

INTERNATIONAL CYANIDE MANAGEMENT INSTITUTE

www.cyanidecode.org

International Cyanide Management Code

***For The Manufacture, Transport and Use
Of Cyanide in the Production of Gold***

May 2002

BACKGROUND

For over a century, cyanide has been the primary reagent used by the mining industry for the production of gold. It is a hazardous chemical that requires careful management. Since no other commercially viable and environmentally sound alternatives currently exist, gold mines will continue to use cyanide.

In January 2000, the accidental release of large amounts of cyanide solutions and tailings from the Aurul mine in Romania resulted in significant pollution of the receiving river system. This incident dramatically increased the consciousness of governments, international organizations, industry and the public of the environmental hazards associated with the use of cyanide in the gold mining industry.

To address concerns about cyanide use and management, a two-day multi-stakeholder workshop was held in May 2000 to consider development of a voluntary industry code of practice for the use of cyanide in mining. Workshop participants determined that a voluntary code, implemented industry-wide, could improve the management of cyanide.

The International Cyanide Management Code For The Manufacture, Transport and Use of Cyanide in the Production of Gold (“the Code”) were developed as this voluntary industry code. The Code was prepared under the direction of a multi-stakeholder Steering Committee, whose members were chosen by the United Nations Environment Programme and the International Council on Metals and the Environment. The Committee, consisting of participants from the gold mining industry, governments, non-governmental organizations, labor, cyanide producers and financial institutions, worked cooperatively toward the common goal articulated in the Code’s Mission Statement:

To assist the global gold mining industry in improving cyanide management, thereby minimizing risks to workers, communities and the environment from the use of cyanide in gold mining, and reducing community concerns about its use.

The objectives of the Code as identified by the Committee are:

- ◆ ***To protect workers, communities and the environment from adverse effects of cyanide.***
- ◆ ***To improve cyanide management.***
- ◆ ***To be used by large and small gold mining companies, cyanide manufacturers and transporters.***
- ◆ ***To serve as a form of assurance for interested parties including regulators, financiers, communities and non-governmental organizations.***
- ◆ ***To be applied internationally, in both developed and developing countries.***
- ◆ ***To be credible and verifiable.***
- ◆ ***To be dynamic over time.***

The Code encourages improvement on an industry-wide basis by aggressively promoting participation in the Code, and by requiring signatories to the Code to take appropriate action to manage cyanide responsibly. The public, workers, industry and the environment will derive their

greatest benefits if operations using cyanide to extract gold adopt the Code and upgrade their practices as required to meet the Code.

SCOPE

The Code is a gold mining industry voluntary code, intended to complement an operation's existing regulatory requirements. Compliance with the rules, regulations and laws of the applicable political jurisdiction is necessary; this Code is not intended to contravene such laws.

The Code focuses exclusively on the safe management of cyanide and cyanidation mill tailings and leach solutions. It addresses production, transport, storage, and use of cyanide and the decommissioning of cyanide facilities. It includes requirements related to financial assurance, accident prevention, emergency response, training, public reporting, stakeholder involvement and verification procedures.

It does not address all safety or environmental activities that may be present at gold mining operations such as the design and construction of tailings impoundments or long-term closure and rehabilitation of mining operations.

The term "cyanide" used throughout the Code generically refers to the cyanide ion, hydrogen cyanide, as well as salts and complexes of cyanide with a variety of metals in solids and solutions. It must be noted that the risks posed by the various forms of cyanide are dependent on the specific species and concentration. Information regarding the different chemical forms of cyanide is found at www.cyanidecode.org/library/cyanide_facts/cyanide_chemistry.

CODE IMPLEMENTATION

The Code is comprised of two major elements. The Principles broadly state commitments that signatories make to manage cyanide in a responsible manner. Standards of Practice follow each Principle, identifying the performance goals and objectives that must be met to comply with the Principle. Operations are certified as being in compliance with the Code upon an independent third-party audit verifying that they meet the Standards of Practice.

