# DONALDSON COAL

**PTY LTD**

ABN: 87 073 088 945

# Annual Environmental Management Report

for the

## Abel Underground Coal Mine
## 1 June 2008 to 31 May 2009

**Compiled by:**

R.W. CORKERY & CO. PTY. LIMITED

# DONALDSON COAL

**PTY LTD**

ABN: 87 073 088 945

# Annual Environmental Management Report

## for the

## Abel Underground Coal Mine

## 1 June 2008 to 31 May 2009

| | | | |
|---|---|---|---|
| **Name of mine** | Abel Underground Coal Mine | | |
| **Mining Titles/Leases** | ML 1618 | | |
| **MOP Commencement Date** | 15/05/08 | **MOP Completion date** | 31/12/09 |
| **AEMR Commencement Date** | 01/06/08 | **AEMR Completion date** | 31/05/09 |
| **Name of leaseholder** | Donaldson Coal Company Pty Ltd | | |
| **Name of mine operator (if different)** | NA | | |
| **Reporting Officer** | | | |
| **Title** | | | |
| **Signature** | ..... | | |
| **Date** | | | |

* MOP not approved at time of report compilation


**Prepared for:**

Donaldson Coal Pty Ltd
ABN 87 073 088 945
1132 John Renshaw Drive
BLACKHILL NSW 2322

Telephone: (02) 4934 2798
Facsimile: (02) 4934 2736
Email: donaldson@doncoal.com.au

**Compiled by:**

R.W. Corkery & Co. Pty. Limited
Geological & Environmental Consultants
ABN: 31 002 033 712

**Brooklyn Office:**
1st Floor, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083

Telephone: (02) 9985 8511
Facsimile: (02) 9985 8208
Email: brooklyn@rwcorkery.com

**Orange Office:**
Suite 15, 256 Anson Street
ORANGE NSW 2800

Telephone: (02) 6362 5411
Facsimile: (02) 6361 3622
Email: orange@rwcorkery.com

**Brisbane Office:**
Level 3, 1 Eagle Street
BRISBANE QLD 4000

Telephone: (07) 3360 0217
Facsimile: (07) 3360 0222
Email: brisbane@rwcorkery.com



Ref No. 737/04

December 2009

**This Copyright is included for the protection of this document**

# FOREWORD

This Annual Environmental Management Report ("AEMR") for the Abel Underground Coal Mine has been compiled by R.W. Corkery & Co. Pty. Limited on behalf of Donaldson Coal Pty Ltd (the "Company"). The Abel Underground Coal Mine (the "Abel mine") is located approximately 23km northwest of Newcastle, New South Wales (see **Figure 1.1**).

This is the second AEMR submitted for the Abel mine and is applicable for the period 1 June 2008 to 31 May 2009 ("the reporting period"). The reporting period has been changed from (2 June 2008 to 1 June 2009) to (1 June 2008 to 31 May 2009) with the approval of Industry and Investment NSW Minerals and Energy Division (I&I NSW). Establishment of the reporting period to coincide with month commencement allows more convenient reporting and compliance assessment. This reporting period will continue in subsequent years. The information presented within this AEMR has been compiled based on information and advice provided by the Company, together with observations during a site inspection undertaken on 8 September 2009.

This AEMR has been in accordance with *Schedule 5 Condition 4* of Project Approval 05_0136 and generally follows the format and content requirements identified in the Guidelines to the Mining, Rehabilitation and Environmental Management Process (version 3) (2006) (I&I NSW).

This page has intentionally been left blank

# CONTENTS

**Page**

# CONTENTS

# CONTENTS

**Page**

**PLANS**



**APPENDICES**

This page has intentionally been left blank

# 1 INTRODUCTION

## 1.1 Consents, Lease and Licences

The Company has operated the approved activities at the Abel Underground Coal Mine (the "Abel mine") under the following consent, lease and licences (**Table 1.1**).

**Table 1.1**
**Abel Underground Coal Mine – Approvals, Leases and Licences**

| Approval/Lease/Licence | Issue Date | Expiry Date | Details / Comments |
|---|---|---|---|
| Project Approval 05_0136 | 7 June 2007 | 31 December 2028 | Granted by the Minister for Planning. |
| Mining Lease ML 1618* | 15 May 2008 | 15 May 2029 | Granted by the Department of Primary Industries - Mineral Resources. Incorporates 2755ha of surface area. |
| Environment Protection Licence No. 12856 | 9 July 2008 | Not applicable | Issued by the (then) Department of Environment and Climate Change (EPA) |
| Water Licence 20BL171935 | 5 August 2008 | 4 August 2013 | Bore licence to intercept groundwater |
| *See **Figure 1.1** | | | |

The Company also holds Exploration Licence 5497 which remains valid until July 2012.

No modifications or variations have been sought within the AEMR reporting period for any of the consents, leases, approvals or licences outlined within **Table 1.1**.

Conditions within the existing approval and mining lease which specify specific environmental criteria are as follows.

- Noise
  - *Schedule 4 Condition 23* of Project Approval 05_0136 - noise emissions (day, evening and night).
- Air Quality
  - *Schedule 4 Condition 25* of Project Approval 05_0136 - dust emissions (suspended particulates and deposited dust).

The approved management and monitoring plans and programs prepared for the Abel mine provide further detailed information relating to applicable environmental criteria.

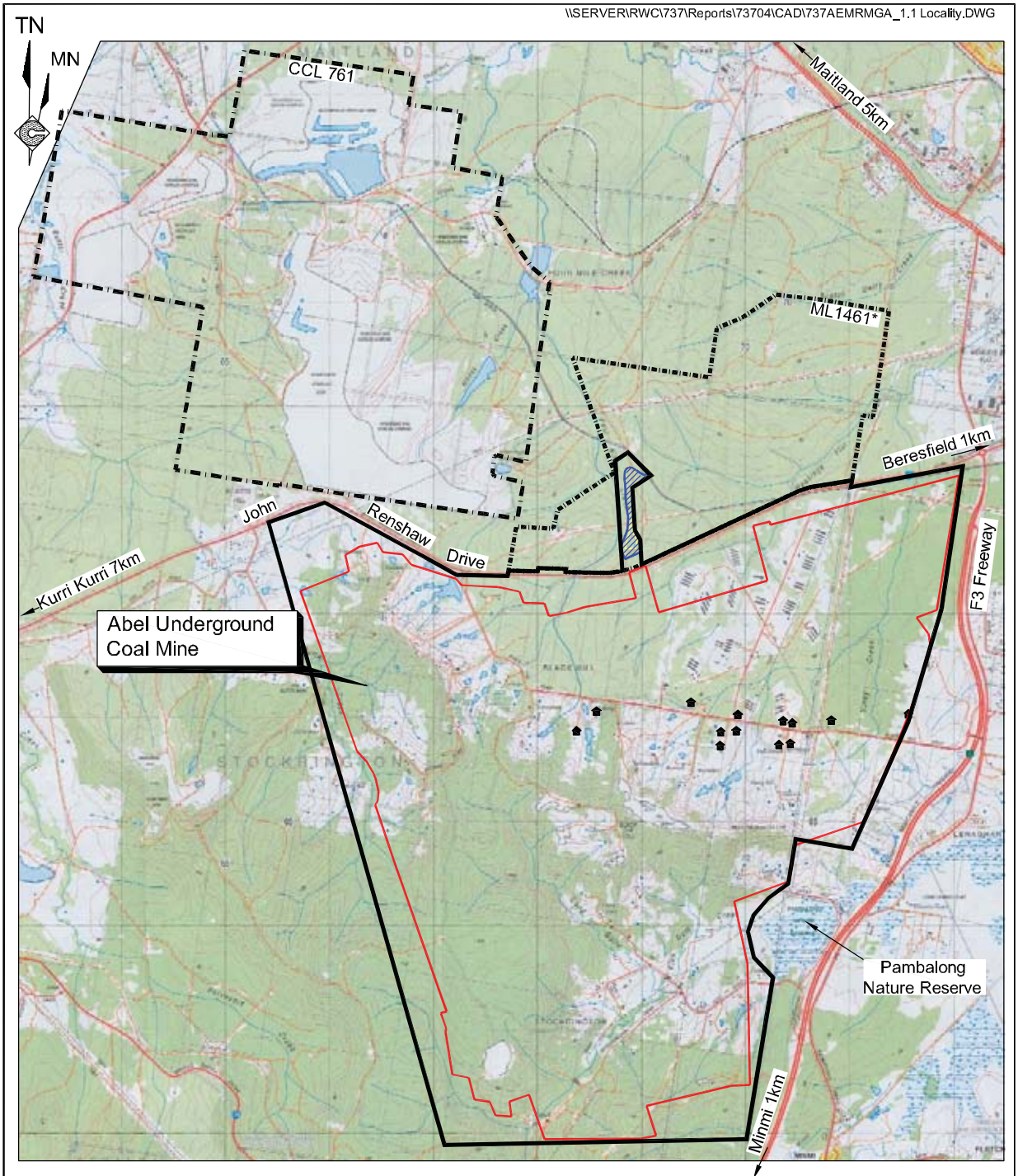



Figure 1.1
LOCALITY PLAN

### 1.2 Mine Contacts

The Manager of Mining Engineering, Mr Matthew Blackham is the primary mine contact (Tel: 0438 682 984). Mr Blackham is responsible for the environmental management of the Abel mine and ensuring compliance with all relevant legislative obligations. Mr Phillip Brown (Tel: 0439 909 952) is the nominated Environmental Manager and is also responsible for the environmental management of the Abel mine. The contact details for the Abel mine are as follows.

| | | | |
|---|---|---|---|
| Postal Address: | Donaldson Coal Pty Ltd | PH: | 02 4015 1100 |
| | PO Box 2275 | Fax: | 02 4015 1199 |
| | GREENHILLS NSW 2323 | Email: | donaldson@doncoal.com.au |

Physical Address: Donaldson Open Cut Coal Mine
1132 John Renshaw Drive
BLACKHILL NSW 2322

24 hour Environmental Hotline 1800 111 271

### 1.3 Action Required at Previous AEMR Review

The 2007/2008 AEMR for the Abel mine was submitted to the Department of Planning, then DPI-MR and other agencies in June 2008. No feedback was provided to the mine and no requests for follow-up, site meetings or inspections were received.

## 2 OPERATIONS DURING THE REPORTING PERIOD

### 2.1 Exploration

During the reporting period 23 geological holes were drilled to further define coal quality, resources and the proposed structure of the underground mine (see **Plan 2**). No piezometers were installed into these holes, with all drill holes sealed in accordance with the *Borehole Sealing Requirements on Land: Coal Exploration* guidelines (DPI Ref: EDG01) and standard industry practice.

Six-monthly exploration reports for EL 5497 have been forwarded to the Coal Advice and Resource Assessment section of I&I NSW.

