                                                               | Disposable filtering face piece or respirator  
                         Half or full-face respirator  
                         Air-fed helmets  
                         Breathing apparatus                                                                                                                                           |
Annex 3
PPE for WIM Selection Guidelines
(This Annex is intended for information purposes only.)

1. General Considerations

1.1 For each hazard identified, select personal protective equipment that will protect the WIM by creating a barrier against workplace hazards. Consider the likelihood of an accident and the seriousness of a potential accident. PPE must be selected to protect against any hazard that is present or likely to be present. It is important personnel to become familiar with the potential hazards, the type of protective equipment that is available, and the level of protection that is provided by that equipment, i.e., splash protection, impact protection, etc.

1.2 The personal protective equipment selected must fit the WIM as it is intended to protect. Make certain that WIM have the correct size of protective equipment. Whenever possible, select adjustable personal protective equipment. WIM input in the selection process is critical. Personal protective equipment that fits properly and is comfortable will more likely be worn by WIM. Damaged or defective protective equipment must be taken out of service immediately to be repaired or replaced and employees must be provided with the proper equipment in the interim.

1.3 Selected PPE for a work activity must be compatible with any other PPE that may be worn at the same time.

1.4 PPE to be repaired or replaced when damaged or past useful life or when an improved (cost effective) alternative becomes available.

1.5 All PPE may be used for official purposes only (except where management approval obtained).

1.6 A Hazard Assessment is a process of a simply formalised system of what personal protective equipment is to be selected based on the hazards of the job. When conducting a hazard assessment, a task is investigated and the hazards and the potential hazards associated with the task are determined. This allows for the selection of PPE that will protect the WIM from the identified hazards.

A hazard assessment may be conducted on a single employee, performing a single task, or a group of employees if all the employees perform an identical task. Hazard assessment could include all of the welders conducting that task. Likewise, painters using similar types of materials or laboratory workers using similar types of chemicals could be grouped under the same assessment.

The individual conducting the hazard assessment must have an intimate knowledge of each task. In some cases this may require directly observing an employee. In other instances the assessor may know all the hazards associated with a job without additional review. During the hazard assessment of each task, inspect the layout of the workplace and look for the following hazard sources:
a. High temperatures that could result in burns, eye injury, ignition of equipment, heat stress, etc.
b. Cold temperatures that could result in frostbite, lack of coordination, cold stress, etc
c. Chemical exposure, including airborne or skin contact that would have the potential for splash on the skin or eyes, or the potential to breathe vapours or mist.
d. Harmful dust or particulates.
e. Light radiation, e.g., welding, cutting, brazing, furnaces, heat treating, high intensity, lights, etc.
f. Sources of falling objects, potential for dropping objects, rolling objects that could crush or pinch the feet.
g. Sharp objects that may pierce the feet or cut the hands.
h. Electrical hazards.
i. Observe the layout of the workplace and the location of co-workers for the potential for collision with other personnel or objects.
j. Any other identified potential hazard.

Where these hazards exist and could cause injury to employees, PPE must be selected to eliminate substantially the injury potential.