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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:

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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;

“**MHSA**” means the Mine Health and Safety Act, 1996, Act 29 of 1996;

“**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)

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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)

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ANNEX 2

**Table on Common Hazards at Mines and possible PPE
(This Annex is intended for information purposes only.)**

Body part protection	Common hazards in mines	Type of PPE protection required
Head protection	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Noise 	Ear muffs Earplugs
Respiratory Protection	<ul style="list-style-type: none"> • 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.