ACG ONSITE GEOTECHNICAL TRAINING FOR UNDERGROUND MINES

ACG AUSTRALIAN CENTRE FOR GEOMECHANICS

CSIRO | The University of Western Australia | Joint Venture

As the mining industry is experiencing a downturn, budgets for all activities, including continuing education and training, are under increased scrutiny, but mine safety is never to be compromised. Innovative approaches, such as onsite training, offer a cost-effective vehicle to train a significant number of mining personnel at a reasonable cost.

During the last 20 years, the Australian Centre for Geomechanics (ACG) has been at the forefront of providing practical training in ground awareness and ground control in Australian underground mines.

Several hundreds of jumbo operators, front line supervisors, mining geotechnical engineers and mine geologists have already benefited from unique ACG onsite training programmes. The training content is generally customised to suit local mining conditions and specific ground control challenges.

GROUND AWARENESS TRAINING FOR JUMBO OPERATORS AND FRONT LINE SUPERVISORS

This training is often delivered at a mine site for groups between 10 and 20 operators, over a six to eight hour training session. Recognised geomechanics techniques to assess ground conditions are explained in simple language that is familiar to mine operators. Topics such as in situ stress, stress distribution and how it may affect the stability of mine openings are described. The goal is that the trainees develop a clear understanding of ground behaviour before undertaking the core content of ground control principles and ground support systems.

Discussions and sharing of experiences are an integral part of the learning. Some courses extend over two days to allow trainees to go underground and observe, first-hand, some of the concepts discussed in the class.

Since 1999, over 700 mining personnel attended this onsite training course. Companies included: Newmont Asia Pacific, Mount Isa Mines, McArthur River Mines, Henry Walker Eltin Contractors, La Mancha Resources, MMG Limited and others. Over 200 delegates alone attended from Henry Walker Eltin Contractors between 1999 and 2001.

ROCK ENGINEERING TRAINING

Rock engineering onsite training is designed to upgrade the practical skills of geotechnical and mining engineers, as well as geologists involved in geotechnical work. The training could involve a one- to three-day course on one or more of the specific topics, such as ground support, mine seismicity, rock mass classification, empirical stope design and others. Alternatively, the course can be as comprehensive as a nine-day intensive rock engineering course, delivered in three self-contained modules:

1. Geomechanics data (3 days).
2. Geomechanics design methods (3 days).
3. Ground support systems (3 days).

The geomechanics data modules involve theory and hands-on training, including core logging exercises, underground joint mapping and rock mass classification activities performed in mine drives.

Photograph courtesy of MMG Limited

"The Mount Isa Mine is a remote mine with a large residential rock mechanics team. It has always been a challenge to send engineers off site for extended periods to attend courses or conferences. Yves Potvin and the Australian Centre for Geomechanics have a solution that allows me to give my entire team the training they require with minimal interruption to the operation and with minimum cost.

The course content is relevant and has a good balance between both the technical and practical aspects of Geomechanics. Yves has by virtue of his experience and current role a wealth of knowledge to share with both novice and experienced rock mechanics engineers. Following the three, three-day courses the engineers have a better grasp of how the theory they have been taught over the years relates to their day-to-day work and they are able to make smarter design decisions.

During tough economic times it takes imagination to find ways to give people the training they require to improve their performance and keep them excited and engaged in their work. This course is a cost-effective way of meeting these objectives."

— Geoffrey Potgieter, Glencore Mount Isa Mines —

Photograph courtesy of Glencore Mount Isa Mines

The data is then hand-plotted on stereonets and simple limit equilibrium techniques are applied to the freshly gathered data.

The mine design methods module also relies on theoretical and practical tasks, including desktop stope and pillar design exercises using several empirical methods, to ensure that trainees are fully familiar with the intricacies of applying these techniques to real design situations.

Since 2003, close to 200 mining personnel attended this specialised training course. Companies included: Newmont Asia Pacific, Mount Isa Mines, Kazakhmuys Services Kazakhstan, the Department and Mines and Petroleum Queensland and others.

INSTRUCTOR

Professor Yves Potvin

PhD, MSc Mining, BSc Mining

Director
Australian Centre for Geomechanics

Yves commenced his position as research coordinator with the ACG in August 1998. In March 2000 he was appointed Centre Director in 2000. In close collaboration with industry, Yves seeks to advance mine safety through the development of geotechnical research projects, further education and training courses, and training material. He is lead author of the Minerals Council of Australia's "Management of Rockfall Risks in Underground Mines — Guideline and Reference Manual", and lead editor of the ACG's publications "Surface Support in Mining" and the "Handbook on Mine Fill". Professor Potvin has also published more than 60 papers. Yves has over 20 years of experience in rock mechanics and mine design and has previously held positions at Mount Isa Mines, Noranda Technology Centre and Noranda Mines, Gaspe Division.

Photograph courtesy of MMG Limited

Please send me detailed information or a quotation regarding:

- ☐ Ground Awareness Training for Jumbo Operators and Front Line Supervisors
- ☐ Rock Engineering Training
- ☐ Other Onsite Training Requirements (please specify)

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FIRST NAME: .....

SURNAME: .....

JOB TITLE: .....

COMPANY: .....

MINE SITE/DEPARTMENT: .....

ADDRESS: .....

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EMAIL: .....

PHONE: ..... FAX: .....

MOBILE: .....

Contact the ACG to discuss your onsite training requirements:

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ACG TRAINING DVDS

To support your onsite training requirements, the ACG also provides the following underground awareness training DVDs. For more details, visit www.acg.uwa.edu.au/training_products