DRAGLINE MINING SYSTEMS

PROFESSIONAL DEVELOPMENT COURSE

PURPOSE

The aim of this course is to provide a comprehensive overview of planning and operational methods associated with dragline mining systems. The course will focus on cost efficiencies and the importance of dragline engineering decision-making based on costs. At the completion of this course participants will take away a set of practical solutions that can be utilised back in the workplace.

WHO SHOULD ATTEND?

This course is recommended for Managers, Engineers, Geologists, Scientists and Operators involved with, or having an interest in, dragline operations.

PRE-REQUISITE SKILLS

No pre-requisite skills or qualifications are required for this course although experience of working in a mining environment would be advantageous.

DURATION

2 Days

DATES & LOCATIONS

This course is delivered regularly at a variety of international venues and can also be delivered on the client site. For further information please refer to the Calendar section of this web site.

LEARNING OUTCOMES

At the completion of this course participants will be able to:

- ☐ Understand frequently used terminology
- ☐ Describe the key elements of efficient dragline systems
- ☐ Describe the practices involved in systematic mine planning
- ☐ Describe dragline operations involving single seam and multi seam applications
- ☐ Explain the importance of dragline engineering decision-making based on costs

DELIVERY METHOD

Interactive classroom-style delivery with focused workshops and case studies.

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COURSE CONTENT

DAY 1

Module 1: Dragline Mine Design

- ☐ Systematic mine planning process
- ☐ Mining limit assessment using economic ranking criteria
- Case Study

Module 2: Dragline Key Components

- ☐ Typical configuration
- ☐ Dig & dump cycle
- ☐ Understanding dragline working envelope
- ☐ Dragline buckets
- Workshop: Interpreting specification sheets
- Workshop: Dragline bucket selection

Module 3: Dragline Operating Methods

- ☐ Introduction to range diagrams
- ☐ Dragline pit layout
- ☐ Boxcuts
- ☐ Single Seam Applications
  - Direct cast operations
  - Extended bench operations
  - Inpit bench operations
- ☐ Multi Seam Applications
  - Stack operations
  - Offset operations
  - Other operating methods
    - Pull back & elevated pads
    - Tandem dragline methods

DAY 2

Module 4: Dragline Operating Methods Ctd.

- ☐ Use of dozers & throw blasting in dragline operations
- ☐ Handling geotechnical and hydrological issues
- Case Study Example
- ☐ Use of range diagrams as a dragline engineering planning tool

Module 5: Dragline Productivity

- ☐ Calculating re-handle
- ☐ Productivity calculations
- Workshop: Calculation of dragline productivity
- ☐ Sensitivity to changing operating & design parameters
  - Pit width, seam dip, swell, ramp placement etc.
- ☐ Dragline motion control & new technology
- ☐ Sensitivity to operators & design procedure
- Workshop: Effect of seam dip & swell on dragline operations

Module 6: Dragline Scheduling

- ☐ Meeting production targets
- ☐ Blending constraints
- ☐ Dragline sequencing

Module 7: Economics & Decision-making

- ☐ Evaluation techniques
- ☐ Marginal cost analyses
- ☐ Time value of money
- ☐ Discounted average cost
- Workshop: The economics of throw blasting & dozer assist
- Workshop: Dragline method selection using marginal cost analysis
- Workshop: Dragline selection using discounted average cost analysis
- Workshop: Economic comparison of stack Vs offset multi seam operations