### 2.2 Land Preparation

During the reporting period, no land preparation activities specific to the Abel mine MOP and ML 1618 were undertaken. The light vehicle access road around the western side of the portal and coal handling area was constructed on previously cleared land. Preparation for the construction of the substation and the installation of additional generators at the top of the box cut were undertaken as part of the Donaldson Open Cut Coal Mine (the "Donaldson mine") and were completed in accordance with the Donaldson MOP. Reporting of this activity will be included in the 2008/2009 AEMR for the Donaldson mine.

No land preparation activities were undertaken on land located above the underground mine workings, nor are any expected to be required during the mine life.

## 2.3 Construction

During the reporting period the primary construction activities, as shown in **Plan 1**, included installation of the following facilities.

- Administration buildings.
- Bath house facilities.
- Muster area and mining operations office.
- Storage and service sheds.
- Fuel and oil storage areas and tank.
- A potable water tank.
- Additional generators at the top of the box cut.
- Extension of the coal conveyor from the eastern portal to the ROM coal stockpile.
- A water pipeline between Stanley Pinch Reservoir Trunkline and the mine facilities.

The light vehicle access road at the western side of the portal and coal handling area was also extended.

## 2.4 Mining

**Plan 2** presents the mining related activities undertaken during the reporting period. Mining activities concentrated on the commencement of first workings within the southern mains with a total of 212 954t (152 110m$^3$) of run-of-mine coal (ROM) recovered during the reporting period. This produced 81 409t (58 149m$^3$) Product Coal which was processed at Bloomfield Coal Handling and Preparation Plant (CHPP).

**Table 2.1** provides a production summary for this reporting period and estimated production at the end of the next reporting period.

**Table 2.1**
**Production and Waste Summary – 1 June 2008 to 31 May 2009**

| | Cumulative Production (m$^3$) | | |
|---|---|---|---|
| | **Start of Reporting Period** | **End of Reporting Period** | **End of Next Reporting Period (Estimated)** |
| Topsoils Stripped | 0 | 0 | 0 |
| Topsoil used/spread | 0 | 0 | 0 |
| Waste Rock | 0 | 1500 | 3900 |
| ROM Coal | 0 | 152 110 | 648 566 |
| Processing Waste | 0 | 0 | 0 |
| Product Coal[1] | 0 | 152 110 | 648 566 |

Note 1: As no coal processing is undertaken on-site, ROM coal equates to 'product coal' and therefore no processing waste is produced.
Source: Donaldson Coal Pty Ltd

**Plate 1**

**View North across the Portal and Coal Handling Area (Date of Photography 8 September 2009) (Ref DSC_0135)**


**Plate 2**

**Oil Store in Newly Constructed Workshop (Date of Photography 8 September 2009) (Ref DSC_0107)**

**Plate 3**

**Newly Constructed Dirty Water Dam (Date of Photography 8 September 2009) (Ref DSC_0147)**

No blasting relating to operations undertaken as part of the Abel mine occurred during the reporting period.

Mining equipment used at the mine throughout the reporting period along with its primary function is presented in **Table 2.2**.

**Table 2.2**
**Mining Equipment Used within the Reporting Period**

| Item | No. | Primary Function |
|---|---|---|
| Continuous Miner (Joy 12CM12 and 12CM30) | 4 | Forming underground roadways |
| Shuttle Cars | 5 | Transporting cut material away from Continuous Miner |
| Driftrunners | 5 | Transporting people underground |
| Front-end Loader / bucket machines | 3 | Transporting materials and equipment, clean up roadways |
| Ventilation Fans | 3 | Extracting used air from the mine |
| Source: Donaldson Coal Pty Ltd | | |

## 2.5 Mineral Processing

No processing activities were undertaken within MLI 618 other than the use of a feeder breaker to reduce spillage from the conveyor transporting coal to the surface. Processing activities are, however, applicable to the Project Approval 05-0136 issued for the Abel underground mine which provides for haulage to and processing at Bloomfield CHPP. During the reporting period, approximately 213 000t coal from Abel underground mine was processed at Bloomfield CHPP. This resulted in the production of approximately 81 400t Product Coal from Abel mine during the reporting period. Details of this process and associated waste management are provided within the respective reporting for the Bloomfield CHPP.

## 2.6 Waste Management

Wastes generated on site during the reporting period included the following.

- Waste rock / unprocessable weathered coaly material.
- Greases, oils, filters, tyres and batteries from maintenance of vehicles and equipment.
- Bulk scrap metal and plastics from discarded equipment.
- General office wastes, eg. paper.
- General waste generated by employees, eg. food scraps, paper, cardboard, aluminium and steel cans.
- Wastewater and sewage from bathhouses.

Fine and coarse rejects were also generated at the Bloomfield CHPP.

As shown in **Table 2.1**, approximately 1500m$^3$ of waste rock and unprocessable coaly material was removed within the reporting period during formation of underground roadways. All waste rock and unprocessable coaly material was removed using dump trucks and placed within the Donaldson mine waste rock emplacement and backfill areas in accordance with the approved final landform for the Donaldson mine (Development Consent 114-116).

All waste oil was stored within 205L drums within the oil store before being removed from site, along with used oil filters and oily rags, by Australian Waste Oils. Used tyres are removed from site during servicing by Marathon for repair or disposal.

Paper, cardboard, steel, aluminium and any other recyclable material was stored separately in 1.5m$^3$ and 3.0m$^3$ skip bins for recycling. Paper, cardboard and general waste material continued to be collected by Veolia on a weekly basis whilst scrap metal was collected by Smorgan Recycling on an as-needs basis. The scrap steel /drum crusher continued to be in use.

All general waste and scrap materials were stored in skip bins and removed by Veolia. All wastewater (greywater) and sewage generated on the site from bathhouses was also removed from the site by Veolia, on an as-needs basis. Approximately 3.2ML of grey water and sewage effluent was removed from site during the reporting period.

An environmental incident involving the unauthorised disposal of concrete from the Abel Mine in the Big Kahuna Dam footprint occurred on 23 May 2009. This was not a reportable incident. The area was appropriately cleaned up and the concrete disposed of by the Donaldson open cut mine.

## 2.7 Coal Stockpiles

All ROM coal was stockpiled within the mine's portal and coal handling area. The ROM stockpile, which is situated under the conveyor outfeed, has a capacity of 3000t. Generally between 1500t and 2800t of ROM coal was stockpiled at any one time with an average of approximately 2500t. During the reporting period, material was removed from site and transported to the Bloomfield CHPP.

## 2.8 Water Management

The water management procedures are presented in the approved Water Management Plan prepared for the Abel mine and are not presented here in detail. Essentially, all surface water was managed through the use of the existing water management structures for the Donaldson mine with clean water flows directed away from the surface facilities area. Water runoff from within the box cut area incorporating the surface facilities together with excess underground water was directed to an approximately 1.5ML water storage sump located in the southeast corner of the box cut. As required, water from the sump was pumped to the Big Kahuna dam (400ML storage capacity, located within ML 1461 for the Donaldson mine). Approximately 1.5ML water was transferred to the Big Kahuna weekly, totally approximately 78ML for the reporting period. Approximately 16.86ML potable water was imported to the site by truck and used on the site. Mains water was connected in May 2009.

**Table 2.3** provides a summary of the volumes of water stored at the start of the reporting period, at the end of the reporting period and the total storage capacity.

**Table 2.3**
**Stored Water**

| | Volumes Held ($m^3$)# | | |
|---|---|---|---|
| | **Start of Reporting Period** | **At end of Reporting Period** | **Storage Capacity** |
| Clean Water | 300 | 400 | 450 |
| Dirty Water | 1500 | 1500 | 1500 |
| Controlled Discharge Water | 0 | 0 | 0 |
| Contaminated Water | 0 | 0 | 0 |

Source: Donaldson Coal Pty Ltd # Within Abel Surface Infrastructure Area.

## 2.9 Hazardous Material Management

At the time of reporting, fuel storages for the site include a 2000L self bunded tank for the refuelling of mobile equipment, a 55 000L self bunded tank in the generator/storage area near the personnel adit and a 55 000L self bunded tank near the newly constructed dedicated hydrocarbon store near the workshop. All three tanks were filled as required using mini tankers. Smaller volumes of oils and grease were stored within 20L and 205L drums stored on bunded pallets as required.

All handling, storage and transport of dangerous goods were undertaken in accordance with relevant Australian Standards including *AS1940*, *AS1596* and the *Dangerous Goods Code*. An on-line Material Safety Data Sheet (MSDS) database is available through subscription to ChemAlert. This provides immediate and current MSDS information in the Administration Office. When MSDSs are required underground hard copies are printed. Any new chemical substance is approved by the Mine Manager before introduction to the site.

Additionally, as part of the Environmental Management System for the Abel mine, a series of Emergency Response and Preparedness Plans have been prepared by the Company to address any significant environmental emergency, including those involving hazardous materials. Spill kits are located at appropriate points and are serviced by the supplier on a monthly basis.

The mine has established a 20L spill criterion for classification of a hydrocarbon incident. No significant hazardous materials-related environmental incidents were reported during the reporting period.

## 2.10 Other Infrastructure Management

No additional management measures were required for other infrastructure during the reporting period.

# 3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

## 3.1 Meteorological Monitoring

An automated weather station, previously installed for the Donaldson mine, has been approved by the Department of Planning as also meeting the requirements for the Abel mines. The weather station records wind speed and direction, temperature, rainfall and solar radiation. A summary of the rainfall data for the past 5 years is presented in **Table 3.1** and monthly and annual wind roses are presented in the Monthly Dust and Meteorological Reports provided in **Appendix 2**.

**Table 3.1**
**Monthly Rainfall Records – 2008/2009**

| Period | Average Monthly Rainfall (mm) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Total |
| 2004 | 86.0 | 176.6 | 80.0 | 33.6 | 17.4 | 9.4 | 15.4 | 43.1 | 61.2 | 136.0 | 77.4 | 69.8 | 805.9 |
| 2005 | 64.4 | 95.8 | 127.8 | 57.4 | 61.8 | 56.8 | 7.2 | 0.8 | 37.0 | 84.0 | 22.8 | 9.6 | 625.4 |
| 2006 | 29.8 | 47.4 | 63.6 | 4.6 | 7.8 | 43.8 | 42.6 | 49.2 | 162.4 | 25.4 | 34.4 | 34.5 | 545.5 |
| 2007 | 13.4 | 96.4 | 101.4 | 84.6 | 59.7 | 315.2 | 16.5 | 79.6 | 28.3 | 35.0 | 163.8 | 49.5 | 1043.4 |
| 2008 | 153.4 | 154.3 | 46.0 | 237.6 | 2.2 | **105.4** | **17.4** | **13.4** | **27.2** | **8.4** | **73.3** | **62.6** | 900.3 |
| 2009 | **125.7** | **97.7** | **102.8** | **189.0** | **125.7** | | | | | | | | |
| Note: Results relevant to this reporting period are in bold. | | | | | | | | | | | | | |

Total rainfall during the reporting period was 948.6mm.

