

# EXCELLENCE IN MINERAL RESOURCES ESTIMATION

## The Role and Responsibility of Competent Persons



AMC is pleased to present this five day intensive short course covering everything a geologist needs to understand when taking on the role and responsibility of signing off on a mineral resources estimate.

Whether you are working for a private or public company, mineral resources are the basic framework around which all else is built; including ore reserves, mine planning, processing, environmental management, capital and operating costs.

We will take you through the geological process flow from drill program planning to resources reporting, including the nature and role of audits. We will draw heavily on case studies from around the world using a wide range of commodities and mining methods.

This course is not a 'how to' manual for estimating mineral resources. It is designed to provide the knowledge to allow you to deliver resource estimates that are industry best-practice, irrespective of how they have been estimated.

The short course presenters are all experienced practitioners in their respective fields and we have enlisted a number of specialist guest presenters from AMC and across the industry to provide participants with unique insights into specific aspects of the resource estimation process.

**MARK BERRY**  
Course Leader

## COURSE SYNOPSIS

This workshop is primarily aimed at those geologists with responsibility for estimating mineral resources and includes staff with 'Competent Person' accountability with respect to the JORC Code\* and other international reporting codes.

The objective is to provide participants with a greater understanding of how all of the inputs to Mineral Resources influence the quality of the estimate. The course will describe industry 'best-practice' systems and processes that will contribute to the generation of the best possible resources estimate.

A major feature of this course is the time allocated to workshop discussion of issues raised and everyone will be strongly encouraged to contribute their thoughts and views.

Participants will receive a comprehensive course manual, which will combine theory with practical case studies and examples from around the world.

The course runs for five days from 9.00am to 5.00pm and includes two evening sessions where guest presentations will be given over dinner.

The program is summarised below:

### Day 1

- ✍ Introductions and overview
- ✍ Setting the scene - Geological risk case studies
- ✍ Resource estimation process flow and inputs
- ✍ Drilling design and methods
- ✍ Logging and sampling issues
- ✍ Database structures and controls

### Day 2

- ✍ Sample preparation and analysis
- ✍ QA/QC processes
- ✍ Geological interpretation
- ✍ Evening - Course dinner and guest speaker (ioGlobal)

### Day 3

- ✍ Laboratory inspection and presentation (ALS)
- ✍ Statistics and geostatistics

### Day 4

- ✍ Resource estimation and classification
- ✍ Reporting and JORC/international standards
- ✍ Evening - Course dinner and guest speaker (ASX)

### Day 5

- ✍ Conversion of resources to reserves - Geological inputs
- ✍ Engineering perspectives and expectations
- ✍ Cut-off grade theory - Strategy optimisation
- ✍ Course completion and wrap-up

Course numbers will be limited to 12 to facilitate maximum involvement of all participants.

*\*Joint Ore Reserves Committee - The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2004 Edition.*

AMC has a long history of providing training and educational courses to the mining industry. Examples of some of the technical courses presented by AMC include:

- ✍ Auditing of Mineral Resources
- ✍ Sampling Theory and Practice
- ✍ Geological Risk and Uncertainty
- ✍ Isatis Training
- ✍ JORC Reporting
- ✍ Economic and Financial Valuation

## THE PRESENTERS

### **PETER STOKER - Principal Consultant, AMC**

Peter's areas of expertise are audit and due diligence studies of Mineral Resources and Ore Reserves, providing advice to improve standards in mine geology and improve minerals investment return. Commodity experience includes base metals (copper, lead-zinc-silver, nickel), gold, copper-gold (porphyry and iron oxide), bauxite and sedimentary uranium.

### **MARK BERRY - Principal Consultant, AMC (Course Leader)**

Mark's primary technical expertise is in mining geology, resource/reserve assessment, mine feasibility/development as well as mining geoscience research and development. His broad experience within the mining industry includes operations, project and financial management, safety and education/training across a broad commodity focus.

### **MARK SWEENEY - Principal Consultant, AMC**

Mark's area of expertise includes geological modelling, resource estimation and advanced geostatistics. In addition to these core mining skills, Mark is proficient in technical audits, reviews and due diligence studies over a wide range of commodities.

### **BRIAN HALL - Principal Consultant, AMC**

Brian's major expertise is in all aspects of planning for underground metalliferous mining operations, including detailed mine designs, technical assessments, feasibility studies and strategic planning. He has experience in mine operations, mine planning and design, economic and financial evaluation and computer simulation of mining systems. His focus in recent years has been on the overall optimisation of mine plans in both underground and surface operations.

