

# DONALDSON COAL ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

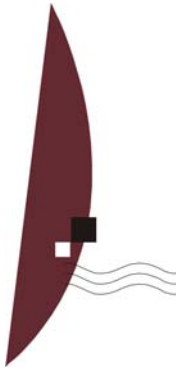
*As prescribed by Donaldson Coal  
Development Consent (114 –116) and the Mining Act 1992.*

## **DONALDSON COAL MINE**

**Reporting Period:**

**1<sup>st</sup> November 2006 to 31<sup>st</sup> October 2007**

|  |                                   |
|--|-----------------------------------|
| <b>Name of mine:</b>                         | <i>Donaldson Coal Mine.</i>       |
| <b>Mining Titles/Leases:</b>                 | <i>Mining Lease 1461</i>          |
| <b>MOP Commencement Date</b>                 | <i>1<sup>st</sup> June 2006</i>   |
| <b>MOP Completion date (nominal)</b>         | <i>1<sup>st</sup> June 2012</i>   |
| <b>Name of leaseholder:</b>                  | <i>Donaldson Coal Pty Ltd</i>     |
| <b>Name of mine operator (if different):</b> | <i>Cooks Construction Pty Ltd</i> |
| <b>Reporting Officer:</b>                    | <i>Mr Phillip Brown</i>           |
| <b>Title:</b>                                | <i>Environmental Manager</i>      |
| <b>Signature</b>                             | .....                             |
| <b>Date</b>                                  | <i> / /</i>                       |



## DONALDSON COAL MINE

### *Annual Environmental Management Report (AEMR) 2006-2007*

**Prepared by:**

*Phillip Brown - Environmental Manager*  
Donaldson Coal Pty Ltd

|                        |   |
|------------------------|---|
| <b>Authorised by:</b>  | Doug Gordon (General Manager, Operations) |
| <b>Signature:</b>      |   |
| <b>Distributed to:</b> |   |
| <b>Location:</b>       |   |

# CONTENTS

|           |   |           |
|-----------|---|-----------|
| <b>I</b>  | <b>PURPOSE OF THE REPORT</b> .....                          | <b>1</b>  |
| <b>II</b> | <b>DONALDSON COAL ENVIRONMENTAL POLICY</b> .....            | <b>1</b>  |
| <b>1</b>  | <b>INTRODUCTION AND GENERAL INFORMATION</b> .....           | <b>2</b>  |
| 1.1       | DEVELOPMENT – OVERVIEW .....                                | 2         |
| 1.2       | CONSENTS, LEASE AND LICENCES .....                          | 2         |
| 1.2.1     | <i>Amendments to the Mining Operations Plan (MOP)</i> ..... | 3         |
| 1.3       | MINE CONTACTS .....   | 4         |
| 1.4       | ACTIONS REQUIRED AT PREVIOUS AEMR REVIEW .....              | 4         |
| <b>2</b>  | <b>OPERATIONS DURING THE REPORTING PERIOD</b> .....         | <b>5</b>  |
| 2.1       | EXPLORATION .....   | 5         |
| 2.2       | LAND PREPARATION .....                                      | 5         |
| 2.3       | CONSTRUCTION .....  | 6         |
| 2.4       | MINING .....  | 6         |
| 2.5       | MINERAL PROCESSING .....                                    | 7         |
| 2.5.1     | <i>Plant Throughput and Saleable Production</i> .....       | 7         |
| 2.6       | WASTE MANAGEMENT .....                                      | 8         |
| 2.6.1     | <i>Tailings and Rejects</i> .....                           | 8         |
| 2.6.2     | <i>Sewerage Treatment/Disposal</i> .....                    | 8         |
| 2.6.3     | <i>Fuel Containment</i> .....                               | 8         |
| 2.6.4     | <i>Oil and Grease Containment and Disposal</i> .....        | 8         |
| 2.6.5     | <i>Rubbish Disposal</i> .....                               | 8         |
| 2.6.6     | <i>Additional Waste Streams</i> .....                       | 8         |
| 2.7       | PRODUCT STOCKPILES .....                                    | 9         |
| 2.8       | WATER MANAGEMENT .....                                      | 9         |
| 2.8.1     | <i>Water Storage Structures</i> .....                       | 9         |
| 2.8.2     | <i>Sediment Control Structures</i> .....                    | 10        |
| 2.8.3     | <i>Water Consumption/Balance</i> .....                      | 10        |
| 2.9       | HAZARDOUS MATERIAL MANAGEMENT .....                         | 11        |
| 2.9.1     | <i>Explosives</i> .....                                     | 11        |
| 2.9.2     | <i>Bulk Fuel Storage</i> .....                              | 11        |
| 2.9.3     | <i>Chemicals</i> .....                                      | 11        |
| <b>3</b>  | <b>ENVIRONMENTAL MANAGEMENT AND PERFORMANCE</b> .....       | <b>12</b> |
| 3.1       | ENVIRONMENTAL MANAGEMENT STRATEGY (EMS) .....               | 12        |
| 3.1.1     | <i>Environmental Risk Assessment</i> .....                  | 12        |
| 3.2       | ENVIRONMENTAL MANAGEMENT CONTROLS .....                     | 14        |
| 3.2.1     | <i>Meteorological Monitoring</i> .....                      | 14        |
|           | <i>Rainfall</i> .....                                       | 15        |
|           | <i>Wind Speed and Direction</i> .....                       | 16        |
| 3.2.2     | <i>Air Pollution</i> .....                                  | 16        |
|           | <i>Depositional Dust Gauges</i> .....                       | 17        |
|           | <i>High Volume Air Samplers</i> .....                       | 17        |
|           | <i>PM<sub>10</sub></i> .....                                | 18        |
|           | <i>Total Suspended Particulates</i> .....                   | 18        |
|           | <i>DustTrak Monitors</i> .....                              | 19        |
|           | <i>PM<sub>2.5</sub> Air Quality Monitoring</i> .....        | 20        |

