

# Workshop on Cyanide Management in the Gold Industry



*Promoting leading practice through delivery of a quality professional development program, addressing the practical challenges of sustainable development in the minerals industry*



**6-7 May 2009**

**Burswood Entertainment Complex, Perth WA**

The management of cyanide to reduce risks to the environment, human health and wildlife is an ongoing challenge for the global minerals industry. To assist the minerals industry to minimise these risks, the International Cyanide Management Code, a voluntary industry code, was developed following the disastrous Baia Mare incident in Romania, and is providing guidance to companies that become Code signatories. For a company to become a signatory, its operations must be audited and certified compliant with Code principles and standards of practice. Subsequently, its operations are required to be audited every 3 years for recertification. This process is intended to provide regulators and society at large with confidence that cyanide is being managed appropriately by code signatories.

The focus of this workshop is on auditing, designing engineering plants and managing operations to achieve compliance, and the training and preparation of staff to manage or minimise any mishaps. Personnel from mid-tier mining companies, that may be considering signing up to the Code will find the workshop useful, as well as personnel from companies whose operations have been certified.

The workshop will draw upon the experiences of both auditors and industry personnel whose operations have recently been audited, so that other workshop participants have a better appreciation of auditing requirements and necessary site preparations. There are potential cost savings for companies that understand the requirements and having the necessary information collated and available prior to the commencement of auditing. There will also be a series of presentations by engineering companies that have been involved with mining companies in the design and construction of their plant to comply with the Code. In addition, there will be sessions on managing and monitoring cyanide to minimise risks for operations in different geographical situations and also a session on emergency management procedures.

The program for the workshop has been developed by ACMER in association with the MCA Cyanide Management Working Group including Mr Mike LeRoy (AngloGold Ashanti), Mr Peter Cooper (CSBP), Mr Tom Gibbons (Barrick), and Dr Jason Cummings (MCA), also Mr Matt Hochen (Barrick), Mr Nick Currey (Lihir Gold Management), Mr Ken Ramsey and Mr Bryan Williams (Newmont).

ACMER also acknowledges the support of ICMI.

## SPONSORS



Workshop Sponsor



Lunch Sponsor

Australian Gold Reagents Pty Ltd. (AGR)

Dinner Sponsor

## KEYNOTE SPEAKERS

Mr Norm Greenwald, ICMI  
Dr Mike Adams, Mutis Liber Pty Ltd  
Mr Simon Barrett, Water Management Consultants  
Mr Ray Biehl, Independent Metallurgical Operations Pty Ltd  
Mr Ed Clerk, Golder Associates Pty Ltd  
Mr Lawry Lim, WA DMP  
Mr Arno Dippenar, Gold Fields Limited  
Mr David Donato, Donato Environmental Services  
Dr Nell Gillett, Wesfarmers CSBP Limited  
Mr Matt Hochen, Barrick Gold of Australia  
Mr Rod Leonard, Lycopodium Minerals Pty Ltd  
Mr Mike LeRoy, AngloGold Ashanti Australia Limited  
Mr Cheyne Mann, Newmont Asia Pacific  
Mr Eddie McLean, Ausenco Limited  
Dr Barry Noller, CMLR, The University of Queensland  
Mr Ross Polis, Newmont Asia Pacific  
Mr Ken Ramsey, Newmont Asia Pacific  
Mr Roger Schulz, Consultant  
Mr Peter Scott, ENSR Australia  
Warong Saranrittichai, Chatree Mine

## SHORT COURSE INFORMATION

ACMER will also offer a one-day short course focussed on the practicalities of 'Training, monitoring and certification under the International Cyanide Management Code'.

The course will focus on code requirements for (i) monitoring of cyanide complexes in groundwater and mine tailings including hypersaline tailings systems, & (ii) monitoring of wildlife, as well as training and laboratory requirements, and data management requirements by auditors. See page 3 for program.



# Workshop on Cyanide Management in the Gold Industry

## WORKSHOP AUDIENCE

The workshop will benefit personnel in industry, government, engineering and consulting groups with an involvement or interest in cyanide management. Specifically it will benefit:



Environmental managers with responsibility for the oversight of implementation of the Cyanide Code and the auditing of their operational compliance



Environmental officers with responsibility for sampling and monitoring programs



Metallurgists with responsibility for implementing changes in the processing of gold in the plants



Mill superintendents



Auditors who have undertaken or intend to conduct audits of company operations



Engineers involved in the design of plants that are compliant with Cyanide Code requirements



OHS personnel with responsibility for site OHS procedures

## WORKSHOP PROGRAM

### Wednesday 6 May 2009

#### Recent Development in the Management of Cyanide

- Report on sodium cyanide use in Australia and Australian cyanide communication structure
- ICMI updates on Australian gold producers membership of ICMI and the ICMI cost benefit study
- Update on leading practice handbook on cyanide management