### **TIM McMANUS - Regional Manager, AMC**

Tim has over 15 years experience in operational and technical roles. His broad experience in the mining industry includes audit and due diligence studies of coal resources and reserves, stratigraphic modeling, resource estimation, strategic and economic analysis and project management. Commodity experience includes alluvial tin, gold, iron ore, dimensional stone and open cut and underground coal.

### **STEVE FINLAYSON - ALS Chemex**

Steve has more than 35 years experience in analytical chemistry, laboratory management, marketing and business development. Steve has also undertaken professional training and development courses with the Australian Institute of Management (QLD) and the Graduate School of Management (NSW). Working with ALS Laboratory Group, Steve plays an integral part in the professional development of analytical services to meet the dynamic needs of the Mining and Mineral Exploration Industry.

### **MICHAEL WHITBREAD - ioGlobal**

Michael graduated from the University of Queensland with a Bachelor of Science, Honours, in 1995. His undergraduate majors were geology and chemistry. He has completed a PhD in the use of litho-geochemistry in detecting and quantifying alteration around base metal deposits. Michael has been working as a geochemical consultant for ioGlobal for over 3 years on a wide variety of geochemical problems, from exploration to mining and metallurgical applications.

### **MELISSA GRUNDY - Australian Securities Exchange (ASX)**

Melissa joined ASX in 1994, and has worked within Issuers, a division of ASX Market Supervision, in Brisbane. She has considerable experience in the supervision of listed companies and their compliance with the ASX Listing Rules. Her role includes the provision of advice to existing and prospective listed entities and their advisers in relation to the application of the listing rules. She also has responsibilities for the coordination of listed company education programs nationally.



**PETER STOKER**



**MARK BERRY**



**MARK SWEENEY**



**BRIAN HALL**



**TIM McMANUS**



**STEVE FINLAYSON**



**MICHAEL WHITBREAD**

## COURSE FEE includes

### Includes

- ✍ Full course fees
- ✍ Comprehensive workshop manual
- ✍ All lunches, morning and afternoon tea
- ✍ Dinner on Day 2 and Day 4 evening

### Excludes

- ✍ Travel costs to Brisbane
- ✍ Accommodation (AMC can assist in arranging bookings)

Please complete and return your details to:

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## REGISTRATION - PERSONAL DETAILS

Title: Mr Mrs Ms Miss (please circle)

First name .....Surname .....

Preferred name .....

Position.....

Organisation .....

Address .....

City .....State..... Postcode .....

Email .....

Phone.....Mobile ..... Fax .....

### REGISTRATION FEE

Upon receipt of registration AMC will issue a tax invoice.

Payment can be made by cheque, money order or direct deposit. Further details will be provided upon receipt of completed registration form.

Notification of cancellation received in writing up to 15 working days before the course will incur a 20% cancellation fee. No refund will be made after this time however an alternative participant may be nominated.

### AMC LOCATIONS

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## ABOUT AMC

**AMC Consultants is a leading mining consultancy, providing services exclusively to the minerals sector. Wholly owned by our employees, AMC has offices in Adelaide, Brisbane, Melbourne, Perth, the United Kingdom and Vancouver.**

Our principal capabilities address two core elements, operations and evaluation.

Operations include mining engineering, exploration, geology, resource estimation, geomechanics and mine optimisation. Evaluation services incorporate feasibility studies, expert reports and valuations.

AMC's clients include mining and exploration companies, corporate advisors, financial institutions and insurance companies. We have worked with most of the world's largest mining companies and their financial supporters on projects in more than 90 countries.

Since establishment in 1983, we have completed more than 4,200 assignments, providing us with a unique resource of global data. In addition our benchmarking services, established in 1993, provide AMC with an unrivalled database of mining costs, productivity indicators and performance measures.

Our team of more than 150 has grown steadily in number, capability and expertise since establishment. Our qualifications and experience span mining, geology, finance and management. From within the mining and finance sectors, AMC boasts 400 years collective consultancy experience and over 1,000 years operational experience.

Our strength lies in the convergence of our people, our proprietary information resources and our independence. These complement the energy, intellect and experience we apply in providing our clients with innovative solutions.

**AMC the business of mining**