|           |  |           |
|-----------|--|-----------|
| 3.2.3     | <i>Erosion and Sediment Control</i> .....                            | 23        |
| 3.2.4     | <i>Surface Water</i> .....   | 24        |
|           | <i>Chemical &amp; Physical Monitoring</i> .....                      | 25        |
|           | <i>Biological Monitoring</i> .....                                   | 26        |
| 3.2.5     | <i>Ground Water</i> .....  | 29        |
| 3.2.6     | <i>Contaminated Land</i> .....                                       | 31        |
| 3.2.7     | <i>Threatened Flora</i> .....  | 31        |
| 3.2.8     | <i>Threatened Fauna</i> .....  | 34        |
| 3.2.9     | <i>Weeds and Pests</i> .....   | 35        |
| 3.2.10    | <i>Blasting</i> .....  | 36        |
| 3.2.11    | <i>Noise</i> .....   | 39        |
|           | <i>Results of Unattended Continuous Surveys</i> .....                | 40        |
|           | <i>Results of Attended Surveys</i> .....                             | 46        |
| 3.2.12    | <i>Visual and Stray Lighting</i> .....                               | 58        |
| 3.2.13    | <i>Cultural and Natural Heritage Conservation</i> .....              | 58        |
| 3.2.14    | <i>Spontaneous Combustion</i> .....                                  | 59        |
| 3.2.15    | <i>Bushfire</i> .....  | 60        |
| 3.2.16    | <i>Mine Subsidence</i> .....   | 60        |
| 3.2.17    | <i>Public Safety</i> .....   | 60        |
| 3.3       | REPORTABLE INCIDENTS .....   | 61        |
| <b>4</b>  | <b>COMMUNITY RELATIONS</b> .....                                     | <b>62</b> |
| 4.1       | ENVIRONMENTAL COMPLAINTS .....                                       | 62        |
| 4.2       | COMMUNITY LIAISON.....   | 62        |
| 4.2.1     | <i>Community Consultative Committee (CCC)</i> .....                  | 62        |
| 4.2.2     | <i>Site Tours/Inspections</i> .....                                  | 62        |
| 4.2.3     | <i>Community Newsletters</i> .....                                   | 62        |
| 4.2.4     | <i>Donaldson Coal Internet Site (www.doncoal.com.au)</i> .....       | 62        |
| 4.3       | SOCIAL/ECONOMICAL CONTRIBUTIONS .....                                | 63        |
| 4.3.1     | <i>Employment Status and Demography</i> .....                        | 63        |
| 4.3.2     | <i>Roll-on Employment Effects</i> .....                              | 63        |
| 4.3.3     | <i>Value Adding Programs Directly Benefiting the Community</i> ..... | 64        |
| <b>5</b>  | <b>REHABILITATION</b> .....  | <b>65</b> |
| 5.1       | BUILDINGS.....   | 65        |
| 5.2       | REHABILITATION OF DISTURBED LAND .....                               | 65        |
| 5.2.1     | <i>Management of Potentially Acid Material</i> .....                 | 65        |
| 5.3       | OTHER INFRASTRUCTURE .....   | 65        |
| 5.4       | REHABILITATION STATUS AT END OF THE REPORTING PERIOD.....            | 65        |
| 5.5       | REHABILITATION TRIALS AND RESEARCH .....                             | 66        |
| 5.6       | FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN.....            | 66        |
| <b>6.</b> | <b>ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD</b> .....             | <b>67</b> |
| <b>7.</b> | <b>DEVELOPMENT CONSENT COMPLIANCE REVIEW</b> .....                   | <b>67</b> |
| <b>8.</b> | <b>REFERENCES</b> .....  | <b>68</b> |

**APPENDICES**

- Appendix 1: Donaldson Coal Environmental Policy**
- Appendix 2: Site Locality Plan and Monitoring Locations**
- Appendix 3: Description and Location of Known Aboriginal Sites**
- Appendix 4: List of Complaints Received by the Mine**
- Appendix 5: Wind Speed and Direction (Windrose) Diagrams**
- Appendix 6: Newsletter**
- Appendix 7: Annual Rehabilitation Report**
- Appendix 8: Annual Rehabilitation Plans**

**i PURPOSE OF THE REPORT**

Donaldson Coal Pty Ltd. (Donaldson) has prepared this report to fulfill the reporting requirements of the Donaldson Mine Development Consent, condition 114.

This report was also completed to satisfy the annual reporting requirements of the Department of Primary Industries, Mineral Resources (MR) and as such was prepared in accordance with the *Environmental Management Guidelines for Industry – Guidelines to the mining, rehabilitation and Environmental Management Process*<sup>1</sup> (Version 3 dated January 2006).

This report provides a detailed review of the site environmental management over the annual reporting period 1<sup>st</sup> November 2006 to 31<sup>st</sup> October 2007.

**ii DONALDSON COAL ENVIRONMENTAL POLICY**

Donaldson is managed in accordance with an Environmental Management System (EMS) based on a recognised international standard (ISO 14001). In accordance with this standard, Donaldson has adopted an Environmental Policy. The policy details the commitment made by Donaldson to ensure that a high standard of environmental care is met. A copy of the policy is attached as **Appendix 1** of this report.

---

<sup>1</sup> NSW DPI (2006) *Guidelines to the Mining, Rehabilitation and Environmental Management Process*, EDG03, Version 3 (dated January 2006).

## **1 INTRODUCTION AND GENERAL INFORMATION.**

### **1.1 DEVELOPMENT – OVERVIEW.**

The Donaldson open cut mine is located 23km from the Port of Newcastle, north of John Renshaw Drive and west of Weakley's Drive. The mining lease is contained within the Cessnock and Maitland Local government areas. An aerial photograph showing the location of the mine in a regional context is attached as **Appendix 2** of this report.

Donaldson Coal Mine commenced operation on 25<sup>th</sup> January 2001, following approval by the then Minister of Urban Affairs and Planning (now known as the Department of Infrastructure, Planning and Natural Resources, DIPNR) in 1999. Mining is undertaken by way of truck and shovel mining techniques. During the first twelve months of the operation, the bulk of the overburden material was placed in an out of pit emplacement, 1.5km south west of the active pit. This was undertaken to allow sufficient opening up of the pit to expose the various coal seams. Since March 2002, the majority of the overburden material has been dumped in pit, backfilling the void once the coal has been mined out. Reshaping of the backfill to a landform commensurate to the existing topography commenced in September 2002.

The first load of coal was railed from Donaldson on the 26<sup>th</sup> March 2001. Up to 31<sup>st</sup> October 2007, approximately 9,855,746 tonnes of coal has been railed to both Hunter Valley power stations and international customers, through the Port of Newcastle. Mining is currently conducted under long term contract with Cooks Construction Pty Ltd (Cooks). All mining and associated operations are undertaken in accordance with the Development Consent, Environment Protection Licence and other statutory instruments as issued by the various government agencies.

### **1.2 CONSENTS, LEASE AND LICENCES**

**Table 1** provides a current list of statutory instruments in effect, including the date of grant of all leases, subleases, consents, approval or licenses. It also includes information relating to the current Mining Operations Plan (MOP). Details of any amendments to the MOP since the last AEMR are described in section 1.2.1 below.

