

International Cyanide Management Code

- ACMER (background and involvement in cyanide activities)
- Cyanide in the Gold Industry
- International Cyanide Management Code



ACMER

- Role (to assist the Australian minerals industry with environmental issues)
- Background
- Industry support (6 major companies and MCA)
- Government support (Department of Industry Tourism and Resources; Queensland Government)
- Research activities
- Technology transfer



ACMER

Research Activities

- Acid Mine Drainage
- Tailings Disposal and Remediation
- Final Void Use
- Waste Rock Dump Stability
- Ecosystem Reconstruction
- Mine Closure
- Water Quality (Handbook)
- Risk Assessment for Cyanide



ACMER

Technology Transfer Activities

- Environmental Management and Rehabilitation
- Landform Design for Stability
- Acid Mine Drainage
- Water Quality
- Native Seed Biology for Revegetation
- Cyanide Management
- 60 workshops/courses in last 5 years



ACMER

Cyanide Activities

- Mid-1990s North Limited approach re bird-kill
- Dr Terry Mudder input to industry workshops in 1997 & 1999
- Development of the Env Aust Best Practice Booklet (BPEM) on Cyanide Management
- 2002 – Cyanide Code Workshop
- 2003 – Input to Env Aust BPEM (revised) Booklet on Cyanide
- 2003 – Regional Minerals Program



ACMER

Cyanide Activities

- Regional Minerals Program (grant from DITR) plus industry and government support
- Aim – to increase awareness of cyanide code and best practice
- 7 regional workshops
- WA
- Vic – Bendigo (Vic Mins and Vic DPI support)
- NSW, Qld, NT



Cyanide in the Gold Industry

- Used to extract gold
- Most efficient, least costly lixiviant (80-90% of all gold extracted using cyanide)
- Highly toxic to humans and wildlife
- Carefully used and managed, “safe to use”



Cyanide Incidents/Accidents

- Australia (Northparkes)
- Overseas (North America, South America, Africa, Asia)
- Many incidents related to tailings dam failure/overtopping
- Several transport incidents (PNG, Kyrgyz)
- Other incidents in Australia



Cyanide Incidents

- Baia Mare (Romania) – downstream impact



Continuing Accidents Destroying Confidence/Sanction

- License to operate under threat, EU, Montana, etc
- Issue for the gold industry in developed political environments, plus developing country accidents
- A strong initiative needed to address both practice and perceptions
- UNEP and ICME – discussions to focus on mining accidents - gold industry made it happen



Cyanide in the Gold Industry - UNEP Mining Accident Project

Designed to :

- Improve safety of cyanide use
- Examine what more can be done to improve dam safety
- Strengthen effectiveness of global regulation of hazardous mining activities
- Improve emergency response preparedness



Cyanide Code Proposals

- UNEP/ICME (ICMM) discussions
- Workshop of invitees in Paris in May 2000 to canvass idea of voluntary code
- Clear view that such an initiative needed; useful preliminary discussion about scope, boundaries, process, etc.
- Moved to a considered process to attempt this ambitious task



Cyanide Code

Voluntary Code:

- to be used by large and small gold mining companies, cyanide manufacturers and transporters
- to serve as a form of assurance for regulators, financiers, communities and NGOs
- to be applied internationally, in both developed and developing countries
- to be credible and verifiable
- to be dynamic over time
- to protect workers, communities and the environment from adverse effects of cyanide
- to improve cyanide management



Cyanide Code

- 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.
- A Cradle to Grave approach
- Important to the sustainability of the gold industry



Cyanide Code

Core Elements:

- Set of **9 Principles** that broadly state commitments that signatories would make to manage cyanide in a responsible manner
- For each Principle, a set of “**Standards of Practice**” that identify performance goals and objectives that must be met to implement the Principle



Cyanide Code

Documents:

- Implementation guidance
- Verification Protocol



Cyanide Code – Implementation Guidance

- Defines acceptable measures to comply with Principles and Standards of Practice
- Code elements include :
 - Production
 - Transportation
 - Handling & Storage
 - Operations
 - Decommissioning
 - Employee Safety
 - Emergency Response
 - Training
 - Dialogue



Cyanide Code

Principles and Standards of Practice

- ***1. Production: Encourage responsible cyanide manufacturing by purchasing from producers 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.**



Cyanide Code

Principles and Standards of Practice

- ***2. Transportation: Protect communities and the environment during cyanide transport***
- **Standard of Practice 2.1: Establish clear lines of **responsibilities for safety, security, release prevention, training and emergency response** in written agreements with producers, distributors and transporters.**
- **Standard of Practice 2.2: Require that cyanide **transporters implement appropriate emergency response plans** and capabilities and employ adequate measures for cyanide management.**