For implementation guidance, visit www.cyanidecode.org/the_code/implementationresources

The programs and procedures identified by the Code's Principles and Standards of Practice for the management of cyanide can be developed separately from other programs, or they can be integrated into a site's overall safety, health and environmental management programs. Since operations typically do not have direct control over all phases of cyanide production, transport or handling, gold mines will need to require that other entities involved in these activities commit to and demonstrate that they adhere to the Code's Principles and meet its Standards of Practice for these activities.

This Code, the implementation guidance, mine operators guide, and other documents or information sources referenced at www.cyanidecode.org are believed to be reliable and were prepared in good faith from information reasonably available to the drafters. However, no guarantee is made as to the accuracy or completeness of any of these other documents or information sources. The implementation guidance, mine operators guide, and the additional documents and references are not intended to be part of the Code.

No guarantee is made in connection with the application of the Code, the additional documents available or the referenced materials to prevent hazards, accidents, incidents, or injury to employees and/or members of the public at any specific site where gold is extracted from ore by the cyanidation process.

Compliance with this Code is not intended to and does not replace, contravene or otherwise alter the requirements of any specific national, state or local governmental statutes, laws, regulations, ordinances, or other requirements regarding the matters included herein.

Compliance with this Code is entirely voluntary and is neither intended nor does it create, establish, or recognize any legally enforceable obligations or rights on the part of its signatories, supporters or any other parties.

PRINCIPLES AND STANDARDS OF PRACTICE

1. *PRODUCTION* Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.

Standard of Practice

- 1.1 Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

2. *TRANSPORTATION* Protect communities and the environment during cyanide transport.

Standards of Practice

- 2.1 Establish clear lines of responsibility for safety, security, release prevention, training and emergency response in written agreements with producers, distributors and transporters.
- 2.2 Require that cyanide transporters implement appropriate emergency response plans and capabilities, and employ adequate measures for cyanide management.

3. HANDLING AND STORAGE Protect workers and the environment during cyanide handling and storage.

Standards of Practice

- 3.1 Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices and quality control and quality assurance procedures, spill prevention and spill containment measures.
- 3.2 Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

4. OPERATIONS Manage cyanide process solutions and waste streams to protect human health and the environment.

Standards of Practice

- 4.1 Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.
- 4.2 Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.
- 4.3 Implement a comprehensive water management program to protect against unintentional releases.
- 4.4 Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.
- 4.5 Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.
- 4.6 Implement measures designed to manage seepage from cyanide facilities to protect the beneficial uses of ground water.
- 4.7 Provide spill prevention or containment measures for process tanks and pipelines.
- 4.8 Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.
- 4.9 Implement monitoring programs to evaluate the effects of cyanide use on wildlife, surface and ground water quality.

5. DECOMMISSIONING Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.

Standards of Practice

- 5.1 Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife and livestock.
- 5.2 Establish an assurance mechanism capable of fully funding cyanide-related decommissioning activities.

6. WORKER SAFETY Protect workers' health and safety from exposure to cyanide.

Standards of Practice

- 6.1 Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.
- 6.2 Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.
- 6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

7. EMERGENCY RESPONSE Protect communities and the environment through the development of emergency response strategies and capabilities.

Standards of Practice

- 7.1 Prepare detailed emergency response plans for potential cyanide releases.
- 7.2 Involve site personnel and stakeholders in the planning process.
- 7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response.
- 7.4 Develop procedures for internal and external emergency notification and reporting.
- 7.5 Incorporate into response plans monitoring elements and remediation measures that account for the additional hazards of using cyanide treatment chemicals.
- 7.6 Periodically evaluate response procedures and capabilities and revise them as needed.

8. TRAINING Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.

Standards of Practice

- 8.1 Train workers to understand the hazards associated with cyanide use.
- 8.2 Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.
- 8.3 Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

9. DIALOGUE Engage in public consultation and disclosure.

Standards of Practice

- 9.1 Provide stakeholders the opportunity to communicate issues of concern.
- 9.2 Initiate dialogue describing cyanide management procedures and responsively address identified concerns.
- 9.3 Make appropriate operational and environmental information regarding cyanide available to stakeholders.

CODE MANAGEMENT

Administration

The International Cyanide Management Institute (“The Institute”) is a non-profit corporation established to administer the Code through a multi-stakeholder Board of Directors consisting of representatives of the gold mining industry and participants from other stakeholder groups. For additional information on the Institute, see: www.cyanidecode.org/theinstitute.