## 3.2 Air Pollution

### Environmental Management

Management of air quality during the reporting period was largely undertaken as part of the Donaldson mine activities which included watering of unsealed access roads (on an as needs basis) and use of exhaust controls on mobile equipment.

### Environmental Performance

Monthly deposited dust monitoring was undertaken by Metford Laboratories at a total of four locations surrounding the Abel mine (consisting of four existing locations for the Donaldson mine). TSP and $PM_{10}$ monitoring was also undertaken at the existing High Volume Air Sampling station for the Donaldson mine located approximately 1500m southeast of the surface infrastructure area at Blackhill. Analysis of deposited dust samples was undertaken by Metford Laboratories. Locations of deposited dust and suspended particulate (high volume air sampling) monitoring are shown on **Figure 3.1** and results summarised within **Table 3.2** and **Figure 3.2**. Monthly Dust and Meteorological Reports are provided in **Appendix 2**.

The highest dust deposition measurement (5.8g/$m^2$/month at D2) occurred in March 2009. The accompanying laboratory report showed the sample was contaminated with insects. The contaminated readings determined to be invalid have been removed when calculating the annual average. The annual average deposition rates for the gauges in the network were low and significantly below the amount goal of 4g/$m^2$/month, indicating good air quality with respect to dust deposition.

The suspended particulate monitoring results show that the highest 24-hour average $PM_{10}$ concentration was 43µg/m$^3$, measured on 21 August 2008. On no occasion did the measured $PM_{10}$ concentrations exceed the 50µg/m$^3$ 24-hour *National Environment Protection Measures* (NEPM) goal. The highest TSP was 95µg/m$^3$ recorded on 31 December 2008. It should be noted that the *National Health and Medical Research Council* (NHMRC) goal refers to an annual average and not a 24-hour average as measured by the high volume air sampler.

The annual average $PM_{10}$ concentration for Blackhill was 18µg/m$^3$ for the 12 months to May 2009. The annual average TSP concentration for the 12 months to May 2009 was 35µg/m$^3$. The monitoring results indicate that suspended particulate concentrations are well below the annual average criteria.

**Table 3.2**
**Deposited Dust Monitoring Results – 2008/2009**

| Month | Monthly Dust Deposition Rate (g/m$^2$/month) | | | |
|---|---|---|---|---|
| | D1 | D2 | D3 | D5 |
| Jun 08 | 0.2 | 0.4 | 0.1 | 0.1 |
| Jul 08 | 0.4 | 0.7 | 1.3 | 0.8 |
| Aug 08 | 1.0 | 0.5 | 0.7 | 0.5 |
| Sep 08 | 0.6 | 1.0 | 1.3 | 0.6 |
| Oct 08 | 1.0 | 0.5 | 1.0 | 1.3 |
| Nov 08 | 0.8 | 1.4 | 2.7 | 0.9 |
| Dec 08 | 0.4 | 0.4 | 0.6 | 0.3 |
| Jan 09 | 1.1 | 3.0 | 1.6 | 0.9 |
| Feb 09 | 0.4 | 4.4 | 1.5 | 0.9 |
| Mar 09 | 2.8 | 5.8 | 2.7 | 1.9 |
| Apr 09 | 2.0 | 0.8 | 1.8 | 0.6 |
| May 09 | 0.6 | 1.6 | 1.8 | 0.9 |
| Monthly Minimum | 0.2 | 0.4 | 0.1 | 0.1 |
| Monthly Maximum | 2.8 | 5.8 | 2.7 | 1.9 |
| **Annual Average** | **0.9** | **2.1** | **1.3** | **0.8** |

## Reportable Incidents

No reportable incidents relating to air pollution occurred within the reporting period.

## Further Improvements

No further improvements relating to air pollution are planned or considered necessary. Air quality management measures during future operations will be consistent with those outlined within the MOP prepared for the Abel mine and the Air Quality Management Plan.

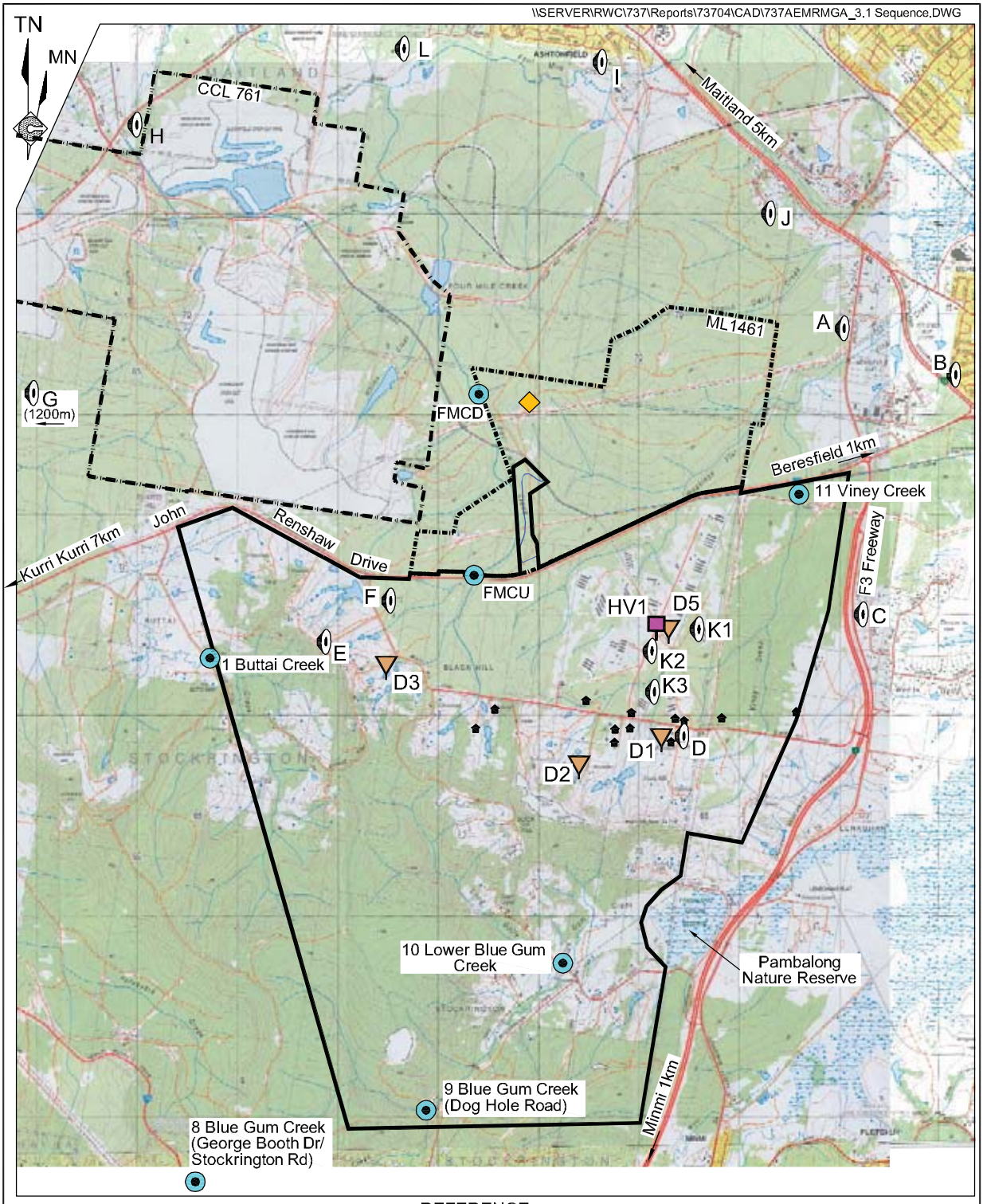



**Figure 3.1**
**ENVIRONMENTAL MONITORING LOCATIONS**

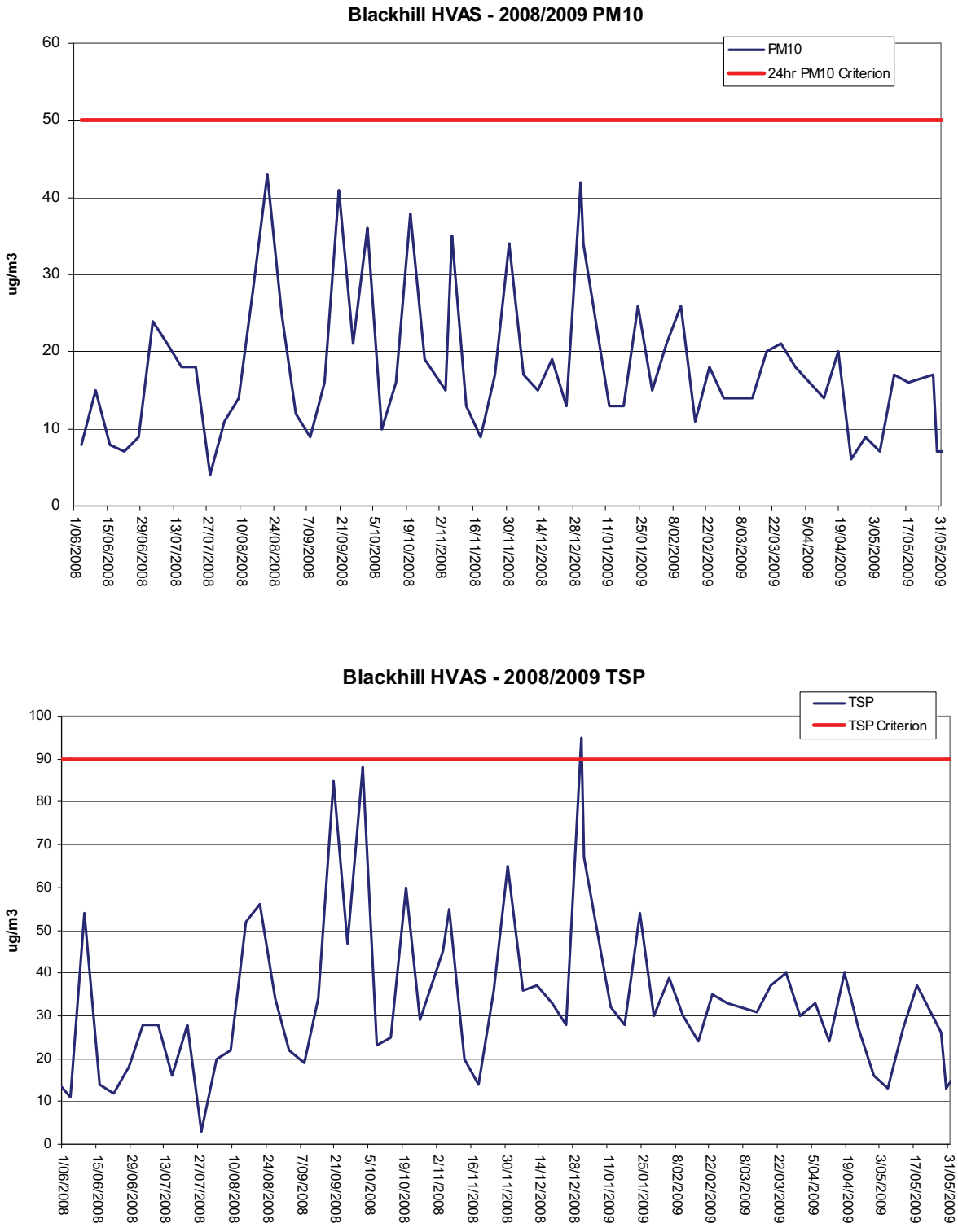



**Figure 3.2 Suspended Particulate Monitoring Results – 2008/2009**

## 3.3 Erosion and Sediment Control

### Environmental Management

Sediment and erosion management procedures implemented throughout the reporting period included the following.

i) Diversion of 'dirty' surface water flows within the box cut area to the water storage sump.

ii) Diversion of 'clean' water from areas surrounding the box cut to existing drainage lines.

iii) Installation of jute mesh within the drain on the northern side of the coal haul road near the administration buildings.

iv) Installation of a small dirty water catch dam on the western edge of the light vehicle access road to capture runoff from a small section of this road.