**TABLE 1: LIST OF CURRENT CONSENTS, LEASE AND LICENCES**

| Instrument                                  | Date of Issue | Date of Expiration     | Comments  |
|---|---------------|------------------------|---|
| Mining Lease (No. 1461)                     | 22/12/1999    | 22/12/2020             | <ul style="list-style-type: none"> <li>A copy of the mining lease is available for review at the Donaldson Coal office.</li> </ul>  |
| Mining Operations Plan                      | 1/06/2006     | 1/06/2012              | <ul style="list-style-type: none"> <li>Amended MOP was approved by MR for the period 1 June 2002 to 1 June 2006.</li> <li>Current MOP submitted in June 2006 to cover the period to 2012.</li> <li>Minor amendment requested in August 2007.</li> </ul>   |
| Development Consent                         | 14/10/99      | March 2011             | <ul style="list-style-type: none"> <li>A copy of the Development Consent is available for review at the Donaldson Coal office.</li> <li>Valid for 11 years after the commencement of mining.</li> <li>Certain conditions of the Consent will continue to operate after the Consent for mining operations has lapsed.</li> </ul> |
| Environment Protection Licence (No. 11080). | 13/09/2000    | Valid until cancelled. | <ul style="list-style-type: none"> <li>Licence was reviewed in June 2004.</li> <li>Latest Annual Return submitted to the Department of Environment and Climate Change on the 7<sup>th</sup> November 2007.</li> </ul>   |
| Water Works Licence (No. 20SL060534)        | 19/02/2001    |                        | <ul style="list-style-type: none"> <li>The licence covers earthworks associated with the construction of clean water diversion around the mining operation and out of pit emplacement.</li> </ul>   |
| Bore Licence (No. 20BL168123)               | 12/11/2001    |                        | <ul style="list-style-type: none"> <li>Issued to cover groundwater extraction as a result of the active mining area.</li> </ul>   |
| Bore Licence (No. 20BL168124)               | 12/11/2002    |                        | <ul style="list-style-type: none"> <li>The licence has been issued to cover the five test bores established to cover groundwater monitoring at the mine. It also incorporates the thirteen bores established as part of the EIS groundwater investigation.</li> </ul>   |

**Comment [MH1]:** Need to confirm date of expiration

**Comment [MH2]:** Need to confirm date

### 1.2.1 Amendments to the Mining Operations Plan (MOP)

Development Consent and a mining lease have been granted to Donaldson Coal Pty Ltd to mine coal for a period of eleven (11) years. The initial Mining Operations Plan (MOP) covered a period of twelve (12) months of mining activity and was submitted to MR in September 2000 to enable operations to commence in January 2001.

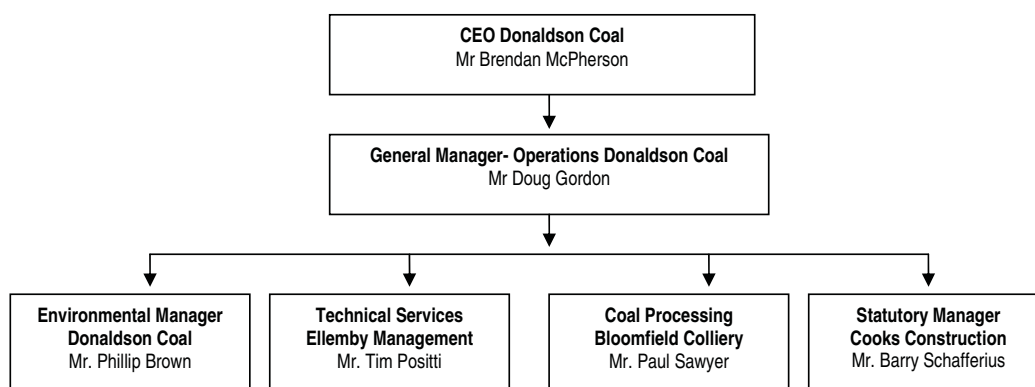
An amended MOP and associated plans were submitted to MR to cover the period January 2002 through to June 2006. A subsequent MOP was submitted to MR in June 2006 to cover the remaining life of mine. This MOP also covers the relocation of the Hunter Water Board pipeline. This current MOP was issued on 1 June 2006 and expires in 2012. A minor amendment to the current MOP was requested in August 2007.



### 1.3 MINE CONTACTS

Donaldson Coal Pty Ltd owns the mining operation and is the holder of the current mining lease. Cook's currently conducts the mining under long term contract. Cooks are responsible for all aspects of the mining at Donaldson Coal and are required to make appropriate appointments to fulfil the requirements of all statutory positions.

The following basic organisational chart shows the site personnel responsible for the various aspects of the operation.



The following contacts have been provided for the General Manager - Operations and the Environmental Manager:

Donaldson Coal Mine  
1132 John Renshaw Drive, Blackhill NSW 2322  
PO Box 2275  
**GREENHILLS** NSW 2323

Phone: (02) 49342798                      Community Hotline (24hrs): 1800 111 271  
Fax: (02) 49342736  
e-mail: [donaldson@doncoal.com.au](mailto:donaldson@doncoal.com.au)  
Internet: [www.doncoal.com.au](http://www.doncoal.com.au)

### 1.4 ACTIONS REQUIRED AT PREVIOUS AEMR REVIEW

Officers of MR conducted an annual environmental inspection at Donaldson Coal Mine on the 12th October 2007. The purpose of the inspection was to investigate compliance with the environmental requirements and various relevant approval instruments, including the mining lease, MOP and the AEMR.

**Table 2** details the list of actions required by the MR following this inspection and includes the works undertaken by Donaldson, as well as the date that the works were completed.

**TABLE 2: ACTIONS REQUIRED FROM THE JULY 2006 ANNUAL INSPECTION.**

| Action Required      | Where Dealt with in this AEMR |
|----------------------|-------------------------------|
| No issues identified | Not Applicable                |

## 2 OPERATIONS DURING THE REPORTING PERIOD

The following section briefly describes the general operation at the Donaldson Coal mine during the AEMR reporting period 1<sup>st</sup> November 2006 – 31<sup>st</sup> October 2007.

### 2.1 EXPLORATION

Donaldson drilled one (1) cored borehole to a depth of 45 metres and nine (9) non cored boreholes up to a maximum depth of 26 metres during the 2007 AEMR period.

There is no exploration planned at Donaldson during the next AEMR reporting period.

### 2.2 LAND PREPARATION

The Donaldson mine site is characterised by native woodland and forest communities. A detailed description is included in the Flora and Fauna Management Plan (Gunninah, 2000; pp6). Although previously disturbed by activities such as logging, deliberate bushfires and recreational pursuits (e.g. motorbikes, etc), careful treatment is planned to minimise disturbance and its impact in preparation for mining activities.

All works undertaken during the reporting period have been undertaken in accordance with the commitments made in the amended MOP (May 2002). This has included the following:

- The survey and marking of areas to be cleared ahead of the mining operations;
- Minimising cleared areas to only those needed specifically for mining activities;
- Undertaking pre-clearing surveys to assess the presence of rare and endangered flora and fauna species, as well as to mark potential habitat trees to be retained and stockpiled for further use in the rehabilitated areas;
- Archaeological surveys with the local Mindaribba Lands council both before clearing operations and during topsoil stripping;
- The assessment and recovery of all useable timber resources for fence posts, firewood and poles ahead of the clearing operations. To date broad scale mulching of the waste timber has not been considered an economical option and therefore any timber not salvaged as part of the timber recovery operations is windrowed and buried in the pit as required.;
- Seed collection (where appropriate);

All topsoil ahead of the operation has been stripped and either taken to stockpile or direct spread over reshaped areas. Wherever possible, stockpiles are managed in accordance with the Erosion and Sediment Control Plan (Global Soils, 2000). There have been some occasions where stockpile

heights have exceeded the maximum height of three (3) metres due to space limitations and not wanting to clear additional areas outside of the mining footprint. Where this has occurred, these topsoil stockpiles will be the first to be used once areas become available for direct spreading.

Water management and sediment control structures are in place in accordance with the requirements of the Water Management Plan (Perrens, 2000) and the Erosion and Sediment Control Plan.

