CULLEN VALLEY MINE

Sub-Surface Heating Area

Presentation to
Planning Assessment Commission - Specialist

Friday 2 November 2012
Agenda

- Introduction
- Background & History
- Monitoring results
- Key findings
- Works completed to-date
- Way forward
Background & History

Tyldesley Colliery - Officially abandoned 29th July 1960
Background & History

File Notes: Department of Mineral Resources

File T82/8000 Rehabilitation of Derelict Mined Lands Tyldesley Colliery, Cullen Bullen.
1981/1982 Proposals for rehabilitation, including filling of underground entrances, levelling & backfilling of open cut area, revegetation.
1984 Smoke noticed coming from reject dump.

Photos taken in 1991 including the remains of the fan house and remains of a mud hut.
(The fan entrance had been found to provide access to the mine and was demolished to allow the mine to be sealed.)

1992 Rehabilitation work undertaken by Soil Conservation Service of NSW.
1995 Further fire problems in 1995 dealt with by Western Mines Rescue Station.
Arrangements made to break up and bury the fan housing and concrete shaft.
1996 The site apparently a popular location for dumping cars.
Some remnant sheds and skipway retaining walls visible.
Photographs show a substantial brick and concrete structure identified as “remaining mine building” (possibly associated with Beaumaris open cut” – note by Ray Christison)
2000 Lithgow Coal Co. started Cullen Valley Mine.

2004 Cullen Valley Mine found an active underground fire in Lithgow Seam on W side of Tyldesley Hill.

2007 it was noted fire was confined to fallen tops in roadways. Carbonaceous material placed low over burden & clay sealed.

February 2008 Coalpaca purchased the Lithgow Coal Company
Mining Scheme

- Seams
  - Katoomba
  - Middle River
  - Moolarben
  - Upper Irondale
  - Irondale
  - Lidsdale
  - Lithgow

March 2009
Vegetation Survey – Oct 07
Cullen Valley Mine Rainfall
Monitoring

- Range of monitoring activities:
  - Water level in workings
  - Thermal imagery (ground & aerial)
  - Temperature probes
  - Rehabilitation condition
  - Vent gases
  - Meteorological conditions
Monitoring

Venting Adjacent To The Backfilled Highwall Crest 2010
Monitoring

Heating activity in noise bund
Monitoring

Heating Affected Material Exposed In The Noise Bund Prior To Wetting

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<th>Measurements</th>
<th>°C</th>
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<tr>
<td>Sp1</td>
<td>150.2</td>
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<td>Emissivity</td>
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<td>Ref. apparent temp.</td>
<td>20 °C</td>
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Thermal Image of Heating Affected Material Being Excavated From Noise Bund After Wetting (note reduction in smoke and steam compared to above)
CULLEN VALLEY MINE
Heating Area Temperature Trends (Locations 1 - 3)
CULLEN VALLEY MINE
Heating Area Temperature Trends (Locations 4 - 6)
**Results & Key Findings**

**RESULTS**
- 5 Dec 2012 monitoring commenced
- 70 recorded results for each thermocouple since inception of monitoring
- 1550 °C maximum recorded temperature (#5, 22m)
- 12 °C minimum recorded temperature (#6, 15m)

**KEY FINDINGS**
- Temperatures are generally greater with increasing depth
- When disturbed temperatures rapidly rose by > 1000 degrees, believed to be due to the ingress of air;
- Capping has maintained constant lower temperatures (holes 1, 2 & 3)
Works completed to date

- Mar 2011 - Development of the *Cullen Valley Mine Heating Response Plan 2011*
  - Photographic and thermal image monitoring (ongoing)
  - Clay capping and sealing areas of venting along high-wall (ongoing)
- 1st Quarter 2011 - Capping highwall section of main heating area;
- Dec 2011 - Installation of 12 thermocouples at six locations in main heating area
- Jan 2012 - Engaged specialist consultants with experience in treating heat effected areas, site visit & preliminary advice
- Feb 2012 – Commence removal of heating material from Noise Bund
- Jun 2012 - Noise Bund Plan of Works completed
- Sep 2012 – Submission of Draft Plan of Management for Heating Area submitted to DRE
Way Forward

- Stage 1 Noise Bund to be completed by June 2012
- Stage 2 Raise Haul Road and clay cap main heating area face
- Stage 3 Infill central valley area and cap with clay
- Plan of Management Developed for Main Heating Area
  - Based on input & advice from OEC;
  - Provides for progressively improving conditions, especially in relation to air quality & vegetation impacts;
  - Enables monitoring to compile heating data;
  - Enables fact-based strategies to be investigated, avoiding implementation of adhoc actions that would have a low probability of ‘success’
Investigation process to include:
- Initial period of collecting information from all available sources
- Assess performance of current treatment strategy
- Brainstorm possible additional treatment options (if required)

Coalpac’s commitment is to ‘containment’ that will lead to long term extinguishment, until data suggests otherwise