No further erosion and sediment controls were deemed necessary.

### Environmental Performance

No major erosion or sedimentation was observed during the reporting period. The erosion and sediment control measures implemented were largely considered successful without the need for further control measures. Silt fencing and sediment traps continued to be regularly inspected and maintained although minor improvements could be achieved in some locations.

### Reportable Incidents

No reportable incidents occurred during the reporting period.

### Further Improvements

No further erosion and sediment control measures are planned or considered necessary. Erosion and sediment control measures during future operations will be consistent with those outlined within the Water Management Plan and MOP prepared for the Abel mine. Regular inspections will continue to be undertaken to ensure that these measures remain effective, particularly at the spillway of the small dirty water catch dam.

## 3.4 Surface Water Pollution

### Environmental Management

As part of the approved Water Management Plan, Abel mine transfers water off-site to the Big Kahuna and then to Bloomfield CHPP as required. Surface water monitoring sites specified for the Abel mine are aimed at detecting indirect impacts such as from underground mining

activities and activities in the surface infrastructure area. Monitoring at Sites FMCU and FMCD commenced prior to the commencement of the Abel underground mine and serve to provide baseline data. Monitoring at Sites 1, 8, 9, 10 and 11 commenced in 2006 and also provide baseline data and can also be used to assess impacts attributable to the Abel mine.

## Environmental Performance

Surface water monitoring data for the reporting period is summarised in **Table 3.3** and presented graphically in **Figure 3.3**, with the full data set provided in **Appendix 7**. It is noted that monitoring at additional sites identified within the Integrated Environmental Monitoring Program incorporating the Abel mine, Donaldson Mine, Tasman Underground Coal Mine and Bloomfield Colliery were undertaken and will be reported within their respective AEMRs. It is also noted that monitoring has not been undertaken at Pambalong Nature Reserve because the mine experiences difficulty gaining permissible access to the monitoring site.

Analysis of the results obtained during the reporting period, indicate the following.

- The pH at all sites was slightly acidic to slightly alkaline. All results are within the water quality trigger values for Lowland Rivers in NSW (6.5 – 8.5) outlined in the *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000).
- The electrical conductivity results range between 150 - 320µS/cm at FMCD and 910 – 2060µS/cm at Site 11 (Viney Creek). All electrical conductivity (EC) results, with the exception of Site 11, are within the water quality trigger values for Lowland Rivers in NSW (125 – 2200uS/cm) outlined in the *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000). Although within guideline levels, the EC values at Site 11 are generally greater than those at the other monitoring sites. Table 3.3.3 of the Guidelines advises that higher EC levels may occur in lowland waterways during low flow periods. Flow rates observed at Site 11 during the twelve monitoring occasions were predominantly nil to low flow. Furthermore Viney Creek is subject to influence from John Renshaw Drive and the poultry farms southwest of the monitoring site. Only a single background EC level for Site 11 (355uS/cm) is provided in the *Environmental Assessment* (Donaldson 2006) prepared for the mine, however, it is considered at this time that the Abel mine is not having an influence on EC levels in Viney Creek, or at any other waterway being monitored.
- Total suspended solids (TSS) results, with the exception of FMCU, are within the water quality trigger values for Lowland Rivers in NSW (6 -50 NTU) outlined in the Guidelines for Fresh and Marine Water Quality (ANZECC 2000). It is noted that the Guidelines do not specify trigger values in mg/L but use NTU, a measure of turbidity, to indicate solids loads. Baseline monitoring data results presented in the *Environmental Assessment* show that a maximum TSS of 269mg/L had been recorded at FMCU in the period 2000 to 2005. Furthermore, it is noted that the monitoring site at FMCU is upstream of the Abel and Donaldson mines and adjacent to John Renshaw Drive and may experience influence of sedimentation attributable to land disturbance at the road.

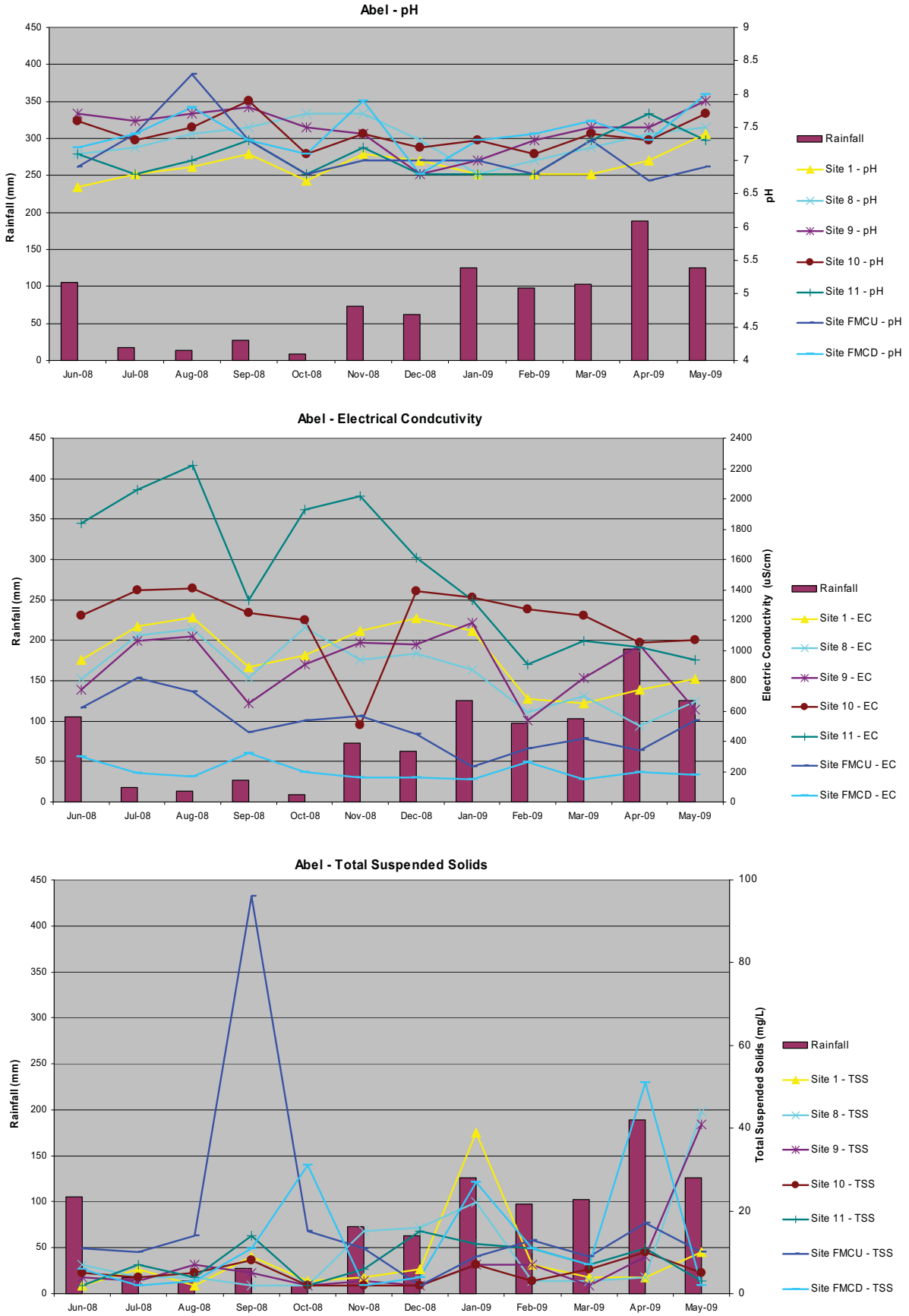



**Figure 3.3 Surface Water Quality Monitoring Results 2008/2009**

### Reportable Incidents

No reportable incidents occurred during the reporting period.

### Further Improvements

No further surface water control measures are planned or considered necessary. Surface water control measures during future operations will be consistent with those outlined within the Water Management Plan and MOP prepared for the Abel mine.

**Table 3.3**
**Summary of Water Quality Monitoring Results - 2008/2009**

| Sampling Site | pH | EC (µS/cm) | TSS (mg/L) |
|---|---|---|---|
| 1 | 6.6 - 7.4 | 650 – 1220 | 2 – 39 |
| 8 | 6.8 - 7.7 | 500 - 1150 | 2 – 44 |
| 9 | 6.8 – 7.8 | 540 – 1180 | 2 – 41 |
| 10 | 7.1 – 7.9 | 510 – 1410 | 2 – 10 |
| 11 | 6.8 – 7.7 | 910 – 2060 | 2 – 15 |
| FMCU | 6.7 – 8.3 | 230 – 820 | 10 – **96** |
| FMCD | 6.8 – 8.0 | 150 – 320 | 2 – **51** |
| ANZECC Trigger Level * | 6.5 – 8.5 | 125 - 2200 | 6 – 50 (NTU) |

* ANZECC Chapter 3 – Aquatic Ecosystems – Lowland Rivers in NSW.

## 3.5 Groundwater Pollution

### Environmental Management

Monthly monitoring of regional groundwater levels and groundwater quality was undertaken throughout the reporting period in accordance with the Site Water Management Plan and Integrated Environmental Monitoring Plan.

### Environmental Performance

A summary of groundwater level monitoring results relevant to the Abel Underground Coal Mine is provided in **Table 3.4**.