To date visual screening has not been needed as the current working areas are protected by naturally occurring topographical features. Care is taken to position lighting towers on the in pit dumps to make sure they are pointed away from the residential areas when working at night.

### 2.3 CONSTRUCTION

There were no buildings constructed during the reporting period.

### 2.4 MINING

The planned mine capacity is based upon the removal of 7.0Mbcm of waste and 2.5Mtonnes of ROM coal each year, on a current roster of 2 x 10 hour shifts per day, five days per week plus the option of one (1) shift on Saturdays. Occasional periods of night shift operations (on a five-day basis) may also be required for coal preparation, or may be used to make up for lost production during wet periods. Maintenance will generally be performed on the "back" shifts. Working hours are typically between 6:00am to 11:30pm even though 24 hour operations are permitted under the consent.

The mining method employed is a "terrace mining" approach, with 75m strips oriented both perpendicular to, and along the strike. This arrangement provides the following advantages:

- Multiple seam plies are available simultaneously for blending purposes;
- Backfill void can be accessed quickly, thereby minimising out-of-pit dumping; and
- Haul distances to the backfill are minimised.

The thin nature of the seams and interburdens provides opportunities for efficient mining techniques including dozer push (to final position). **Table 3** shows the production and waste summary for this AEMR reporting period.

**TABLE 3: PRODUCTION & WASTE SUMMARY**

|                               | <b>Cumulative Production (cubic metres)</b> |                                   |  |
|-------------------------------|---|-----------------------------------|--|
|                               | <b>Start of Reporting Period</b>            | <b>At end of Reporting Period</b> | <b>End of next reporting (estimated)</b> |
| <b>Topsoil stripped</b>       | 320,848                                     | 324,274                           | 328,924                                  |
| <b>Topsoil used/spread</b>    | 44,500                                      | 47,684                            | 53,384                                   |
| <b>Waste Rock</b>             | 27,353,614                                  | 31,849,614                        | 38,267,409                               |
| <b>Coal (ROM)</b>             | 8,939,946                                   | 10,951,946                        | 13,211,320                               |
| <b>Processing Waste</b>       | 2,436,735                                   | 3,157,367                         | 3,773,367                                |
| <b>Product Coal (tonnes )</b> | 6,503,211                                   | 7,853,953                         | 9,437,953                                |

The total amount of waste rock moved in the AEMR period was 4,496,000 cubic meters.

## 2.5 MINERAL PROCESSING

Bloomfield Colliery is currently contracted to wash, stockpile and load all coal mined at the Donaldson Mine. All coal is transported from Donaldson in road registered coal haulage trucks. Once passed through the Bloomfield Coal Handling and Preparation Plant (CHPP), the coal is transported to the dump hopper at the conveyor head by one of two methods:

- Loader and Trucks;
- By direct reclaim.

The conveyor takes the coal from the CHPP area to a rail load out bin and manual loading facility. All Donaldson Coal is then transported from Bloomfield to the port or power stations by train using the existing Bloomfield rail loop. This is consistent with the current MOP as approved by MR.

### 2.5.1 Plant Throughput and Saleable Production

Table 4 shows the monthly treatment plant throughput and the saleable production for each month during the reporting period.

**TABLE 4: PLANT THROUGHPUT AND SALEABLE PRODUCT.**

| <b>(tonnes)</b>    | <b>Nov 2006</b> | <b>Dec 2006</b> | <b>Jan 2007</b> | <b>Feb 2007</b> | <b>Mar 2007</b> | <b>Apr 2007</b> |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Plant Feed</b>  | 194,812         | 131,565         | 37,818          | 226,341         | 174,740         | 92,329          |
| <b>Washed Coal</b> | 139,395         | 102,735         | 25,226          | 138,518         | 111,888         | 58,340          |
| <b>Sizing</b>      | 0               | 0               | 0               | 0               | 0               | 0               |

| <b>(tonnes)</b>    | <b>May 2007</b> | <b>June 2007</b> | <b>July 2007</b> | <b>Aug 2007</b> | <b>Sep 2007</b> | <b>Oct 2007</b> |
|--------------------|-----------------|------------------|------------------|-----------------|-----------------|-----------------|
| <b>Plant Feed</b>  | 220,604         | 111,981          | 229,547          | 209,163         | 204,436         | 238,038         |
| <b>Washed Coal</b> | 126,811         | 78,032           | 158,516          | 148,311         | 129,392         | 133,578         |
| <b>Sizing</b>      | 0               | 0                | 0                | 0               | 0               | 0               |

Totals for the reporting period were:

| <b>(tonnes)</b>    | <b>TOTAL</b> |
|--------------------|--------------|
| <b>Plant Feed</b>  | 2,071,374    |
| <b>Washed Coal</b> | 1,350,742    |
| <b>Sizing</b>      | 0            |

## **2.6 WASTE MANAGEMENT**

The following section briefly outlines the waste management systems employed at the Donaldson Coal Mine. All waste is managed in accordance with the Waste Management Plan (Global 2000b).

### **2.6.1 Tailings and Rejects**

Bloomfield Colliery, as part of the contract discussed above, manages all process waste. Both tailings and coarse rejects are disposed of on site at Bloomfield in accordance with their own management plans. This is consistent with the current MOP as approved by MR.

### **2.6.2 Sewerage Treatment/Disposal**

Currently there are three (3) locations where sewerage is collected and managed. This includes the following areas:

- Cooks Construction administration and bathhouse
- Cooks Construction in-pit crib hut facilities; and
- Donaldson administration facility.

Individual Bio-cycle units services all three (3) areas with the treated water being used to irrigate the gardens and lawn/bushland around the offices. The bio-cycle units are serviced quarterly in accordance with the service schedule recommended by the supplier.

### **2.6.3 Fuel Containment**

A permanent bulk fuel farm facility has been constructed on site in accordance with the appropriate standards. The area is contained by an earthen bund. Approximately 100,000L of diesel fuel is stored on site at any one time. Cooks Construction is responsible for the management of the Fuel Farm facility.

### **2.6.4 Oil and Grease Containment and Disposal**

Oil and grease is delivered to site in 205L drums. A bunded storage pad is used to store full 205L drums. All waste oil collected during servicing is stored in a 5000L-storage tank and routinely collected for recycling. Empty drums are stockpiled inside earthen bunds and collected by a licensed drum recycler on a regular basis.

Oily water is treated by way of an oil-water separator or collected and disposed of by a licensed waste disposal contractor.

### **2.6.5 Rubbish Disposal**

A licensed contractor collects all general rubbish and disposes of it off site at an approved waste facility.

### **2.6.6 Additional Waste Streams**

**Table 5** shows the other minor waste streams identified at the Donaldson Mine including the current mode of disposal and treatment as required.

