

Guideline for the Compilation of a Mandatory Code
of Practice for

CYANIDE MANAGEMENT



MINE HEALTH AND SAFETY INSPECTORATE



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF MINERAL RESOURCES

MINE HEALTH AND SAFETY INSPECTORATE

GUIDELINE FOR THE COMPILATION OF A

MANDATORY CODE OF PRACTICE FOR

CYANIDE MANAGEMENT



CHIEF INSPECTOR OF MINES



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PART A: THE GUIDELINE

1. FOREWORD

- 1.1 The aim of this guideline is to provide a system to manage cyanide in order to reduce and control the impact of risks associated with the use of cyanide at mines.
- 1.2 The review of this Guideline is to ensure that it remains relevant to current knowledge and practice.
- 1.3 The guideline is aligned with the International Cyanide Management Code and that the "SOUTH AFRICAN GUIDELINE ON CYANIDE MANAGEMENT FOR GOLD MINING" was used as an informatory in preparation for the guideline.

NOTE:

*It is recommended that the "South African Guideline on Cyanide Management for Gold Mining", "International Cyanide Management Institute: The International Cyanide Management Code" and "Guidance Document for Cyanide" from the Chemical and Allied Industries Association be consulted as an informatory documents in the preparation for the review of the **COP**.*

- 1.4 This guideline has been designed around best practice principles and includes the latest operational expertise and application of technology for the management of cyanide.

2. LEGAL STATUS OF GUIDELINES AND COPS

- 2.1 In accordance with section 9(2) of the Mine Health and Safety Act (Act No. 29 of 1996), as amended (**MHSA**) an employer must prepare and implement a Code of Practice (**COP**) on any matter affecting the health or safety of employees and any 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 and implement a **COP** in compliance with this guideline is a breach of the **MHSA**.

3. OBJECTIVE OF THE GUIDELINE

- 3.1 The main objective of this guideline is to enable the employer at every mine where it is relevant to compile a **COP**, which, if properly implemented and complied with, would improve cyanide management, thereby minimising risks to employees and communities from the use of cyanide in gold mining, and reducing community concerns about its use.
- 3.2 It provides guidance of a general nature on the required format and content for the **COP** and details sufficient technical background to enable the drafting committee at the mine to prepare a comprehensive and practical **COP** for their mine.

4. DEFINITIONS AND ACRONYMS

4.1 Acronyms

'**COP**' means Code of Practice.

'**DMR**' means the Department of Mineral Resources.

'**MHSA**' means Mine Health and Safety Act, 1996 (Act No. 29 of 1996).

'**MRAC**' means Mining Regulatory Advisory Committee.

4.2 Definitions

Cyanide means a variety of chemical species and physical forms of cyanide including numerous solid cyanide salts and complexes and their solutions.

5. SCOPE

- 5.1 This guideline focuses exclusively on the management of cyanide and cyanidation, in various plant process and tailing streams and does not address other safety or environmental issues potentially associated with mining.
- 5.2 This guideline addresses procurement, supply and distribution of cyanide, its transport at the mine, its on-site storage and use, inspection and maintenance of equipment used, timeous detection of leakages and spills, emergency preparedness and response and the management of cyanide to ensure that it does not adversely affect the health or safety of persons at the mine or off the mine. (See employers' responsibility in terms of sections 5(1) and 5(2) (b) of the **MHSA** to provide employees with a safe working environment and to ensure that persons who are not employees are not exposed to any hazards to health or safety).
- 5.3 Regulation 9(2) (1) in the **MHSA** requires the employer to ensure that the occupational limits are maintained below the limits set out in the schedule 22.9(2)(a) and (b). For cyanide there is no OEL's but only short-term exposure limits. Because of the dangers of cyanide this has been dealt with in this guideline, which sets out the topics to be addressed to prevent exposure.

6. MEMBERS OF THE TASK GROUP

6.1 The drafting committee representations were as follows:

STATE	EMPLOYEES	EMPLOYERS
B A Doyle R H McIntyre	G Mpufane	D Barnes M J de Jager J J Gloy J S Kilani

6.2 The review team presentations were as follows:

STATE	OTHER CONSULTED PEOPLE	EMPLOYERS	ORGANISED LABOUR
J Legadima	W van der Westhuizen C Wade L Lag. Lombard DR Beukes	Dr. K Baloyi Dr. DB de Villiers B Mongoma M Beukes	P Mira

PART B: AUTHOR'S GUIDE

1. The **COP** must, where possible, follow the sequence laid out in Part C "*Format and Content of the COP*". The pages as well as the chapters and sections must be numbered to facilitate cross-reference and wording must be unambiguous and concise.
2. It should be indicated in the **COP** and on each annexure to the **COP** whether:
 - 2.1 The annexure forms part of the **COP** 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 annexure is merely attached as information for consideration in the preparation of the **COP** (i.e. compliance is discretionary).
3. When annexures are used the numbering should be preceded by the letter allocated to that particular annexure and the numbering should start at one 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 COP

1. TITLE PAGE

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

- 1.1 Name of mine;
- 1.2 The Heading: “Mandatory Code of Practice on Cyanide Management”;
- 1.3 Statement to the effect that the **COP** was drawn up in accordance with Guideline **DMR** Reference Number **DMR** 16/3/2/4-A4 issued by the Chief Inspector of Mines;
- 1.4 The mine’s reference number for the **COP**;
- 1.5 The effective date; and
- 1.6 Revision dates (if applicable).

2. TABLE OF CONTENTS

The **COP** must have a comprehensive table of contents.

