





Hazard Management Plans

Moura Mine's Highwall Mining Approach



Mining Highwalls at Moura

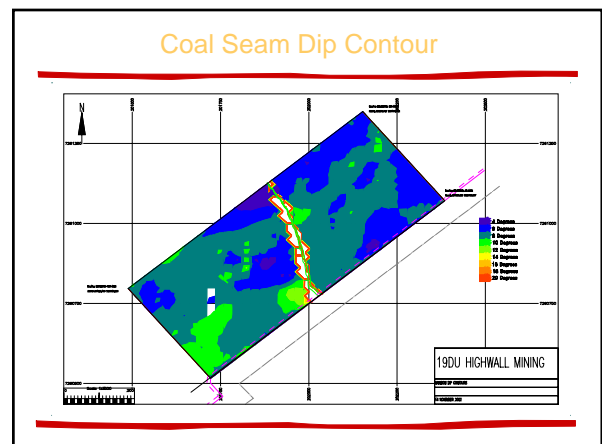
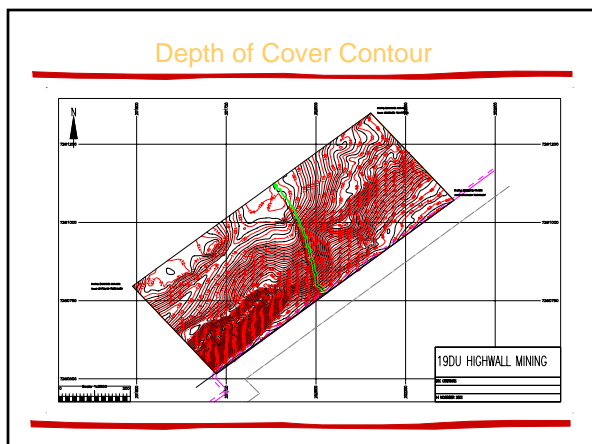
- Moura Mine is an open cut mine located two hours West of Gladstone
- Open cut mine includes a wash plant, seamgas and high wall mining operations, producing 6.5mt
- In practice the process involves mining into coal seams exposed in a highwall through previous open cut mining
- The process of mining highwall coal seams commenced 1995
- Two different types of highwall mining systems
- The advantages of this type of mining:
 - Provides access to additional low cost reserves
 - Extends the recovery of coal beyond current economically available open cut reserves

Managing Risk and Hazards

- Every pit is unique
- Work environment risks
- Methane gas, spontaneous combustion
- Some common hazards, many specific to the pit
- Difficult to prescribe procedures to a wide range of conditions
- Safety information was available in various documents
- Request from operators for more information on hazards
- Original document outlined hazards and controls
- The document needed to be accessible and usable for both management and operators
- Progressively pulled together technical and practical data on what we are facing and appropriate corrective actions

Highwall Mining Pit Plan

- Specific to the pit being mined
- The plan is produced for every new highwall mining pit
- Information for managing risk and operational efficiency
- Used daily by all personnel
- Developed through consultation involving technical services and all levels of highwall mining personnel
- Includes identification of all hazards, hazard controls, geotechnical data and information useful in daily operations
- Information needs to be in a usable form



Highwall Mining Pit Plan

- The plan has been shaped by operators
- The plan is communicated to all mining personnel and copies distributed
- Practical, constantly monitored and updated
- Increases ownership and accountability for safety
- Significantly increases the control of risk
- Contributed to a record LTI free 1577 days
- Improved mining productivity

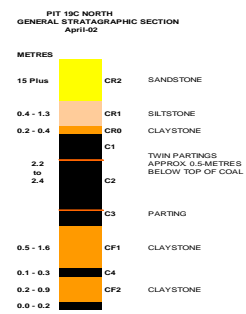
Elements of the Highwall Mining Pit Plan

- Plan Content
- Development Process
- Communication
- Application
- Benefits

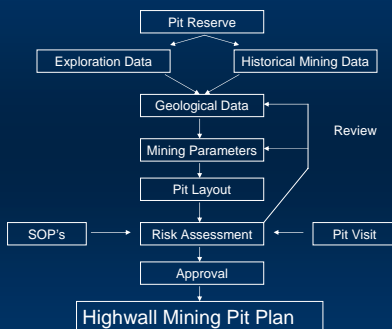
Plan Contents

- Technical and practical information
Hazards and controls including:
- Gas & dust
 - Flooding
 - Traffic management
 - Pit layout and design (highwall/lowwall stability)
 - Risk assessments
 - Gas management plan – situations and actions
 - Standard operating procedures
 - Standard task instructions
 - Cut parameters
 - Mining panel
 - Barrier pillar dimensions
 - Sequences of mining

Core Sample



Development Process of the Plan



Communication of the Plan

Communicate to all personnel and contractors
Communicated in three ways:

1. Classroom
2. In-pit familiarisation
3. Document distribution
 - Operators' cabs
 - Supervisors
 - OCE's

Application of the Plan

- Reminder of and continual review of hazards and effective controls
 - All technical information
 - Contains all applicable SOP's and STI's
 - Saves us trying to memorise lots of information
 - Amendments are communicated
 - Gas hazards – situation and action list used to control hazards
 - Educates crews on hazards and appropriate actions
 - Reinforces safety actions
 - We wouldn't do without it
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Benefits

Operationally:

- Our people are far more aware of operational conditions, barriers and therefore able to overcome operational hazards and problems
- Importantly, problem solving can be done at the operator level with supervisor consultation using the information in the plan
- Producing more tonnes

Safety:

- It has increased our understanding of and control of daily hazards
 - Enabled operators to take control of hazard management and control and rectify situations as they occur
 - Learnt the value of easy to understand information in the hands of operators to enable them to have ownership and control of safety
 - Contributed to achieving an LTI-free record for highwall mining of 1577 days in 2002
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