**TABLE 5: MINOR WASTE TYPES AND THE MODE OF DISPOSAL/TREATMENT**

| <b>WASTE TYPE</b>            | <b>Method of Disposal or Treatment</b>  |
|------------------------------|---|
| <b>Green Waste</b>           | Trees are removed for posts, poles, rails and woodchip. Those trees not used are windrowed and buried in the pit ahead of backfilling.  |
| <b>Oil Filters</b>           | Oil filters are drained and placed in 205L drums for recycling by a licensed waste disposal contractor.   |
| <b>Redundant Chemicals</b>   | Redundant chemicals are taken out of operation, labeled and disposed of by a licensed waste disposal contractor.  |
| <b>Batteries</b>             | Batteries are stockpiled on pallets and taken by licensed waste disposal contractors for recycling.   |
| <b>Tyres</b>                 | All tyres are used on site as bunds and bollards, or are disposed of in the active dump. The Cooks maintenance manager keeps a list of all tyres disposed of in the backfill.                 |
| <b>Scrap Metal</b>           | All scrap metal is collected in designated skips and recycled by a licensed scrap metal recycler.   |
| <b>Coolant</b>               | Coolant is collected in designated drums and disposed of by a licensed waste disposal contractor  |
| <b>Contaminated Soil</b>     | All contaminated soil from spills and accidents is taken to a designated area that is bunded. When a sufficient volume of soil is present it is bio-remediated using land-farming techniques. |
| <b>Parts Wash Degreasers</b> | Parts washers are collected by a licensed waste disposal contractor and recycled and returned to the site for reuse.  |

## 2.7 PRODUCT STOCKPILES

Both the main run of mine (ROM) and product stockpiles are located adjacent to the Bloomfield's CHPP and as such are specifically managed by Bloomfield's. **Table 6** shows the washed and sizing stockpile capacities allocate to Donaldson Coal at Bloomfield's.

**TABLE 6: STOCKPILE CAPACITY (ROM & SALEABLE COAL).**

| <b>(tonnes)</b>    | <b>ROM</b> | <b>Product</b> |
|--------------------|------------|----------------|
| <b>Sizing Coal</b> | 10,000     | 25,000         |
| <b>Washed Coal</b> | 20,000     | 40,000         |

Donaldson has established two (2) primary ROM coal stockpiles on the Donaldson mine site itself. These stockpiles are used during wet weather or when the Bloomfield's ROM stockpiles are full. The first is located part the way along the coal haul road adjacent to the Cooks Construction workshop (1.2km from pit), while the second is located on the out of pit dump (1.6km from pit). On some occasions in-pit ROM coal stockpiles are established in order to allow sequential mining to proceed when there are delays due to weather or insufficient stockpiling room at Bloomfield's.

## 2.8 WATER MANAGEMENT

The following section details the water management structures constructed during the reporting period as well as other changes that have been made to water management at the mine. It also includes a brief summary of the water balance records. Information on the water monitoring program and a summary of results is included in section 3.2.3, 3.2.4 and 3.2.5 of this report.

### 2.8.1 Water Storage Structures

A 400 ML mine water dam was constructed in 2004. This dam is used to store mine water from the pit and is reused for dust suppression.

The 18 ML dam was increased in storage to 40 ML in 2004. This is used for collection of run-off water from rehabilitated areas.

**2.8.2 Sediment Control Structures**

Work was undertaken to refine the drainage of the hard stand area to the industrial dam. This area then drains to the large mine water storage dam.

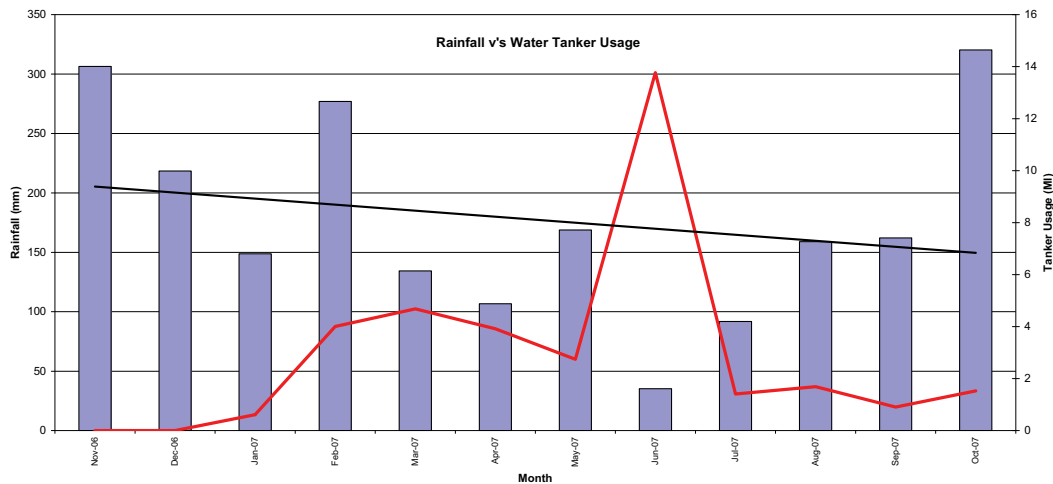
The sediment dams alongside the coal haul road have been upgraded and the capacities increased. Maintenance is undertaken on a regular basis to remove sediment build up.

An additional sediment dam was constructed on the eastern boundary of the mine lease during the period.

**2.8.3 Water Consumption/Balance.**

The site Environmental Manager maintains a site water balance based on water consumed at the mine. It includes recording the amount of water that is available in various water holding structures around the mine. The following chart, **Figure 1**, shows the water consumption and site rainfall for the Donaldson Mine. All water for this monitoring period was obtained from site supplies.

**FIGURE 1: WATER CONSUMPTION AND SITE RAINFALL**



**Table 7** shows the volume of water stored on site at the start and end of the reporting period. It also includes reference to the storage capacity available.

*Note: Donaldson is a nil discharge mine site for mine waste water and as such does not participate in the Hunter River Salinity Trading Scheme.*

**TABLE 7: STORED WATER**

|   | Volumes held (cubic metres) |                            |                  |
|---|-----------------------------|----------------------------|------------------|
|   | Start of Reporting Period   | At end of Reporting Period | Storage Capacity |
| <b>Dirty water</b>  | 4.5                         | 10                         | 22               |
| <b>Contaminated water*</b>  | 196                         | 361                        | 441              |
| <b>Controlled discharge water**</b><br>(salinity trading schemes) | NA                          | N/A                        | N/A              |

Note: \*This data assumes that there is no water stored in the pit, where in reality there is generally always an in pit sump established down dip. The sump is capable of storing some water without impacting on the mining operation. The water is used for in-pit dust suppression where it is accessible to the water cart.

\*\*Donaldson Coal does not discharge water under the Hunter River Salinity Trading Scheme.

## **2.9 HAZARDOUS MATERIAL MANAGEMENT**

As the operator of the Mine, Cooks Construction is principally responsible for the management of hazardous and explosive materials. Donaldson Coal has the occasional need to use chemicals (drilling muds, herbicides, etc). All hazardous materials are managed in accordance with the Cooks Construction Site Safety Management System.

### **2.9.1 Explosives**

From the 16<sup>th</sup> June 2004, Roche Sasol Blasting was contracted to provide blasting services to the mine. Previously blasting was conducted by UEE. Roche Sasol Blasting manages all explosives and other related materials in accordance with the appropriate legislation and industry standards. All explosives, etc are brought to site on an as needs basis, and as such a magazine (or similar) is not required at the site.