#### Auditing of Cyanide at Mine Sites

- Report on auditing of operations
- Report by companies whose operations have been audited

#### Engineering for Improved Cyanide Management

- Plant design code considerations - Newmont
- Designing to the code - Harmony's/Newcrest Hidden Valley
- Plant design - Lycopodium
- Dangerous goods regulations

#### Recertification Issues

- ICMI - Aspects of a recertification audit

### Thursday 7 May 2009

#### Operational issues

- Probabilistic water balance
- Water management issues at Kingsgate's Chatree Mine
- Fauna monitoring, ecology and management
- Decommissioning financial considerations
- Facility Decommissioning

#### Monitoring Issues

- Tailings and in-line sampling
- MERIWA Project M398 - Influences of Hyper-saline tailings on wildlife cyanide toxicosis
- Risk decision making tool for cyanide

#### Emergency Management

- Emergency response procedures/training
- Operating procedures/training
- Medical treatment

#### Community Consultation

- ICMI experience of community consultation from audits

## BENEFITS OF ATTENDING

This workshop provides an opportunity for gold mining and engineering companies, site personnel, and regulators involved in the use of cyanide, to

- consider the business case for becoming a Code signatory,
- hear directly about recent developments in the Cyanide Code and initiatives in Australia,
- learn from the experiences of auditors and companies going through auditing for certification or recertification,
- gain some insights into how engineering companies are responding to the challenge of designing processing plants that comply with Code requirements,
- improve their awareness of cyanide management practices,
- increase their understanding of the environmental and emergency management issues associated with cyanide use,
- network with metallurgists, engineers, chemists, environmental and wildlife scientists and OHS professionals together with government personnel with responsibility for regulating industry performance.

## WORKSHOP OBJECTIVES

- To inform industry and government personnel on recent Cyanide Code initiatives and developments in Australia,
- To share information on the experiences of auditors, engineers and industry operational personnel in auditing, designing and managing for code compliance,
- To highlight some of the significant issues and operational risks that should be addressed and managed for operations in different regions (e.g. in both tropical and arid environments),
- To reinforce the need for appropriate OHS training and preparedness.



A unit of the Sustainable Minerals Institute

# Short Course on Training, Monitoring and Certification under the International Cyanide Management Code



This short course has been developed to provide practical assistance to personnel whose companies are, or planning to become, signatories to the International Cyanide Management Code (the Code). The focus of the course will be on monitoring requirements for the Code, specifically Standards of Practice 4.1, 4.4 and 4.9, with emphasis on wildlife monitoring, since, in some situations, wildlife may be at risk if they imbibe water that has high WAD cyanide concentrations. It will consider development of a Code compliant cyanide monitoring regime and provide basic theory and practical information on: cyanide chemistry, tailings and hypersaline chemistry; groundwater, tailings and wildlife monitoring; training and laboratory requirements; data management and information to facilitate public engagement on cyanide-related issues.

## COURSE PRESENTERS

Dr Mike Adams, Mutis Liber Pty Ltd  
Mr Ray Biehl, Independent Metallurgical Operations  
Mr David Donato, Donato Environmental Services  
Mr Steve Griffiths, Donato Environmental Services  
Mr Roger Schulz, Consultant



## Friday 8 May (Course starts at 8.30am)

Overview of the International Cyanide Management Code: Compliance Requirements. (David Donato)

- Monitoring towards Code compliance.
- Monitoring requirements as outlined in Standards of Practice 4.1, 4.4 & 4.9:
- Characteristics of a Code compliant wildlife monitoring regime.
- Characteristics of a Code compliant cyanide monitoring regime.

Sampling, Measurement and Monitoring for Cyanide (Roger Schulz)

- Reasons for and Aim of Sampling
- Preservation of Samples
- Cyanide Definitions, Methods and Interpretation

Groundwater Monitoring (Roger Schulz)

- Special sampling approach
- "Air free" Sampling
- General Rules of Sampling
- Sample Preservation

Tailings Monitoring - Chemistry (Roger Schulz)

- Access to TSF
- Where and What to Sample
- Type of Sampling and Sampling Options

Tailings Monitoring – Wildlife (Stephen Griffiths)

- Factors influencing wildlife visitation and interaction with cyanide-bearing water bodies at gold mines.
- Essential characteristics of a wildlife monitoring program to satisfy 'Standards of Practice' requirements including methodologies required to adequately monitor a tailings storage facility vs's a heap leach pad.
- Implications if discharge of spigot is  $>50$  mg/L WAD cyanide

- Benefits and limitations with the wildlife monitoring methodology prescribed by Donato Environmental Services.