**Table 3.4**
**Groundwater Levels**

Page 1 of 2

| Piezometer | | Standing Water Level (m AHD) | |
|---|---|---|---|
| | | 2007/2008 | 2008/2009 |
| C063A | Average | -5.57 | -5.52 |
| | Range | 2.07 | 2.17 |
| C063B | Average | -19.07 | -15.26 |
| | Range | 3.48 | 72.05 |
| C072 | Average | 22.90 | 25.16 |
| | Range | 5.54 | 4.86 |
| C072B | Average | 12.48 | 12.39 |
| | Range | 0.29 | 0.37 |

**Table 3.4 (Cont'd)**
**Groundwater Levels**



| | | | |
|---|---|---|---|
| C078A | Average | 45.87 | 44.74 |
| | Range | 0.67 | 5.85 |
| C078B | Average | 8.70 | 7.83 |
| | Range | 0.21 | 8.35 |
| C080 | Average | 25.84 | 25.22 |
| | Range | 0.65 | 2.08 |
| C081A | Average | 17.42 | 11.52 |
| | Range | 1.19 | 9.49 |
| C081B | Average | 0.17 | 0.33 |
| | Range | 0.25 | 0.61 |
| C082 | Average | 9.38 | 9.08 |
| | Range | 0.78 | 1.15 |
| C087 | Average | 17.06 | 17.02 |
| | Range | 0.01 | 0.00 |

The results indicate that groundwater levels have generally remained constant, although the range over which the levels fluctuate was generally greater during 2008/2009.

Groundwater quality monitoring results are presented in **Appendix 7** and summarised in **Table 3.5**. They show that the pH ranges between slightly acidic (6.0) and slightly alkaline (7.3), EC ranges between 220µS/cm and 14 710µS/cm and TSS ranges between 2mg/L and 1150mg/L. The Environmental Assessment baseline monitoring reported that the quality of groundwater sampled within the underground mining area of the Abel Mine was variable with total dissolved solids (TDS) ranging from less than 518mg/L to 13 000mg/L, which is approximately equivalent to EC readings of between 865µS/cm and 21 700µS/cm. The Environmental Assessment predicted that salinity and pH would initially remain similar, but that over time salinity may increase to levels around 3000mg/L to 4000mg/L. This is approximately equivalent to an EC reading of between 5000µS/cm and 6700µS/cm.

## Reportable Incidents

No reportable incidents occurred during the reporting period.

## Further Improvements

Given that a maximum baseline measure of salinity was approximately 21 700µS/cm, it is considered that at this point in time the activities of Abel Underground Coal Mine are not having an effect on groundwater quality. Continued monitoring in subsequent reporting periods will detect any trends in groundwater quality parameters.

**Table 3.5**
**Summary of Groundwater Quality Monitoring Results – 2008/2009**

| Sampling Site | pH | EC (µS/cm) | TSS (mg/L) |
|---|---|---|---|
| 6 | 6.0 – 6.8 | 2860 - 4260 | 14 - 1160 |
| 7 | 6.3 – 7.1 | 2060 - 2590 | 98 - 1130 |
| 12 | 6.1 – 6.9 | 1630 – 13 180 | 106 - 1550 |
| 13 | 6.7 – 7.0 | 12 830 – 14 680 | 2 - 32 |
| JRD1 | 6.6 – 7.3 | 2660 - 3870 | 11 - 132 |
| JRD2 | 6.0 – 7.2 | 220 - 3080 | 15 - 180 |

Survey for the Abel Underground Coal Mine Dam Monitoring and Management Plan: 2008 Baseline Report (see **Appendix 3**) was undertaken and established baseline survey records. The study provides an initial assessment of the value of the dams for target threatened flora and fauna species, as well as baseline information on the occurrence of threatened and other species against which any changes over time can be measured and evaluated. Approximately 179 dams are vulnerable to subsidence impacts such as cracking or tilting, with significant water loss resulting, and impacts will be surveyed for as many of these dams as practicable.

Additionally the Pambalong Nature Reserve Baseline Study was undertaken during October 2008 to May 2009 and reported in May 2009, (see **Appendix 4)**. The reserve provides critical habitat for wader and water bird species and is part of a chain of protected wetlands (including Hexham Swamp, Shortland Wetlands and Kooragang Nature Reserve). The wetland depends on freshwater from Blue Gum Creek to maintain and replenish aquatic and terrestrial habitats in the reserve. Consequently any changes to the quantity and quality of water delivered from the Blue Gum Creek catchment arising from mining activities or subsidence could potentially compromise the ecological integrity of the wetland. The flora and fauna diversity and incidence of weeds and pests are a few of the parameters under investigation.

The Abel Underground Coalmine Sub-tropical Rainforest Monitoring Plan: 2008 Baseline Report (see **Appendix 5**) was also undertaken and established baseline survey records. The report provides a baseline assessment of the occurrence of flora, fauna and threatened species associated with the areas of sub-tropical rainforest against which any changes over time can be measured and evaluated.

### Reportable Incidents

No reportable incidents were recorded during the reporting period.

### Further Improvements

Ongoing monitoring will provide information to assist in formulating the subsidence management plans. No further improvements are currently planned or deemed necessary.

## 3.6 Weeds

### Environmental Management

Regular inspections of the areas surrounding the surface infrastructure area were undertaken as part of weed management associated with the Donaldson mine.

**Environmental Performance**

No noxious weeds were identified as part of regular inspections.

**Reportable Incidents**

No reportable incidents were recorded within the reporting period.

**Further Improvements**

No further improvements are deemed necessary. Ongoing regular weed inspections within the area of responsibility for the Abel mine will continue.

## 3.7 Blasting

No blasting was undertaken during the reporting period.

## 3.8 Operational Noise

**Environmental Management**

The principal management control during the reporting period relating to noise was the case of low modulated frequency reversing alarms on mobile equipment.

**Environmental Performance**

Quarterly noise monitoring applicable to the Abel mine commenced in December 2008 as an extension of the monitoring survey previously undertaken for the Donaldson Open Cut Coal Mine. Quarterly attended and unattended noise monitoring was conducted on two occasions during the reporting period: during December 2008 and March 2009. Monitoring results are presented in **Table 3.6** and copies of the monitoring reports are presented within **Appendix 6**.

The findings of the monitoring surveys show that most noise emissions are attributable to non-mine related traffic and natural sources. Abel mine operations were observed to be audible at Location F Black Hill Rd during the night-time. The operator-attended surveys determined that the Abel mine contribution at Location F was 38 (LAeq) dBA during the night-time. The source of this noise was determined to be the ventilation fans. It is part of the INP to allow for a 2 dBA tolerance of noise emission goals to account for measurements taken within the field and as such, contributed noise levels from Abel mine did not exceed noise emission goals (including night-time sleep arousal criteria) and were in compliance with the Project Approval for the Abel mine.

### Reportable Incidents

No reportable incidents were recorded within the reporting period.

### Further Improvements

Other than ongoing plant maintenance and noise monitoring (both attended and unattended), no other improvements are planned during the next reporting period.

**Table 3.6**
**Attended Noise Monitoring Results – 2008/2009**



| Location | Time | Project Noise Goal | Attended Monitoring | Noise generated by Abel Mine |
|---|---|---|---|---|
| **A** 98Weakley's Drive, Beresfield | Day ($L_{A\ eq\ (15\ min)}$) | 50 | 55-56 | Abel inaudible |
| | Evening ($L_{A\ eq\ (15\ min)}$) | 48 | 71-72 | Abel inaudible |
| | Night ($_{A\ eq\ (15\ min)}$) | 41 | 67-71 | Abel inaudible |
| | Night ($L_{A1(1min)}$) | 51 | 90-91 | Abel inaudible |
| **F** Black Hill Rd, Black Hill | Day ($L_{A\ eq\ (15\ min)}$) | 41 | 59-64 | Abel inaudible |
| | Evening ($L_{A\ eq\ (15\ min)}$) | 40 | 55-61 | Abel inaudible |
| | Night ($_{A\ eq\ (15\ min)}$) | 36 | 53-58 | Abel inaudible except on 23/03/09 when Abel Leq contribution measured at 38dBA |
| | Night ($L_{A1(1min)}$) | 46 | 73-83 | Abel inaudible |
| **G** Buchanan Rd, Buchanan | Day ($L_{A\ eq\ (15\ min)}$) | 43 | 68-71 | Abel inaudible |
| | Evening ($L_{A\ eq\ (15\ min)}$) | 41 | 70-73 | Abel inaudible |
| | Night ($_{A\ eq\ (15\ min)}$) | 36 | 36-60 | Abel inaudible |
| | Night ($L_{A1(1min)}$) | 46 | 79-83 | Abel inaudible |
| **I** Lord Howe Dve, Ashtonfield | Day ($L_{A\ eq\ (15\ min)}$) | 44 | 49 | Abel inaudible |
| | Evening ($L_{A\ eq\ (15\ min)}$) | 46 | 48 | Abel inaudible |
| | Night ($_{A\ eq\ (15\ min)}$) | 38 | 54 | Abel inaudible |
| | Night ($L_{A1(1min)}$) | 48 | 70 | Abel inaudible |
| **K** Catholic Diocese (formerly Bartter Enterprises) | Day ($L_{A\ eq\ (15\ min)}$) | 41 | 50-51 | Abel inaudible |
| | Evening ($L_{A\ eq\ (15\ min)}$) | 40 | 72-78 | Abel inaudible |
| | Night ($_{A\ eq\ (15\ min)}$) | 37 | 47-70 | Abel inaudible |
| | Night ($L_{A1(1min)}$) | 46 | 90-99 | Abel inaudible |
| **L** 7 Kilshanny Av, Ashtonfield | Day ($L_{A\ eq\ (15\ min)}$) | 46 | 44 | Abel inaudible |
| | Evening ($L_{A\ eq\ (15\ min)}$) | 46 | 45 | Abel inaudible |
| | Night ($_{A\ eq\ (15\ min)}$) | 40 | 39 | Abel inaudible |
| | Night ($L_{A1(1min)}$) | 53 | 52 | Abel inaudible |

## 3.9 Visual, Stray Light

### Environmental Management

During the reporting period all lighting was positioned and directed so as to minimise disturbing light emissions. As all activities occurred within the box cut created for the surface

infrastructure area, no further controls were deemed necessary. At the time of reporting, there is no further need for a lighting tower and lights on conveyors and the gantry are expected to be sufficient. Structures are painted a muted dark green to blend with the background bush.

**Environmental Performance**

The visual controls implemented have been considered effective and will be maintained throughout the next reporting period.

**Reportable Incidents**

One complaint regarding lighting in the Portal and Coal Handling Area whilst coal was being loaded was recorded during the reporting period. Rectification involved moving and redirecting the light. This complaint is more fully described in Section 4.1.

**Further Improvements**

No further improvements are planned or are deemed necessary.