### **2.9.2 Bulk Fuel Storage**

All bulk fuels are managed in accordance with the detail described in sections 2.6.3 of this report.

Cooks Construction has constructed a fuel farm facility to store 100,000L of diesel fuel. The fuel farm facility has been approved as a bulk storage facility for hazardous materials.

### **2.9.3 Chemicals**

Both Cooks Construction and Donaldson Coal keep an up to date inventory of Material Data Safety Sheets (MSDS) for all chemical substances used on the site. Prior to a new substance being introduced on the site it has to be approved by the Statutory Mine Manager and is included on the site register.

In addition, copies of Material Data Safety Sheets (MSDS) are generally kept with the chemical when it is being used on site, where this is not the case copies are kept in the on site chemical register.



### 3 **ENVIRONMENTAL MANAGEMENT AND PERFORMANCE**

The following section gives an overview of the environmental management performance of the Donaldson Coal Mine during the reporting period. It considers the main environmental aspects of the operation and summarises environmental performance, providing explanation or interpretation for any exceedances. It also considers the adequacy of the control strategies and suggests ongoing improvements where required.

#### **3.1 ENVIRONMENTAL MANAGEMENT STRATEGY (EMS)**

During this reporting period work has continued to integrate the Donaldson Coal and Cooks Construction individual company EMS's into one working document for the mine site. A more effective and useable outcome will be achieved by combining the EMS's. The revised EMS has been developed in accordance with the ISO 14001 standard and the additional specific requirements of the Development Consent.

Ongoing workforce training and continuous improvement programs will be undertaken following the development of the revised EMS documentation. Donaldson will manage copies of the documentation however; Cooks will have access to both digital and hard copies of the EMS.

The Flora and Fauna Management Plan, Blast Management Plan, Air Quality Management Plan and Noise Management Plan were all revised in accordance with the Development Consent during the 2007 AEMR period and approved by the Department of Planning.

**Comment [MH3]:** Was the NMP revised? YES PB

##### **3.1.1 Environmental Risk Assessment**

Donaldson Coal previously undertook a detailed Environmental Risk Assessment as part of the recent EMS review. The aim was to identify which activities at the mine present the greatest risk to the environment. **Table 8** lists the principal environmental aspects identified during this process. An internal risk rating score has been assigned to each identified risk as part of a frequency, probability and severity analysis (FPSA). **Table 8** is in accordance with the requirements of the DPI guidelines (EDG03). Control strategies and detail on the environmental performance in all areas encompassing these aspects are included in **section 3.2**.

**TABLE 8: SUMMARY OF ENVIRONMENTAL RISKS & CONTROL STRATEGIES.**

| <b>Environmental Aspect</b>                | <b>Potential Environmental Impact</b>                  | <b>Internal Rating</b> |
|--|--|------------------------|
| maintaining conservation areas             | Fire   | HIGH                   |
| overburden hauling & emplacement           | Noise  | HIGH                   |
| coal haulage & stockpiling                 | acid mine drainage                                     | HIGH                   |
| active waste emplacement                   | acid mine drainage                                     | HIGH                   |
| landform & vegetation rehabilitation       | Fire   | HIGH                   |
| blasting overburden                        | impact on 132kV powerlines                             | MODERATE               |
| overburden hauling & emplacement           | Dust   | MODERATE               |
| blasting overburden                        | noise (overpressure)                                   | MODERATE               |
| vegetation clearing                        | disturb or destroy endangered flora & fauna            | MODERATE               |
| hazardous Goods Storage                    | hydrocarbon, oil spill                                 | MODERATE               |
| excavation O/B & coal                      | Dust   | MODERATE               |
| maintaining conservation areas             | land disturbance – unauthorised                        | MODERATE               |
| coal haulage & stockpiling                 | Dust   | MODERATE               |
| Mobile fuel truck                          | hydrocarbon spill from vehicle incident                | MODERATE               |
| stripping topsoil                          | disturb or destroy cultural heritage sites             | MODERATE               |
| blasting overburden                        | Vibration  | MODERATE               |
| excavation O/B & coal                      | Noise  | MODERATE               |
| water distribution/pumping                 | broken pipeline causing leakage/siphoning              | MODERATE               |
| coal processing & loader                   | Noise  | MODERATE               |
| timber recovery                            | disturb or destroy cultural heritage sites             | MODERATE               |
| blasting overburden                        | Dust   | MODERATE               |
| timber recovery                            | disturb or destroy endangered flora & fauna            | MODERATE               |
| stripping topsoil                          | Dust   | MODERATE               |
| excavation O/B & coal                      | hydrocarbon spill (burst hose)                         | MODERATE               |
| overburden hauling & emplacement           | hydrocarbon spill (burst hose)                         | MODERATE               |
| H/W water storage's (above ground)         | failure of dam wall (10 ML) resulting in rapid release | MODERATE               |
| H/W water storage's (below ground)         | seepage or overflow                                    | MODERATE               |
| servicing & Maintenance                    | hydrocarbon, oil spill                                 | MODERATE               |
| coal haulage & stockpiling                 | Noise  | MODERATE               |
| rejects & tailings emplacement             | off-site water contamination                           | MODERATE               |
| stripping topsoil                          | Noise  | MODERATE               |
| vegetation clearing                        | disturb or destroy cultural heritage sites             | MODERATE               |
| landform & vegetation rehabilitation       | erosion of landform and release of sediment            | MODERATE               |
| waste Management                           | hydrocarbon, oil or chemical spill. Consumables etc    | MODERATE               |
| maintaining conservation areas             | land contamination by rubbish                          | MODERATE               |
| overburden hauling & emplacement           | exhaust emissions                                      | MODERATE               |
| using water-cart for dust suppression      | repeated application to road surfaces                  | MODERATE               |
| involving water importing from Bloomfields | pipe burst and leakage of very saline water            | MODERATE               |
| active waste emplacement                   | Visual   | MODERATE               |
| exploration drilling                       | disturb or destroy cultural heritage sites             | MODERATE               |
| excavation O/B & coal                      | loss of topsoil  | MODERATE               |
| stripping topsoil                          | hydrocarbon spill from burst hose or re-fuelling       | MODERATE               |
| vegetation clearing                        | hydrocarbon spill from burst hose or re-fuelling       | MODERATE               |
| active waste emplacement                   | Dust   | MODERATE               |
| coal haulage & stockpiling                 | hydro-carbon spill from vehicle roll-over              | MODERATE               |
| coal processing & loader                   | Dust   | MODERATE               |
| coal processing & loader                   | washery water spill/leak. Impact on water quality      | MODERATE               |
| stripping topsoil                          | loss of topsoil (quantity)                             | MINOR                  |
| stripping topsoil                          | erosion and sediment discharge                         | MINOR                  |