The Institute’s primary responsibilities are to:

- ◆ Promote adoption of and compliance with the Code, and to monitor its effectiveness and implementation within the world gold mining industry.
- ◆ Develop funding sources and support for Institute activities.
- ◆ Work with governments, NGOs, financial interests and others to foster widespread adoption and support of the Code.
- ◆ Identify technical or administrative problems or deficiencies that may exist with Code implementation, and
- ◆ Determine when and how the Code should be revised and updated.

Code Signatories and Supporters

Companies with either single or multiple operations can become signatories to the Code; the signature of an owner or corporate officer of the operating company is required. By becoming a signatory, a company commits to follow the Code’s Principles and implement its Standards of Practice. Code signatories’ operations will be audited to verify their operation’s compliance with the Code.

A signatory is not required to have all operations certified. When becoming a signatory, a company must specify which of its operations it intends on having certified. A company that does not have these operations audited within 3 years of signing the Code will lose its signatory status. See: www.cyanidecode.org/signatories&certifiedoperations.

Cyanide producers, transporters, and other companies or individuals not currently or directly engaged in production of gold by cyanidation can demonstrate their support of the Code's objectives by conducting audits and where appropriate becoming Code Supporters.

Code Verification and Certification

Audits are conducted every three years by independent, third-party professionals who meet the Institute's criteria for auditors. Auditors evaluate an operation to determine if its management of cyanide achieves the Code's Principles and Standards of Practice; the Code's Verification Protocol contains the criteria for all audits. Operations must make all relevant data available to the auditors, including the complete findings of their most recent independent Code Verification, in order to be considered for certification.

During an initial verification audit, an operation's compliance at the time of the audit will be evaluated. Subsequent re-verification audits will also evaluate compliance during the period between the preceding and current audits.

Upon completion of the audit, the auditor must review the findings with the operation to ensure that the audit is factually accurate and make any necessary changes. The auditor must submit a detailed "Audit Findings Report" addressing the criteria in the Verification Protocol and a "Summary Audit Report" that includes the conclusion regarding the operation's compliance with the Code to the signatory, the operation and to the Institute. The operation is certified as complying with the Code if the auditor concludes that it is in full compliance with the Code's Principles and Standards of Practice. The detailed "Audit Findings Report" is the confidential property of the operation. The "Summary Audit Report" of certified operations will be made available to the public on the Code website. The operation may submit its comments regarding the Summary Audit Report to the Institute, which will be posted along with the Summary Audit Report on the Institute's website.

Operations that are in substantial compliance with the Code are conditionally certified, subject to the successful implementation of an Action Plan. Substantial compliance means that the operation has made a good-faith effort to comply with the Code and that the deficiencies identified by the auditor can be readily corrected and do not present an immediate or substantial risk to employee or community health or the environment. Operations that are in substantial compliance with a Standard of Practice must develop and implement an Action Plan to correct the deficiencies identified by the verification audit. The operation may request that the auditor review the Action Plan or assist in its development so that there is agreement that its implementation will bring the operation into full compliance. The Action Plan must include a time period mutually agreed to with the auditor, but in no case longer than one year, to bring the operation into full compliance with the Code. The Auditor must submit the Action Plan to the Institute along with the Audit Findings Report and Summary Audit Report.

The operation must provide evidence to the auditor demonstrating that it has implemented the Action Plan as specified and in the agreed-upon time frame. In some cases, it may be necessary for the auditor to re-evaluate the operation to confirm that the Action Plan has been implemented. Upon receipt of the documentation that the Action Plan has been fully

implemented, the auditor must provide a copy of the documentation to the Institute along with a statement verifying that the operation is in full compliance with the Code.

All operations certified as in compliance with the Code will be identified on the Code website, www.cyanidecode.org/signatories&certifiedoperations. Each certified operation's Summary Audit Report will be posted and operations with conditional certification will have their Summary Audit Report and their Action Plan posted.

An operation cannot be certified if the auditor concludes that it is neither in full compliance nor in substantial compliance with any one of the Standards of Practice. An operation that is not certified based on its initial verification audit can be verified and certified once it has brought its management programs and procedures into compliance with the Code. Its signatory parent company remains a signatory during this process.

