Directional Drilling/Gas Drainage Logistics
- Baijigou Mine

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Valley Longwall Drilling
Introduction – Mine Audits

- Mine Safety - safe to operate in?
- Seam conditions – is the coal drillable?
- Drilling applications
- Services – air, water, power – fittings
- Access, transport, dimensions
- Surface facilities
- Accommodation
- Location, access to mine site
Baijigou Service Project

• CAMDA – AMSI hold contract to gas drain Baijigou longwall blocks
• GeoGAS consulted for gas content and drainage characteristics
• Drilling Project in 2 components
• VLD to complete the underground component
• Mitchell Drilling to complete the SIS component
Location - Ningxia
Drive to Baijigou Mine
Baijigou – Mountain Drive
Baijigou – Local Environment
Baijigou Township
Baijigou Township
Contract Signing Ceremony

Signing Ceremony for the Gas Drainage Project in Baijigou Mine of the Shenhua Ningxia Coal Mining Group
Initial Borehole Layout - Baijigou Mine
Initial Audit Results

- Cross-measure drilling from under the seam
- Stone strength apparently $f_2$ (20 MPa)
  - Revised to $f_7$-$f_{12}$ (70-120 MPa)
- Angled drilling would require rig with vertical adjustment – Modular
- Mono-rail requirement for each site
- Design straight stone sections to allow for rotary roller-cone drilling if required
Baijigou Rotary Gas Drainage

Baijigou Rotary Cross-Section

Vertical Displacement (m)

Seam

1640 Roadway

40 deg

55 deg

66 deg

67 deg

40 deg
Modular Rig – Feed Frame
Modular Rig – Power Pack
Modular Rig – Operators Console
Site Preparations

Initial stub to be 6 metres wide x 11.5 metres deep - review after first site.

Manifold/Dewater

Site Preparations

Vent tube

Fan

Mongrail - placed centrally

Bolts in roof across face to hang hoses from standpipes

Bolts along rib to pull equipment into position

Gas pipeline
Gas Manifold – Drill Site
Water Trap – Drill Site
Drilling Design

- Rotary roller-cone 150mm x 3m - standpipe
- Rotary roller-cone 98mm to coal
- Directional drill up into seam roof
- Branch from coal intersect and follow 8m line below roof
- 1.5 deg/6m lateral curve and 1.0 deg/6m vertical curve (combined 1.8 deg/6m)
- Regular sharp roof intersections for profile definition – unstable upper seam coal
Drill Site – Rig Alignment

Rig aligned parallel to 280.0deg line in position to suit site layout

Vertical angle as close to 20deg as manageable
Lateral Design

Target Azimuth 305.0 deg

Roadway - borehole has to be outside 100m Left

Entry Heading 280.0 deg
Borehole B1 Profile
Borehole Layout - Baijigou Mine

Target Azimuth 305.0 deg

Roadway - borehole has to be outside 100m Left

Entry Heading 284.2deg (280.0 deg)
Borehole Layout - Baijigou Mine

Target Azimuth 305.0 deg
Entry Heading 287.0 deg

Baijigou B2, B3 - Down Track (m)
Lateral Deviation (m)