## 3.10 Aboriginal Heritage

No known items of Aboriginal heritage were disturbed as part of the operations undertaken during the reporting period. Prior to land clearing for the substation, which is located within ML1461 for the Donaldson mine, members of the Mindaribba LALC conducted a survey of the subject land. No items of heritage significance were identified. Within the underground mine area, staged systematic archaeological survey of each section to be undermined will occur with the participation of the relevant Aboriginal stakeholders prior to any underground mining in that area which may lead to subsidence. Results of these assessments will be summarised in the relevant AEMR.

## 3.11 Natural Heritage

No items or areas of natural heritage significance are considered to occur within the surface infrastructure area.

## 3.12 Spontaneous Combustion

No incidents of spontaneous combustion were recorded during the reporting period. Considering that the Upper and Lower Donaldson seams are considered to have a very low propensity for spontaneous combustion and with no history of spontaneous combustion, the management measures implemented have been considered adequate.

## 3.13 Bushfire

**Environmental Management**

Integrated emergency response procedures have been prepared for Donaldson mine and Abel mine.

**Environmental Performance**

No bushfire incidents occurred during the reporting period nor were any requests received to assist in containing bushfires in the local area.

**Reportable Incidents**

No bushfires or other related reportable incidents occurred during the reporting period.

**Further Improvements**

Other than maintenance of fire fighting equipment at all site buildings and provision of clear access and signposting, no further improvements are planned or deemed necessary.

## 3.14 Mine Subsidence

As there were no secondary workings mined during the reporting period, no subsidence related management measures or monitoring was undertaken. Preparation of a Subsidence Management Plan for SMP Area 1 has commenced with a stakeholders meeting and will be completed and approved prior to the commencement of any mining which may cause subsidence.

A summary of subsidence related management measures and monitoring will be provided within the appropriate AEMR once mining activities that may potentially lead to subsidence commence.

## 3.15 Hydrocarbon Contamination

**Environmental Management**

All hydrocarbons were stored either within a self-bunded tank or a bunded area with a capacity to contain a minimum 110% of the largest storage tank.

**Environmental Performance, Reportable Incidents and Further Improvements**

One hydrocarbon spill involving an overflow from an oil drum occurred on 21 April 2009 in the Oil Store. This was not a reportable incident and did not lead to hydrocarbon contamination or pollution of land or water. Rectification measures included stoppage of the leak and clean up of the area. The existing hydrocarbon management practices have been considered adequate with no further improvements planned during the next reporting period.

## 3.16 Methane Drainage / Ventilation

Methane testing previously undertaken during exploration programs indicate that the generation of methane will be low. Other than the use of the ventilation fan, no other specific ventilation or methane drainage management measures were considered necessary during the reporting period.

### 3.17 Public Safety

The perimeter of the Donaldson mine, incorporating the surface infrastructure area for the Abel Underground Coal Mine, has been secured by standard rural fencing, boom gates and lockable gates to prevent unauthorised entry and various warning and information signs positioned to alert both employees and visitors.

No public safety issues relating to the Abel mine were reported during the reporting period.

### 3.18 Other Issues and Risks

The mine has commenced National Greenhouse and Energy Reporting (NGER) and submitted a report outside of the current reporting period. NGER reporting will be included in subsequent AEMRs. No other issues arose during the reporting period nor were there unaccounted risks which needed to be addressed.

## 4 COMMUNITY RELATIONS

### 4.1 Environmental Complaints

Between 1 June 2008 and 31 May 2009 one complaint relevant to the Abel mine was received relating to disturbing lighting from the Donaldson Open Cut / Abel area impacting a resident at Blackhill during the night. The issue was quickly addressed by redirecting the light down and then turning it off. The offending lighting was temporary lighting used during coal loading. Since the event, additional permanent lighting has been installed on the gantry and these lights are directed down and away from sensitive receptors.

### 4.2 Community Liaison

The only formal community consultation undertaken by the mine is the community consultative committee. In accordance with *Schedule 5 Condition 8* of Project Approval 05_0136, the Company has established a community consultative committee for the Abel mine. The committee consists of:

- four representatives from the Company (Messer's Alick Osborne, Phillip Brown, Mark McPherson and Adam Heeney);
- a representative from Bloomfield Colliery (Mr Lachlan Crawford);
- a representative from Maitland City Council (Clr Peter Blackmore); and
- five representatives of the local community (Messer's Alan Brown, Allan Jennings, Terry Lewin, Andrew Pace and Brad Ure).

The committee is chaired by the Hon Mr Milton Morris, an independent chairperson appointed by the NSW State government.

The committee held a total of four meetings during the reporting period (18 June, 17 September and 15 December 2008 and 30 March 2009). The meetings have provided an opportunity for

the Company to keep the community up-to-date with activities undertaken and programmed at the Abel mine and for community members to table issues relating to the Abel mine for the Company's consideration.

Issues raised by the community in relation to the Abel mine and the Company's response during meetings within the reporting period included the following.

- Missing information on the Department of Planning's website relating to the Abel mine.

  The Company advised that the Department has updated its website which now contains all required information.
- A Community Trust.

  The Company advised that a trust will be formed.
- The preparation of Subsidence Management Plans and the required monitoring.

  The Company advised that the Subsidence Management Plans will be prepared and implemented in the required timeframe, ie. before secondary extraction. The Company also advised that the required monitoring will be undertaken.
- Land and Property Management Plans.

  The Company advised that these plans will be prepared and discussed with individual land owners as required.
- The AEMR and the Independent Environmental Audit.

  The Company provided explanations of the questions and issues raised.
- Further geophysical survey.

  The Company advised that it is undertaking exploratory drilling and modelling over various areas within the Exploration Licences and Mining Leases.
- The intersection of John Renshaw Drive and Blackhill Road and monetary contribution.

  The Company advised that they will investigate the roadworks and make the contribution when roadworks have been commenced.
- The frequency of committee meetings, distribution of minutes and access to environmental information.

  The Company advised that quarterly meetings will be conducted and minutes placed on its website. The Company experiences difficulty with getting documents on the website.
- Lighting

  The Company advised that they are investigating and implementing improvements to reduce lighting impacts.

The committee was informed of the appointment of a new Mine Manager, Mr Matthew Blackham.

The minutes of community consultative meetings are placed on the mine's website after ratification at the following meeting or by committee members although some delays in uploading of the files has been experienced. The Company is committed to minimising any future delays.

# 5 REHABILITATION

## 5.1 Buildings

No buildings were renovated or removed during the reporting period.

## 5.2 Rehabilitation of Disturbed Land

As the Abel mine is an underground operation, the only significant rehabilitation will be during mine decommissioning. However, limited rehabilitation of areas disturbed during and following the construction period will be undertaken as required. As discussed in Section 3.3 the drain on the northern side of the coal haul road near the administration buildings was stabilised using jute mesh (see **Plan 3**).

**Table 5.1** provides a summary of the areas disturbed and rehabilitated during the reporting period and estimated areas during the next reporting period whilst **Table 5.2** provides a further breakdown of the rehabilitation activities.

**Table 5.1**
**Rehabilitation Summary**

Page 1 of 2

| | | Area Affected (ha) | | |
|---|---|---|---|---|
| **A:** | **MINE LEASE AREA** | **Total Area, start of Reporting Period** | **Total Area, end of Reporting Period** | **Area Estimated end of next Reporting Period** |
| **A1** | **Mine lease(s) Area** | 2755 | 2755 | 2755 |
| **B:** | **DISTURBED AREAS** | | | |
| **B1** | **Infrastructure area** # (other disturbed areas to be rehabilitated at closure including facilities, roads) | 4.9 | 9.8 | 9.8 |
| **B2:** | **Active Mining Area** (excluding items B3 - B5 below) | 0 | 38.0 (underground) | 93.7 (underground) |
| **B3** | **Waste emplacements**, (active/unshaped/in or out-of-pit ) | 0 | 0 | 0 |
| **B4** | **Tailings emplacements**, (active/unshaped/uncapped) | 0 | 0 | 0 |
| **B5** | **Shaped waste emplacement** (awaits final vegetation) | 0 | 0 | 0 |
| | **Previous Mining Activities** | 0 | 0 | 0 |
| **TOTAL ALL DISTURBED AREAS** | | 4.9 | 47.8 | 103.5 |
| **C** | **REHABILITATION** | | | |
| **C1** | **Total Rehabilitated area** (except for maintenance) | 0.7 | 0.7 | 0.7 |
| **D:** | **REHABILITATION ON SLOPES** | | | |
| **D1** | **10 to 18 degrees** | 0.7 | 0.7 | 0.7 |
| **D2** | **Greater than 18 degrees** | 0 | 0 | 0 |
| **D3** | **Less than 10 degrees** | 0 | 0 | 0 |
| **E:** | **SURFACE OF REHABILITATED LAND** | | | |
| **E1** | **Pasture and grasses** | 0.7 | 0.7 | 0.7 |
| **E2** | **Native forest/ecosystems** | 0 | 0 | 0 |
| **E3** | **Plantations and crops** | 0 | 0 | 0 |
| **E4** | **Other** (include non-vegetative outcomes) | 0 | 0 | 0 |

Notes: # - All areas associated with the surface infrastructure area have previously been disturbed through activities associated with the Donaldson mine.

**Table 5.2**
**Maintenance Activities On Rehabilitated Land**

| Nature of Treatment | Area Treated (ha) | | |
|---|---|---|---|
| | During Reporting Period[#] | During Next Reporting Period* | Comments/control strategies/treatment detail[#] |
| Additional Erosion Control Works | 100m x 2m = 0.02 | 100m x 2m = 0.02 | Jute mesh was installed within the open drain on the northern side of the coal haul road near the administration buildings. |
| Re-covering | 0 | 0 | Nil |
| Soil Treatment | 0 | 0 | No soil treatment (eg. lime, gypsum or fertilisers) was required during the reporting period or is likely to be required in subsequent reporting periods. |
| Treatment / Management | 0 | 0 | No other specific treatments or management measures were required during the reporting period or are expected to be required in ensuing reporting periods. |
| Re-seeding / Replanting | 0 | 0 | No areas were hydro mulched or re-seeded or are expected to be in the next reporting period. |
| Adversely Affected by Weeds | 0 | 0 | No areas were identified as being adversely affected by weeds. Continued inspections and, where necessary, weed control will be undertaken. |
| Feral Animal Control | 0 | 0 | No feral animal control was deemed necessary during the reporting period. Feral animal control will be undertaken in ensuing reporting periods if required. |
| [#]See **Plan 3** * Indicative only | | | |

## 5.3 Other Infrastructure

As discussed in Section 2.1, all exploration holes that were no longer required were sealed in accordance with the *Borehole Sealing Requirements on Land: Coal Exploration* guidelines and standard industry practice. Any disturbance resulting from the drilling of the hole and equipment used was rehabilitated in accordance with landholder requirements.