|                                |  |       |
|--------------------------------|--|-------|
| timber recovery                | hydrocarbon spill from burst hose or re-fuelling | MINOR |
| exploration drilling           | hydrocarbon spill from burst hose or re-fuelling | MINOR |
| stripping topsoil              | loss of topsoil (quality)                        | MINOR |
| drilling overburden            | Noise  | MINOR |
| drilling overburden            | Dust   | MINOR |
| drilling overburden            | hydrocarbon spill                                | MINOR |
| coal haulage & stockpiling     | spontaneous combustion                           | MINOR |
| rejects & tailings emplacement | contaminated land                                | MINOR |
| Vehicle parts washing          | hydrocarbon, oil spill (no fixed location)       | MINOR |
| vegetation clearing            | Noise  | MINOR |
| exploration drilling           | water quality (drilling mud, additives)          | MINOR |
| vegetation clearing            | Dust   | MINOR |
| vegetation clearing            | erosion and sediment discharge                   | MINOR |
| timber recovery                | Noise  | MINOR |
| timber recovery                | Dust   | MINOR |
| timber recovery                | erosion and sediment discharge                   | MINOR |
| exploration drilling           | Noise  | MINOR |
| exploration drilling           | Dust   | MINOR |
| exploration drilling           | erosion and sediment discharge                   | MINOR |

## 3.2 ENVIRONMENTAL MANAGEMENT CONTROLS

This section documents the implementation and effectiveness of control strategies and environmental performance for a range of environmental aspects as prescribed by the MR guidelines. Summary tables of all monitoring data are included for consideration by the MR. Detailed copies of all environmental data collected by Donaldson have not been included in the present report but are however available upon request.

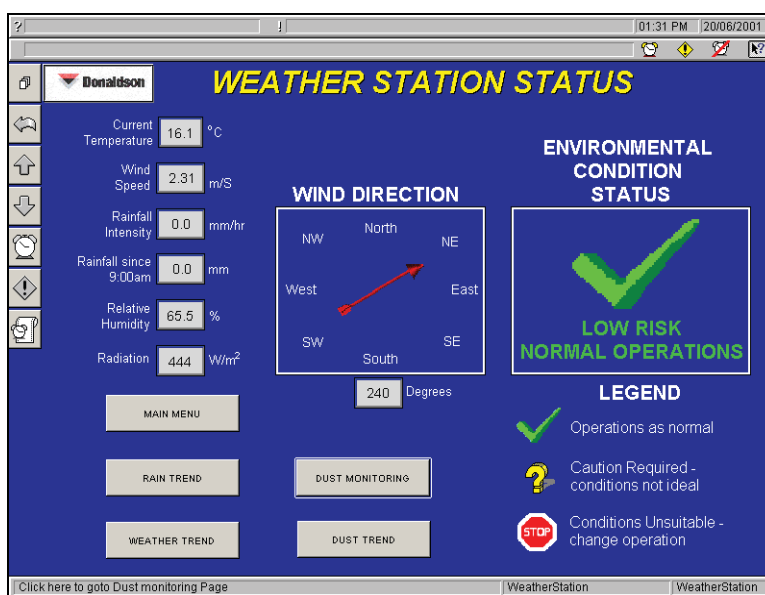
### 3.2.1 Meteorological Monitoring

An automatic weather station has been in operation at the site since 3<sup>rd</sup> December 1999. The station is supplied and serviced by Holmes Air Sciences. The station is a Unidata system with instrumentation installed to measure solar radiation (W/m<sup>2</sup>), temperature (°C), wind speed (m/s), wind direction and rainfall (mm). Data from the Unidata station was recorded continuously and reported as ten-minute averages. In May 2001 the monitoring data was integrated with a Citec operating system to provide real time and meteorological data and trending functions. This feature has allowed operational staff the ability to make up-to-date decisions about the influence of meteorological conditions on mining operations. **Figure 2** shows a typical screen that is displayed both in the Donaldson Coal Communication's office and the Shift Foreman office.

**Rainfall**

**Table 9** details the rainfall for the 2007 AEMR reporting period. A total of 857.4 mm was recorded during the 2007 AEMR reporting period, more than the corresponding 2006 AEMR period (509 mm) and slightly less than the historical average (894mm). **Table 9** also includes a comparison between the historical monthly average rainfall from the Bureau of Meteorology site at East Maitland (site 061034 – operating from 1902 to 1 Mar 1994) and the rainfall recorded at the Donaldson Weather Station since January 2000.

**FIGURE 2: WEATHER STATION SCREEN.**



**TABLE 9: COMPARISON BETWEEN MONTHLY RAINFALL DURING THE 2007 AEMR REPORTING PERIOD, PREVIOUS REPORTING PERIODS AND HISTORICAL AVERAGE.**

| Period                                    | Average Monthly Rainfall (mm) |             |              |             |             |              |             |             |             |             |             |             |              |
|---|-------------------------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
|   | Jan                           | Feb         | March        | April       | May         | June         | July        | Aug         | Sept        | Oct         | Nov         | Dec         | Total        |
| <b>Historical Average (East Maitland)</b> | 89                            | 94          | 97           | 87          | 70          | 84           | 58          | 52          | 55          | 66          | 62          | 81          | 894          |
| 2000                                      | 61                            | 32          | 279          | 146         | 45          | 24           | 27          | 31          | 33          | 47          | 106         | 32          | 863          |
| 2001                                      | 46                            | 169         | 193          | 114         | 244         | 3.4          | 63          | 22          | 12          | 31          | 91          | 38          | 1026.4       |
| 2002                                      | 48                            | 281         | 184          | 66.4        | 62.1        | 30           | 30          | 21          | 17.4        | 18.8        | 56.2        | 149.2       | 964.1        |
| 2003                                      | 6                             | 90          | 22.2         | 77          | 135         | 13.2         | 43          | 27.4        | 0           | 63.2        | 137.6       | 39          | 653.6        |
| 2004                                      | 86                            | 176.6       | 80           | 33.6        | 17.4        | 9.4          | 15.4        | 43.1        | 61.2        | 136         | 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        |
| <b>2006</b>                               | 51.1                          | 50.5        | 79.9         | 30.1        | 14.5        | 61.4         | 43.4        | 53.6        | 205.2       | 25.1        | <b>34.4</b> | <b>34.5</b> | <b>683.7</b> |
| <b>2007</b>                               | <b>13.4</b>                   | <b>96.4</b> | <b>101.4</b> | <b>84.6</b> | <b>59.7</b> | <b>315.2</b> | <b>16.5</b> | <b>79.6</b> | <b>28.3</b> | <b>35.0</b> |             |             | <b>830.1</b> |

Note: Bold results are for this monitoring period.

\* Data set not complete

### **Wind Speed and Direction**

Wind speed and direction data have been collected from the meteorological station at Donaldson Coal Mine since December 1999. These data are presented in the form of windrose charts. Windrose charts for each month and season within the 2007 AEMR reporting period are included in **Appendix 5**. A windrose chart for the entire 2007 AEMR reporting period is also included in **Appendix 5**.

The winds display a high degree of seasonality. Winds typically blow from the south to east quadrant from October to March and from the west to north quadrant from April to September.