An operation that is not yet active but that is sufficiently advanced in its planning and design phases can request conditional certification based on an auditor's review of its site plans and proposed operating procedures. An on-site audit is required within one year of the operation's first production of gold by cyanidation to confirm that the operation has been constructed and is being operated in compliance with the Code.

An operation or an individual cyanide facility at an operation is no longer subject to certification after decommissioning of the cyanide facilities.

Certification Maintenance

In order to maintain certification, an operation must meet all of the following conditions:

- ◆ The auditor has concluded that it is either in full compliance or substantial compliance with the Code.
- ◆ An operation in substantial compliance has submitted an Action Plan to correct its deficiencies and has demonstrated that it has fully implemented the Action Plan in the agreed-upon time.
- ◆ There is no verified evidence that the operation is not in compliance with the Code.
- ◆ An operation has had a verification audit within three years.
- ◆ An operation has had a verification audit within two years of a change in ownership, defined as a change of the controlling interest of the operating company.

Auditor Criteria and Review Process

The Institute will develop specific criteria for Code Verification auditors and will implement procedures for review of auditor credentials. Criteria will include requisite levels of experience with cyanidation operations and in conducting environmental, health or safety audits, membership in a self-regulating professional auditing association and lack of conflicts of interest with operation to be audited.

Dispute Resolution

The Institute will develop and implement fair and equitable procedures for resolution of disputes regarding auditor credentials and certification and/or de-certification of operations. The procedures will provide due process to all parties that may be affected by these decisions.

Information Availability

The Code and related information and code management documentation are available via the Internet at www.cyanidecode.org. The website is intended to promote an understanding of the issues involved in cyanide management and to provide a forum for enhanced communication within and between the various stakeholder groups with interest in these issues. The site is the repository for Code certification and verification information.

ACKNOWLEDGEMENTS

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The individuals listed below participated in the process. Participation by these individuals does not necessarily represent an endorsement of the Code by their respective organizations.

Steering Committee

Harold Barnes (Chairman) ¹	Homestake Mining Company, United States
Stephen Bailey	International Finance Corporation, United States
Julio Bonelli	Government of Peru
Gordon Drake, Ph.D. ²	WMC Resources, Ltd., Australia
John den Dryver ³	Normandy Mining Limited, Australia
Bill Faust	Eldorado Gold Company, Canada
Fred Fox ⁴	Kennecott Minerals Company, United States
John Gammon, Ph.D.	Government of Ontario, Canada
Steven Hunt ⁵	United Steelworkers of America, Canada
Juergen Loroesch, Ph.D.	Degussa, Germany
Basie Maree	Anglogold Company, South Africa
Glenn Miller, Ph.D.	University of Nevada, Reno, United States
Anthony O'Neill	WMC Resources, Ltd., Australia
Michael Rae	World Wide Fund For Nature, Australia
Stan Szymanski	International Council of Chemical Associations, United States
Stephan Theben ⁶	European Commission, Spain
Federico Villasenor ⁵	Minas Luismin, Mexico
Juergen Wettig	European Commission, Belgium

¹ Elected Chairman by the Steering Committee

² Substituted for Anthony O'Neill at Washington and Vancouver Meetings

³ Substituted for Anthony O'Neill at Santiago Meeting

⁴ Replaced Bill Faust on Committee after Napa Meeting

⁵ Added to Steering Committee at Vancouver Meeting

⁶ Substituted for Juergen Wettig at Washington, Vancouver and Santiago Meetings

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Australian Gold Council, Australia

Australian Gold Reagents, Australia

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Degussa, Germany

Dupont, United States

Glamis Gold, Ltd., United States

Gold Fields Limited, South Africa

The Gold Institute, United States

Homestake Mining Company, United States

Kinross Gold Corp., Canada

Lihir Management Corp., Papua New Guinea

Mining Project Investors, Australia

Newmont Gold Company, United States

Normandy Mining, Australia

Placer Dome, Inc., Canada

South African Chamber of Mines, South Africa

Rio Tinto, United Kingdom

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