Hypersaline tailings systems - Chemistry (Mike Adams)

- Salinity levels classification and impacts
- Location of saline and hypersaline gold operations

Hypersaline tailings systems - Wildlife (David Donato)

Hypersalinity as a protective mechanism and Cyanide Code compliance (Mike Adams)

- Cyanide Code and the case for salinity as a protective mechanism;
- Cyanide Code status of saline and hypersaline gold operations;
- Building a case for Code compliance;
- Non-saline protective mechanisms at minesites.

Training requirements (Ray Biehl)

Laboratory requirements (Roger Schulz)

- Availability, Turn around time
- Ability, QC and Accreditation
- Value of Assays
- Client's Check & Requirements

Public engagement and dissemination (David Donato)

- Developing procedures to facilitate engagement with stakeholders and provide information regarding the management of cyanide waste solutions;
- Providing opportunities to engage concerned stakeholders and address issues raised.

**Course concludes approx 4.30pm**

Please note: tea and coffee will be served on arrival and at morning and afternoon teas, lunch and course notes will also be provided.



**ACMER**   
A unit of the Sustainable Minerals Institute

# Workshop on Cyanide Management in the Gold Industry

## DELEGATE DETAILS

Title: .....  
First Name: .....  
Surname: .....  
Position: .....  
Organisation: .....  
Postal Address: .....  
Suburb/Postcode: .....  
State/Country: .....  
Phone: .....  
Fax: .....  
Email: .....  
Dietary Requirements: .....

## REGISTRATION (Due 9 April 2009)

- 2 Day Workshop - \$1950  
 1 Day Short Course, 8 May 2009 - \$975  
 2 Day Workshop + 1 Day Shortcourse, 6-8 May - \$2600  
 Workshop Dinner, 6 May (included in registration costs)  
 Non-ICMI signatories (first 6 to register) - 2 Day Workshop - \$1450  
 Exhibition Booth - \$2950

All prices include GST. Registration costs include morning/afternoon refreshments, lunches, workshop dinner on Wednesday, and a comprehensive set of notes. Limited places available.

## PAYMENT DETAILS

- Cheque - made payable to The University of Queensland  
 Company Purchase Order No: .....  
Company ABN No: .....  
Mailing address for invoice: .....
- Bankcard       MasterCard       Visa
- Card Number:
- Name of Cardholder: .....  
Expiry Date: .....  
Signature: .....

## FOR OFFICE USE ONLY



PAID DATE: .....

INVOICE NO: .....

ENTRY DATE: .....

## ACCOMMODATION

Delegates can book their accommodation at their own expense at the following hotels:

**Rydges Perth**  
Cnr Hay & King Streets  
Perth 6000 WA  
Ph: +61 8 9263 1800  
Fax: +61 8 9263 1801

**Holiday Inn Burswood**  
Bolton Ave & Great Eastern Highway  
Perth 6001 WA  
Ph: +61 8 9362 8888  
Fax: +61 8 9362 8866

**Mercure Hotel Perth**  
10 Irwin Street  
Perth 6000 WA  
Ph: +61 8 9326 7000  
Fax: +61 8 92213344

**InterContinental Perth Burswood**  
Bolton Ave & Great Eastern Highway  
Perth 6001 WA  
Ph: +61 8 9362 7777  
Fax: +61 8 9470 2553

For further accommodation options and information about Perth visit <http://www.westernaustralia.com/en/Destinations/Experience+Perth/Perth+City>

## ACMER COMMUNICATION

Tick here if you do not wish to receive our electronic ProgramUpdates  
Where did you learn about this workshop?

- ACMER Emailing       ACMER Website  
 Colleague       Other (please specify): .....

## CANCELLATION

ACMER reserves the right to cancel any course at its discretion. Whilst we endeavour to make every effort not to do this, there could be circumstances beyond our control (e.g. insufficient numbers) that may prevent us from going ahead. In the light of this, if you need to fly, we suggest that you purchase a fully flexible airline ticket.

Delegates cancellations 14-8 days before course commencement incur an administration fee of \$110. Cancellations 7 or less days before course commencement and non-attendance of the course are liable for the full registration fee. Substitutions accepted when advised.

## WORKSHOP INFORMATION

Course days will commence at 8.30am and generally conclude at 5.00pm. Please note these times may be subject to slight variations. For more information please go to: [www.acmer.uq.edu.au/training/program.html](http://www.acmer.uq.edu.au/training/program.html)

## VENUE

Burswood Entertainment Complex - Conventions and Events  
Great Eastern Highway  
Burswood, WA 6100  
Phone: 08 93627574  
Email: [conventions@burswood.com.au](mailto:conventions@burswood.com.au)  
Web: [www.business.burswood.com.au](http://www.business.burswood.com.au)

REGISTRATION FORM - WORKSHOP ON CYANIDE MANAGEMENT IN THE GOLD INDUSTRY, 6-7 MAY 2009, BURSWOOD ENTERTAINMENT COMPLEX, PERTH WA