3. STATUS OF COP

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** 16/3/2/4-A4 issued by the Chief Inspector of Mines;
- 3.2 This is a mandatory **COP** in terms of section 9(2) of the **MHSA**;
- 3.3 The **COP** may be used in an 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**; and
- 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 ensure 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 employers should, after consultation with the employees 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

General relevant information relating to the mine must be stated in this section of the **COP**.

The following minimum information must be provided:

- 5.1 A brief description of the mine and its location.
- 5.2 Commodities produced.
- 5.3 Mining method or combination of methods used at the mine must be listed. This section must discuss the degree of mechanization, taking care to identify the potential sources of cyanide management.
- 5.4 Other related **COPs** and management standards must be reviewed concurrently in order to avoid conflict of requirements as laid down by the mine. The objective could be to have an integrated system that have a bearing on the **COP** and cross reference them to the risk assessment conducted.

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. The definitions section should also include acronyms and technical terms used.

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, and record the significant hazards identified and risk assessed. The employer must determine how the significant risks identified in the risk assessment process must be dealt with, having regard to the requirement of section 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 personal protective equipment and to institute a programme to monitor the risk.

- 7.2 To assist the employer with the risk assessment all possible relevant information such as accident statistics, ergonomic studies, research reports, manufacturers' specifications, approvals, design criteria and performance figures for all relevant equipment should be obtained and considered.
- 7.3 In addition to the periodic review required by section 11(4) of the **MHSA**, the **COP** should be reviewed and updated if relevant after every serious incident relating to a topic covered in the **COP** or if significant changes are introduced to procedures, processes, process layout, process methods, ventilation layouts, plant or equipment and material.

NOTE:

It is recommended that the Risk Assessment Chapter contained within section 2, Chapter 2 of the South African Guideline on Cyanide Management for Gold Mines referred to in paragraph 1.3 of Part A, be consulted when undertaking the hazard identification and risk assessment process.

8. ASPECTS TO BE ADDRESSED IN THE COP

The **COP** must set out how the significant occupational health and safety risks which were identified and assessed in terms of the risk assessment process, referred to in paragraph 7, will be addressed.

The **COP** must cover at least the aspects stated below, unless there is no significant risk associated with that aspect:

- Procurement;
- Delivery and off-loading;
- Storage and Issuing;
- Use;
- Inspection and Maintenance of equipment;
- Timeous detection and reporting of leakages and spills;
- Emergency preparedness and response;
- Training; and
- Dialogue.

8.1 Procurement

Measures to be taken to ensure that cyanide is only purchased from dependable and reputable manufacturers, suppliers and distributors, and the Material Safety Data Sheets (MSDS) are supplied accordingly.

8.2 Delivery and off-loading

Measures to ensure that the procurement contract will ensure that transportation, delivery and off-loading are done in such a manner as to ensure no negative health, safety and environmental effects.

8.3 Storage and issuing

8.3.1 Measures to ensure that cyanide is stored and issued in a safe and healthy manner.

8.3.2 Measures to prevent unauthorised or inadvertent access or exposure to cyanide.

8.4 Transport and delivery from the point of storage / issuing to the point of use at the mine

Measures to ensure that cyanide is transported and delivered or off-loaded from the point of storage or issuing to the point of use at the mine, in a safe and healthy manner.

8.5 Use

8.5.1 Measures to ensure that only competent and authorised persons use cyanide and related equipment.

8.5.2 Measures to ensure that cyanide is only used in accordance with the requirements specified by the manufacturer and/or the employer, inclusive of the use of appropriate personal protective equipment.

8.6 Inspection and maintenance of equipment used

8.6.1 Measures to ensure that equipment used for the storage, transfer, control, and use, including personal protective equipment, is inspected and maintained in such a manner and condition that it will prevent persons from being exposed to cyanide related significant risks.

8.6.2 Measures to ensure that only competent and authorised persons inspect and maintain equipment used.

8.7 Timeous detection and reporting of leakages and spills

Measures to ensure that an effective system is in place that is capable of the timeous detection, reporting and mitigation of leakages and spills and consequent exposure of persons to cyanide.

8.8 Emergency preparedness and response

8.8.1 Comprehensive emergency response procedures, inclusive of first aid medical supplies, availability of a person trained in cyanide first aid, location of first aid and medical kits and the treatment of persons who may have been exposed to cyanide. The treatment of persons should cover inter alia the following:

- First aid treatment for suspected inhalation or skin contamination;
- First aid treatment for suspected ingestion of cyanide; and
- Hospital treatment for suspected exposure to cyanide.

8.8.2 Measures to ensure that persons who may be exposed to cyanide, are aware of the emergency response procedure referred to in paragraph 8.8.1.

8.8.3 Procedures for the safe and healthy detoxification, decontamination, decommissioning and/or disposal of any cyanide or cyanide plants, wastes, packaging, equipment, leakages and spills.

8.9 Training

The **COP** should set out measures to be taken to ensure compliance with employers' obligations under section 10 of the **MHSA**, as far as Cyanide hazards are concerned, to provide the required information, instruction, training and supervision.

8.10 Dialogue

Measures to ensure that affected stakeholders as determined by a risk assessment are engaged.

PART D: IMPLEMENTATION

1. IMPLEMENTATION PLAN

- 1.1 The employer must prepare an implementation plan for the **COP** that makes provision for issues such as organisational structures, responsibilities of functionaries, programmes 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 COP

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

3. ACCESS TO THE COP 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 (describe the process).
- 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 employees on the mine, must be provided with a copy on written request to the manager. 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 responsibilities.

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