Limited rehabilitation was undertaken on areas which had been used for demountable buildings. Footings were removed and the areas landscaped. No other specific rehabilitation or maintenance activities were undertaken during the reporting period.

## 5.4 Rehabilitation Trials and Research

No rehabilitation trials or research was undertaken during the reporting period.

## 5.5 Further Development of the Final Rehabilitation Plan

No further development of the final rehabilitation plan was undertaken during the reporting period. The Landscape Management Plan which incorporates a Rehabilitation Management Plan was approved by the Department of Planning on 11 February 2008 and remains the most up-to-date rehabilitation plan. No concerns have been raised by any stakeholders relating to final rehabilitation.

# 6 ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD

The activities proposed for 2009/2010 will include the continued expansion of mining areas together with a range of exploration and monitoring activities. The following provides a summary of the proposed activities.

**Infrastructure**

A new 33KV power line is proposed to bring power to the mine site. Consequently the generators above the box cut will be removed, the land cleaned of any contamination and rehabilitated. Other infrastructure work proposed is the construction of new bath house facilities and additional administration buildings as coal production ramps up.

**Exploration**

Over the next 12 months it is proposed to drill a mixture of at least 22 open holes and partly cored boreholes to assist with mine planning and development.

Exploration reports will continue to be submitted to the Coal Advice and Resource Assessment section of DII-MP in accordance with ML 1618.

**Mining**

During the next reporting period, mining will focus upon further development of main headings (extension of the eastern main) and development of the first extraction panel, ready for extraction in the 3$^{rd}$ quarter of 2010 (in SMP Area 1). It is expected that no secondary workings will commence. Subsidence Management Plans will be prepared, approved and implemented and subsidence monitoring will commence.

**Rehabilitation**

Additional stabilisation and rehabilitation of access road batters, drains and banks and ongoing maintenance (in accordance with the Mining Operations Plan prepared for the Abel mine) will be undertaken as required, however, no major rehabilitation work will be able to be undertaken until the decommissioning of the site.

**Monitoring**

The following monitoring will be undertaken during the next reporting period.

- Air Quality – ongoing deposited dust, TSP and $PM_{10}$ monitoring will be undertaken by PAEHolmes and Metford Laboratories.
- Surface water – ongoing surface water quality and flow monitoring at a range of routine monitoring sites located within Blue Gum Creek, Viney Creek, Buttai Creek, Four Mile Creek and a number of local water storages. This monitoring will be undertaken by Ecowise Environmental as part of the integrated monitoring with the Bloomfield, Donaldson and Tasman mines.

- Groundwater – ongoing groundwater quality and level monitoring will be undertaken as part of the integrated network of monitoring bores for the Bloomfield, Donaldson and Tasman mines. Measurement of the quality and volume of inflow water to the underground workings will also be undertaken.
- Noise – Heggies Pty Ltd will undertake quarterly noise monitoring and review the frequency for ongoing monitoring.
- Flora & Fauna – Ecobiological will undertake flora and fauna surveys and reporting in accordance with approved Flora and Fauna Management Plan.
- Meteorological – the on-site meteorological station at Donaldson mine will be maintained and data collated.
- Subsidence monitoring will commence.

## Community Consultation and Liaison

The community consultative committee will continue to be convened during the next reporting period. It is expected that a further two meetings will be held during this time but additional meetings will be conducted if required. The 24hr environmental hotline will be maintained and a register retained of any complaints received.

# 7 REFERENCES

Australia and New Zealand Environment and Conservation Council (ANZECC), 2000, *Australia and New Zealand Guidelines for Fresh and Marine Water Quality*.

Australian Standards (2004), *AS 1940-2004 The Storage and Handling of Flammable and Combustible Liquids.*

Australian Standards (2008), *AS 1596-2008 The Storage and Handling of LP Gas.*

National Transport Commission (2007), *Dangerous Goods Code*.

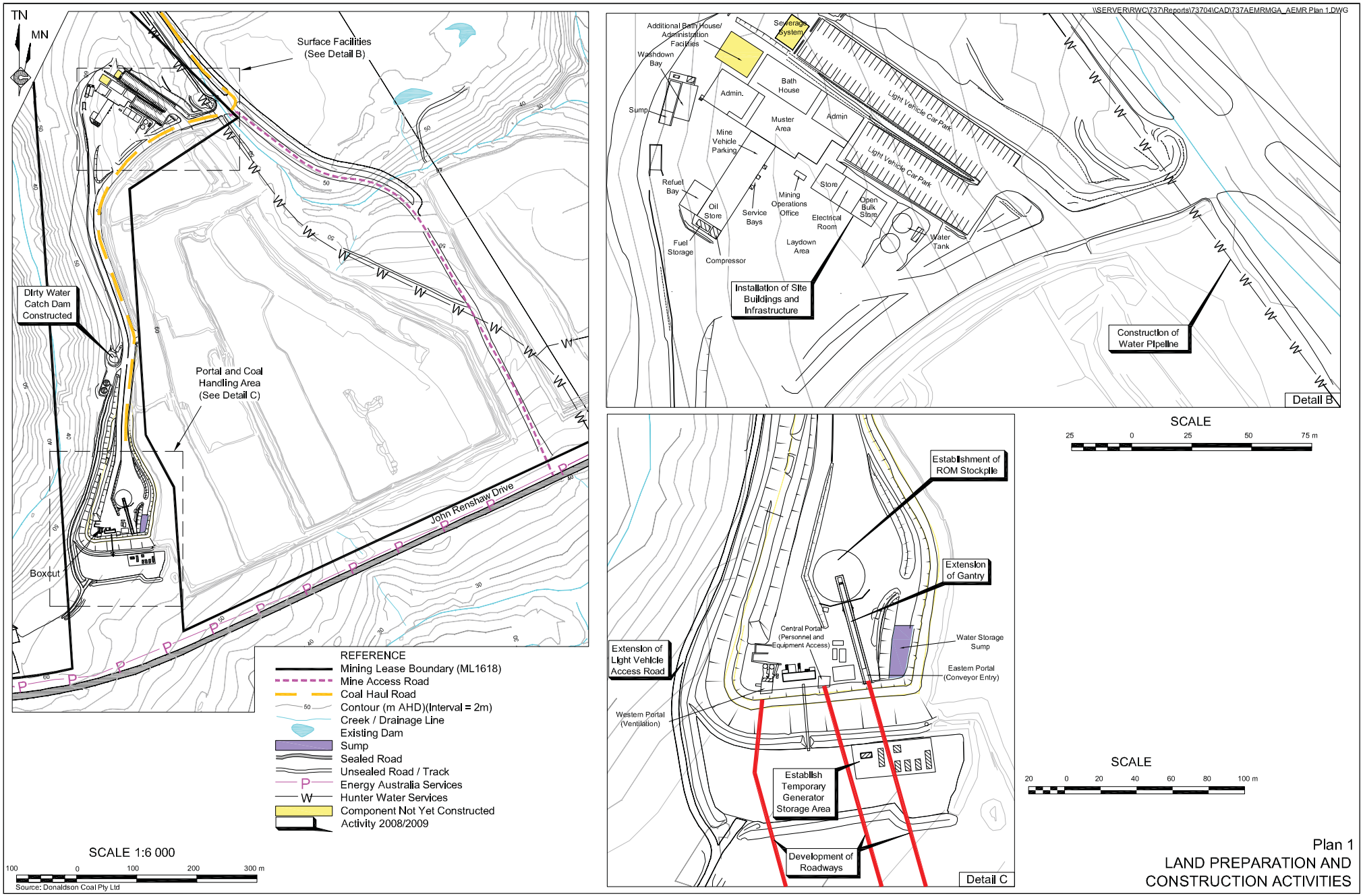
Donaldson Coal Pty Ltd (2006), *Abel Underground Mine Part 3A Environmental Assessment.*

Donaldson Coal Pty Ltd (2008), *Abel Underground Coal Mine Mining Operations Plan for Period Ending 31 December 2009*.

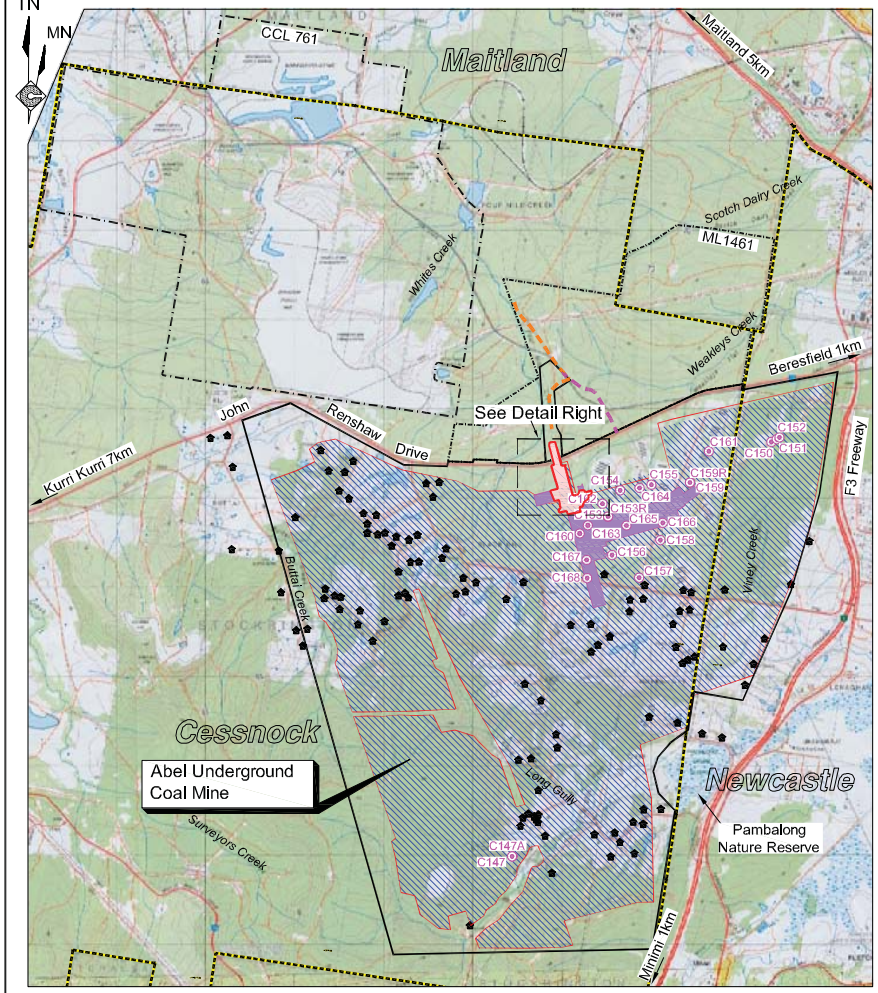
Mineral Resources NSW (1997), *Borehole Sealing Requirements on Land – Coal Exploration*.

