

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 open pit mines.

The ACG's one to three day onsite training courses are designed for practical operational personnel, mine planners, mining engineers, geologists, and anyone involved in day-to-day open cut metalliferous and coal mining operations.

GROUND SUPPORT IN OPEN PIT MINING

There are a plethora of options when considering ground support. In open pit mining, access and time are often the driving factors when considering what to use. How do you decide? What size failure do you consider? When should you consider rockbolts, cable bolts, mesh, fibrecrete, TSL or shear pins? How do they behave in shear? What length of support? How do you test the applicability?

This training course examines ground support and its application in open pit mines from design through to implementation and monitoring/reconciliation.

GEOTECHNICAL ENGINEERING FOR OPEN PIT MINES

This training course discusses geotechnical management plans and risk analysis; structural geology and geotechnical implications; pit slope stability; and managing ground water. Case studies will feature slope monitoring and instrumentation techniques.

INTRODUCTION TO GEOMECHANICS OF OPEN PITS

Below are the training modules from a 'Introduction to Geomechanics' typical onsite training course. These can be adapted to site requirements by adding or subtracting topics:

- **DESIGN CONSIDERATIONS**
Process of design and design constraints; Factor of Safety; probability of failure
- **BASIC GEOMECHANICS**
Data collection; core logging; face mapping; groundwater; laboratory testing; stress measurement
- **DATA PRESENTATION**
Stereonet; geology; major structures
- **DATA INTERPRETATION**
Building a geotechnical model of the project (structural data, material strength, rock mass classification); domains; weathering
- **SLOPE ANALYSIS**
High walls; low walls, waste dumps; spoil piles; mechanisms (kinematics, deformation control); groundwater modelling; dynamics (blasting/seismicity)
- **SLOPE DESIGN AND CONTROLS**
Excavation issues
Drill and blast; haul roads; excavators/shovels/bucket wheels; floor heave
- **SLOPE MONITORING**
Deformation; pore pressure; observations
- **RISK ASSESSMENTS**
- **PIT ABANDONMENT**
Considerations for meeting regulatory requirements



Photograph courtesy of Jason Nitz

INSTRUCTOR



Professor Phil Dight

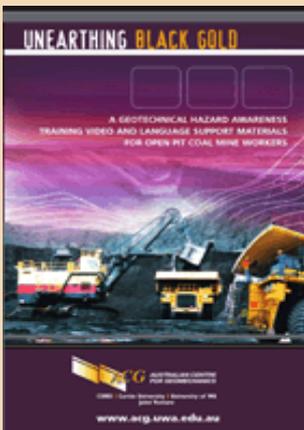
PhD, MSc Mining, BSc Mining

Professor Geotechnical Engineering
Australian Centre for Geomechanics

Phil has been involved with the development and design of ground support for mining applications since 1975. He was a partner in BFP Consultants until BFP was acquired by Coffey Mining. Phil has extensive consulting experience in the geotechnical aspects of the mining industry, and has worked on open pit and underground metalliferous mining problems. In 1985 he was awarded the Manuel Rocha Medal by the International Society of Rock Mechanics for his work in open pit mining and use of ground support to improve pit stability. His ground support algorithm has been adopted by Rocscience in its evaluation of ground support in phases. With Peter Fuller, he undertook research into ground support work in a number of AMIRA sponsored projects. Much of that early research work has now been formalised in the literature by others. Phil joined the ACG in 2008 and has since been working on stress memory effects in rocks, ground support applications and slope stability problems.

ACG TRAINING DVDS

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



Unearthing Black Gold

A geotechnical hazard awareness training DVD and language support materials for open pit coal mine workers



Down to Earth

A training DVD for open pit mine workers

Please send me detailed information or a quotation regarding:

- Ground Support in Open Pit Mining
- Geotechnical Engineering for Open Pit Mines
- Introduction to Geomechanics of Open Pits
- 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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