901TG  COAL BURST

25 NOVEMBER 2015

BRAD ELVY
SHAPE / SIZE OF THE VOID – B HDG

- Minor joint
- Normal fault (0.13m displacement)
- Minor joint
- Cutter marks in roof
- Approx. last line of support at time of incident
- Leaners Parallel to rib both sides
- Cutter location
- Dyke 9_2

(not to scale)
LHS OF MINER

SLIDE 5
901TG A HDG - EVENT 1

CM & S/C

Front LHS side of roadway
SHAPE / SIZE OF THE VOID – A HDG

- Cavity ~0.6m
- Joints from face and across roof - no sense of movement
- Centre of slump
- Cinder boundary
- ~1m
- ~8.5m
- Dyke 2
- Variable width ~0.4m
Occurred during shotfiring of the dyke
• B Hdg had a significant change in roof conditions
• Rib conditions changed – hard upright ribs
• Mining in structured area (Faults and Dykes)
• Depth of cover over 400m
• Bumping

• Previous low level events in A Hdg
CONTRIBUTING FACTORS

Most likely

• Stress conditions in panel
• Depth of cover
• Small pillar between A and B Hdg
• Confinement of roadway front abutments with dyke structure
• Ability of cinder to build up strain / hold load until ultimate failure

Possible

• Proximity to Nepean River and gorge (Stress magnitude + changing DOC)
• Inseam gas pressure
LARGE CINDER PIECE ON CM THROAT
LARGE CINDER PIECE ON CM THROAT

Estimated weight between 1 & 1.25 tonnes

8:47 13/DEC/2014
INITIAL GAS DRAINAGE

2 STIS holes flanking A and B Hdgs

Location of Event (12/12/14)

2 inseam holes drilled from 19L for compliance cores and remove gas load from STIS hole on virgin side of A Hdg.
Zoomed in view of A and B Hdg compliance drilling
Gas Core locations

Zoomed in view of A and B Hdg
GAS CONTENTS – AS MEASURED

Gas content correction due to cinder ranged from 13% to 73% ash.

Ash corrected Gas Contents (as measured and red ash adjusted gas content)

Post event cores
REVIEW OF RETURN GAS DATA ON PREVIOUS SHIFTS

N/S 12-12-14

D/S 12-12-14
NB the Production timeline and burst event line have been moved forward 38min to counter for gas travel time to monitor – actual time of event was 10:45pm
GAS VOLUMES

Related time of the event
(Gas reaching sensor head)

Return Ch4 Level
Volume of gas (above background)
The graph shows the XAM Ch4 % data over time from 3:00 pm to 12:31 pm. A spike in the data is observed approximately 30 minutes before the actual event time of 10:45 pm. The instrument went flat after the event. The actual event time is marked on the graph as 10:45 pm.
Started production at 10:10am cut 4m with 45min of delays until event at 1:25pm
After incident at 6:30p flitted out to C Hdg
PHOTOS OF ROCK AND GAS BURSTS

Rock Burst

Large big “Chunks” of coal

Gas Outburst

Fine pulverised pieces of coal
PHOTOS OF ROCK AND GAS BURSTS

Rock Burst

Gas Outburst

Large big “Chunks” of coal

Fine pieces of coal
PHOTOS OF COAL BURSTS AND OUTBURSTS

Coal Burst

Large big Chunks of coal

Gas Outburst

Fine pulverised at face

Fine pulverised coal long way back past S/Car