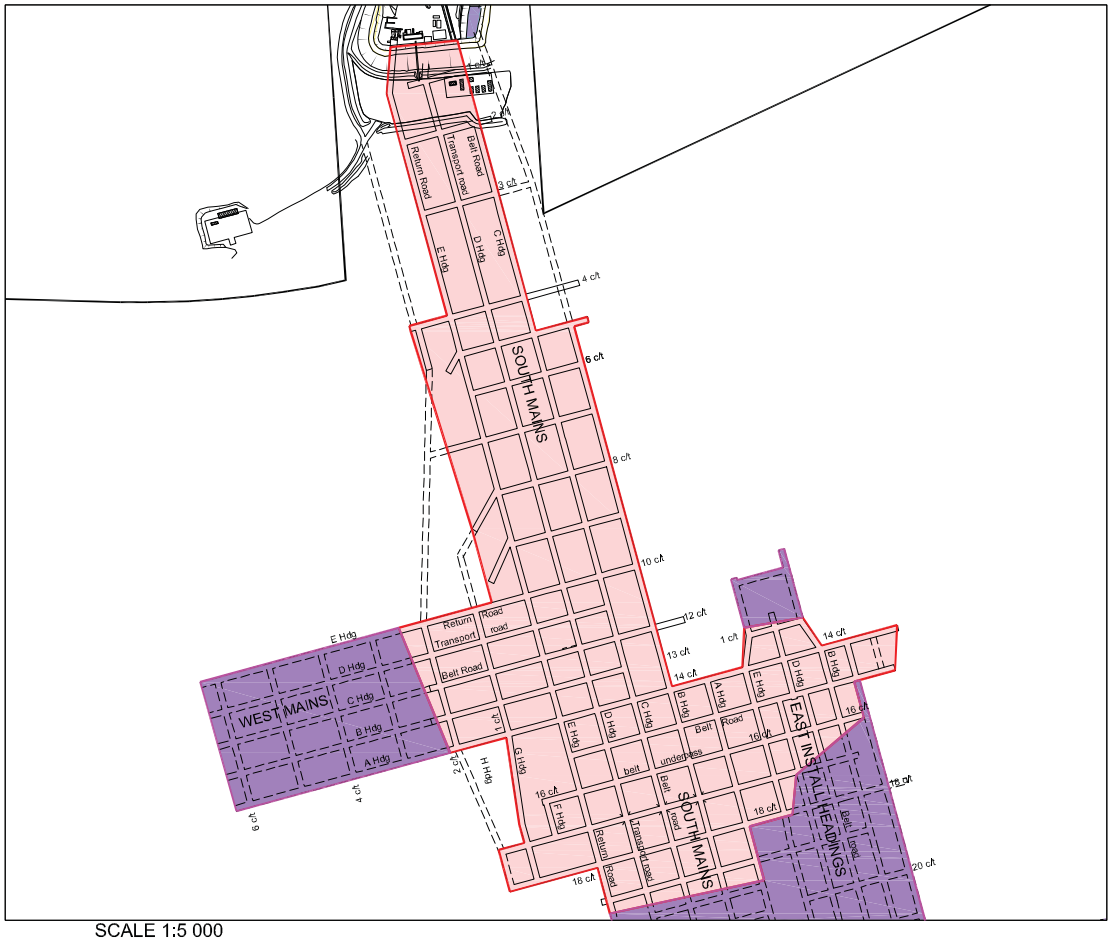
National Health and Medical Research Council (NHMRC) (2003), *National Environmental Protection Measures (NEPM).*

NSW Department of Primary Industries (2006), *Guidelines to the Mining, Rehabilitation and Environmental Management Process.*


\\SERVER\RWC\737\Reports\73704\CAD\737AEMRMGA_AEMR Plan 1.DWG
TN
MN
Surface Facilities
(See Detail B)
Dirty Water
Catch Dam
Constructed
Portal and Coal
Handling Area
(See Detail C)
Boxcut
John Renshaw Drive
REFERENCE
Mining Lease Boundary (ML1618)
Mine Access Road
Coal Haul Road
Contour (m AHD)(Interval = 2m)
Creek / Drainage Line
Existing Dam
Sump
Sealed Road
Unsealed Road / Track
Energy Australia Services
Hunter Water Services
Component Not Yet Constructed
Activity 2008/2009
SCALE 1:6 000
100 0 100 200 300 m
Source: Donaldson Coal Pty Ltd
Additional Bath House/
Administration
Facilities
Sewerage
System
Washdown
Bay
Bath
House
Admin.
Sump
Muster
Area
Admin
Light Vehicle Car Park
Mine
Vehicle
Parking
Light Vehicle Car Park
Refuel
Bay
Store
Oil
Store
Service
Bays
Mining
Operations
Office
Open
Bulk
Store
Electrical
Room
Water
Tank
Fuel
Storage
Compressor
Laydown
Area
Installation of Site
Buildings and
Infrastructure
Construction of
Water Pipeline
Detail B
SCALE
25 0 25 50 75 m
Establishment of
ROM Stockpile
Extension
of Gantry
Extension of
Light Vehicle
Access Road
Central Portal
(Personnel and
Equipment Access)
Water Storage
Sump
Eastern Portal
(Conveyor Entry)
Western Portal
(Ventilation)
Establish
Temporary
Generator
Storage Area
Development of
Roadways
Detail C
SCALE
20 0 20 40 60 80 100 m
Plan 1
LAND PREPARATION AND
CONSTRUCTION ACTIVITIES

\\SERVER\RWC\737\Reports\73704\CAD\737AEMRMGA_AEMR Plan 2.DWG



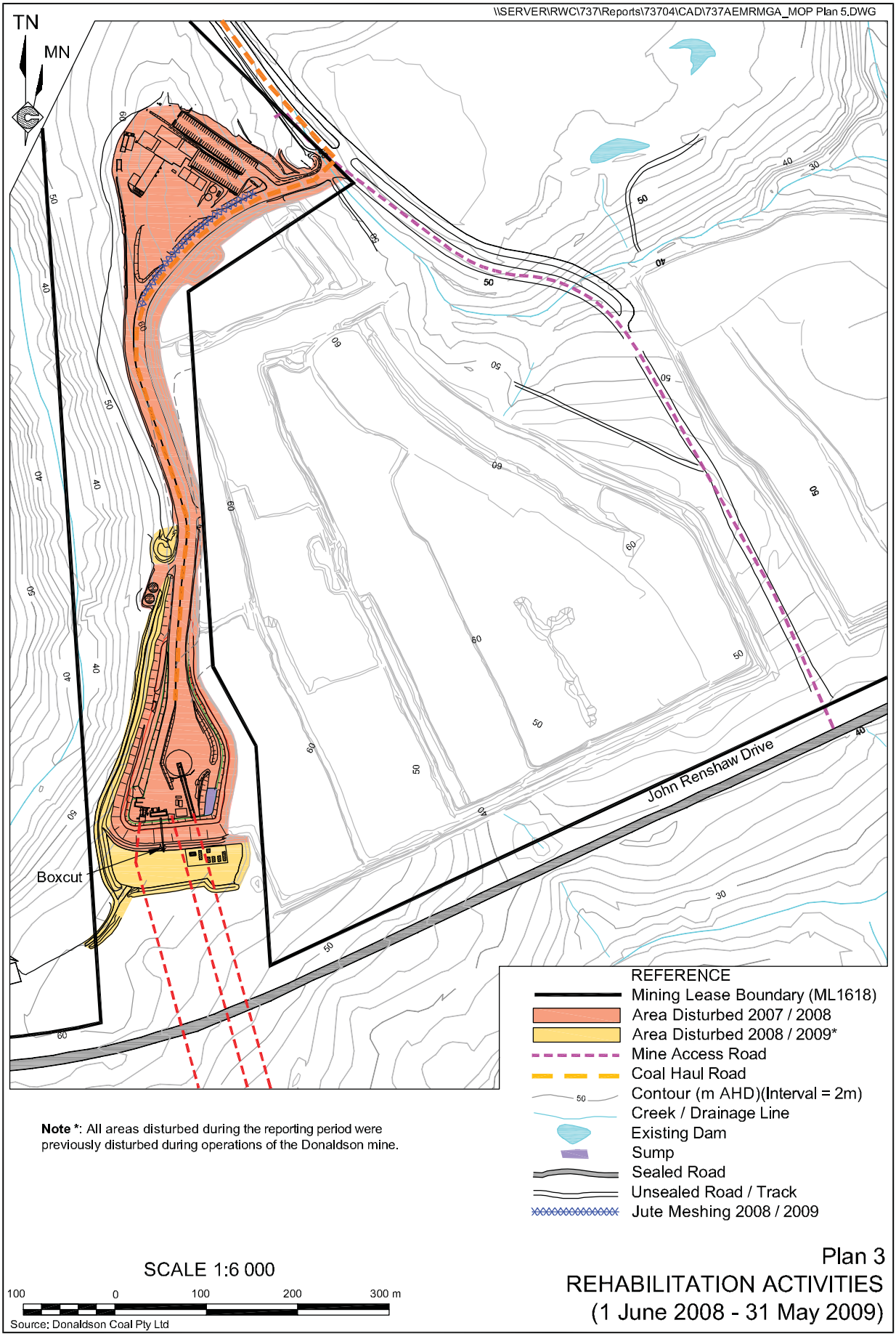




REFERENCE

- LGA Boundary (offset for clarity)
- CCL 761 Boundary
- ML 1461 Boundary
- Mining Lease Boundary (ML1618)
- Underground Workings 2008 / 2009
- Underground Workings (2009 / 2010 - Indicative)
- Underground Workings (Mine Life - Indicative)
- Coal Haul Road to Internal Mine Road
- Mine Access Road
- C157 Exploration Drill Hole (Drilled 2008/2009)
- Residence

Base Map Source: Donaldson Coal Pty Ltd

Plan 2
MINING ACTIVITIES


\\SERVER\RWC\737\Reports\73704\CAD\737AEMRMGA_MOP Plan 5.DWG
TN
MN
Boxcut
John Renshaw Drive
REFERENCE
Mining Lease Boundary (ML1618)
Area Disturbed 2007 / 2008
Area Disturbed 2008 / 2009*
Mine Access Road
Coal Haul Road
Contour (m AHD)(Interval = 2m)
Creek / Drainage Line
Existing Dam
Sump
Sealed Road
Unsealed Road / Track
Jute Meshing 2008 / 2009
Note *: All areas disturbed during the reporting period were previously disturbed during operations of the Donaldson mine.
SCALE 1:6 000
100 0 100 200 300 m
Source: Donaldson Coal Pty Ltd
Plan 3
REHABILITATION ACTIVITIES
(1 June 2008 - 31 May 2009)