Cyanide Code

Principles and Standards of Practice

- ***3. Handling and Storage: Protect workers and the environment during cyanide handling and storage.***
- **Standard of Practice 3.1: Design and construct unloading, storage and mixing facilities consistent with sound and accepted engineering practice and quality control and quality assurance procedures, spill prevention and containment measures.**
- **Standard of Practice 3.2: Operate unloading, storage and mixing facilities using inspections, preventative maintenance and contingency plans to **prevent or contain releases and control and respond to worker exposures.****



Cyanide Code

Principles and Standards of Practice

- ***4. Operations: Manage cyanide process solutions and waste streams to protect human health and the environment.***
- **Standard of Practice 4.1: Implement management and operating systems designed to protect human health and the environment, contingency planning and inspection and preventive maintenance procedures.**
- **Standard of Practice 4.2: Introduce management and operating systems to minimize cyanide use, thereby limiting cyanide concentrations in mill tailings.**



Cyanide Code

Principles and Standards of Practice

- ***4. Operations: Manage cyanide process solutions and waste streams to protect human health and the environment.***
- Standard of Practice 4.3: Implement a comprehensive **water management program** to protect against unintentional releases.
- Standard of Practice 4.4: Implement **measures to protect birds, other wildlife and livestock** from adverse effects of cyanide process solutions.
- Standard of Practice 4.5: Implement **measures to protect fish and wildlife from direct and indirect discharges** of cyanide process solutions to surface water.



Cyanide Code

Principles and Standards of Practice

- ***4. Operations: Manage cyanide process solutions and waste streams to protect human health and the environment.***
- Standard of Practice 4.6: Implement **measures** designed to **manage seepage** from cyanide facilities to protect the beneficial uses of ground water.
- Standard of Practice 4.7: Provide **spill prevention or containment measures** for process tanks and pipelines.



Cyanide Code – Containment



Cyanide Code

Principles and Standards of Practice

- ***4. Operations: Manage cyanide process solutions and waste streams to protect human health and the environment.***
- Standard of Practice 4.8: Implement **quality control/quality assurance procedures** to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.
- Standard of Practice 4.9: Implement **monitoring programs** to evaluate the effects of cyanide use on wildlife and surface and ground water quality.



Cyanide Code

Principles and Standards of Practice

- *5. Decommissioning: Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.*
- Standard of Practice 5.1: Plan and implement **procedures for effective decommissioning** of cyanide facilities to protect human health, wildlife and livestock.
- Standard of Practice 5.2: Establish an **assurance mechanism** capable of fully funding cyanide related decommissioning activities.



Cyanide Code

Principles and Standards of Practice

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



Cyanide Code

Principles and Standards of Practice

- ***7. Emergency Response: Protect communities and the environment through the development of emergency response strategies and capabilities.***
- Standard of Practice 7.1: Prepare detailed emergency response plans for potential cyanide releases.
- Standard of Practice 7.2: Involve site personnel and stakeholders in the planning process.
- Standard of Practice 7.3: Designate appropriate personnel and commit necessary equipment and resources for emergency response



Cyanide Code

Principles and Standards of Practice

- ***7. Emergency Response: Protect communities and the environment through the development of emergency response strategies and capabilities.***
- Standard of Practice 7.4: **Develop procedures for internal and external emergency notification and reporting.**
- Standard of Practice 7.5: **Incorporate** into response plans **monitoring elements and remediation measures** that account for the additional hazards of using cyanide treatment chemicals.
- Standard of Practice 7.6: Periodically **evaluate response procedures and capabilities** and **revise** them as needed.



Cyanide Code

Principles and Standards of Practice

- ***8. Training: Train workers and emergency personnel to manage cyanide in a safe and environmentally protective manner.***
- Standard of Practice 8.1: Train workers to understand the hazards associated with cyanide use.
- Standard of Practice 8.2: Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.
- Standard of Practice 8.3: Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.



Cyanide Code

Principles and Standards of Practice

- **9. Dialogue: Engage in public consultation and disclosure.**
- **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**



Cyanide Code - Verification and Certification

Intent:

- Initial verification of compliance with the Code within 3 years of signing, then at three yearly intervals
- Operations audited by independent third-party
- Code auditors meet qualifications for experience, expertise and conflict of interest according to Code
- Auditors follow strict Verification Protocol included with Code documents
- Operations in substantial compliance must implement Action Plan within 1 year to come into full compliance
- Operation certified if auditor concludes it is in full compliance with Principles & Standards of Practice
- Summary Audit Report is available to public on Code Web Site



Cyanide Code – Current Status

- Implementation Guidance document released
- Verification protocol in draft form
- Progress slowed (funding, structural issues)
- Companies developing their own protocols
- ACMER playing role in increasing awareness

- END of PRESENTATION