### **3.2.2 Air Pollution**

There are two principle sources of air pollution from the Donaldson Coal Mine. The first is airborne dust that comes from the mining activities (measured as depositional dust, PM<sub>10</sub> and Total Suspended Particulates (TSP)). The second source is from the combustion of diesel fuel, which is measured as PM<sub>2.5</sub> particles.

Donaldson operates the following dust monitoring equipment:

- one High Volume Air Sampler (HVAS) measuring TSP and
- two HVAS measuring PM<sub>10</sub>;
- two continuous DustTrak monitors measuring PM<sub>10</sub>;
- eleven Depositional Dust Gauges measuring insoluble solids; and
- one GRIMM monitor measuring PM<sub>10</sub> and PM<sub>2.5</sub> on two campaign events.

Refer to **Appendix 2** for dust monitoring locations. It is noted that measurements taken at any of these locations will include all background air pollution relevant to those locations, as well as any contribution occurring from the Donaldson Coal Mine.

#### **Control Strategy:**

The reviewed Donaldson Air Quality Management Plan (Holmes, 2007) details the range of measures employed by Donaldson to control airborne dust. These measures include:

- Maintenance of an adequate distance between the mine and neighbouring residents;
- Minimisation of disturbance of land to only what is required by mining activities;
- Minimisation of the distance travelled by hauling overburden the shortest distance possible;
- Utilisation of mine water for dust suppression on roads, stockpiles and work areas; and
- Monitoring of real time weather conditions and alter or cease the offending operations when dust is becoming difficult to control.

#### **Environmental Performance:**

No dust complaints were made during the 2007 AEMR reporting period.

A review of the dust monitoring data for the period suggests that there has been no major change in the regional dust levels as a result of mining activities compared to the previous reporting period. Seasonal variations are evident (i.e. summer versus winter) and in some cases high readings have

been recorded on the DustTrak's and the Depositional Dust Gauges. These events are related to activities adjacent to the monitoring site (other than mining) including, but not limited to, dirt roads, bushfires and lawn mowing.

A summary of the monitoring data for the reporting period is included here for reference.

### **Depositional Dust Gauges**

Results were recorded for 129 monthly samples at eleven (11) dust gauges out of a possible total of 132. One (1) result was not obtained due to the dust bottle being accidentally broken by the technician and two (2) were judged to be excessively contaminated with bird droppings and ruled invalid, refer **Table 10**.

All gauges were in compliance with the Donaldson Air Quality Management Plan, with annual average insoluble solid results for each gauge below the criteria of 4g/m<sup>2</sup>.month. Results are displayed in **Table 11**. Results are generally similar or lower to the previous year's results and indicate no major increase in dust emissions.

**TABLE 10: MISSING DEPOSITIONAL DUST GAUGE DATA.**

| Location | Date                    | Reason for exclusion                          |
|----------|-------------------------|---|
| DG6      | 27/11/2006 - 27/12/2006 | Excess Bird Droppings                         |
| DG9      | 27/11/2006 - 27/12/2006 | Dust bottle accidentally broken by Technician |
| DG8      | 27/12/2006 - 24/1/2007  | Excess Bird Droppings                         |

**TABLE 11: CONCENTRATION MONITORING - DEPOSITIONAL DUST GAUGES**

| Sample Site | No. Samples Required | No. samples collected and analysed | Maximum Insoluble Solids (g/m <sup>2</sup> .month) | Minimum Insoluble Solids (g/m <sup>2</sup> .month) | Mean Insoluble Solids (g/m <sup>2</sup> .month) |
|-------------|----------------------|------------------------------------|--|--|---|
| DG1         | 12                   | 12                                 | 4.2  | <0.1   | 1.5   |
| DG2         | 12                   | 12                                 | 3.4  | <0.1   | 1.0   |
| DG3         | 12                   | 12                                 | 3.0  | <0.1   | 1.3   |
| DG4         | 12                   | 12                                 | 2.3  | <0.1   | 1.2   |
| DG5A        | 12                   | 12                                 | 4.8  | <0.1   | 1.4   |
| DG6         | 11                   | 11*                                | 5.3  | <0.1   | 1.4   |
| DG7         | 12                   | 12                                 | 2.4  | <0.1   | 1.3   |
| DG8         | 12                   | 11*                                | 3.3  | <0.1   | 1.6   |
| DG9         | 12                   | 11+                                | 2.3  | <0.1   | 1.0   |
| DG10        | 12                   | 12                                 | 4.9  | <0.1   | 1.4   |
| DG11        | 12                   | 12                                 | 3.9  | <0.1   | 1.7   |

\* Samples contained excessive bird droppings.

+ Broken bottle.

### **High Volume Air Samplers**

This section deals with the high volume air samplers located at "Bartter Chicken Farms" site (now owned by the Catholic Diocese of Maitland and Newcastle) and the Beresfield Golf Course. Two sets of measurements have been performed during the reporting period, viz. PM<sub>10</sub> (particulate matter of diameter less than 10 µm) and TSP (total suspended particulate matter). A summary of these measurements is included below.

**PM<sub>10</sub>**

The annual average PM<sub>10</sub> at both monitoring sites was below the annual average maximum criteria of 30µg/m<sup>3</sup>. The annual average PM<sub>10</sub> at the Beresfield Golf Course and at the "Bartter Enterprise" location has remained relatively stable compared to the previous 2006 AEMR reporting period. Results are displayed in **Table 12**.

All PM<sub>10</sub> measurements recorded at the "Bartter Enterprise" location satisfied the 24-hour NEPM maximum criteria of 50 µg/m<sup>3</sup>. Only one (1) of the 24 hour PM<sub>10</sub> measurements recorded at the Beresfield Golf Course location exceeded this criteria and this indicates similar air quality at both locations. During the last reporting period, PM<sub>10</sub> values exceeded the NEPM criteria on 0 and on 2 occasions at the "Bartter Enterprise" and Beresfield Golf Course locations respectively. The one PM<sub>10</sub> result exceeding the NEPM 24hr criteria at the Beresfield Golf Course was recorded on the 2<sup>nd</sup> October 2007 (51 ug/m<sup>3</sup>). The predominant winds on this date were from the west north west and south south east directions.

The Beresfield Golf Course is located E to NE of current mining operations and any dust emissions from Donaldson Coal would have resulted in minimal impact under these wind conditions. The higher dust levels are most likely due to localised effects including Road Construction on New England Highway and Weakley's Drive and have not been attributed to the mining activities of Donaldson Coal. Generally PM<sub>10</sub> levels at both sites were similar during this monitoring period compared to the last monitoring period.

**Comment [MH4]:** This statement will need to be checked OK PB

**TABLE 12: DETAILS OF CONCENTRATION MONITORING (PM<sub>10</sub> HIGH VOLUME AIR SAMPLERS).**

| Sample Site            | No Samples Required | No samples collected and analysed | Maximum PM <sub>10</sub> Value (µg/m <sup>3</sup> ) | Minimum PM <sub>10</sub> Value (µg/m <sup>3</sup> ) | Mean PM <sub>10</sub> Value (µg/m <sup>3</sup> ) |
|------------------------|---------------------|-----------------------------------|---|---|--|
| Beresfield Golf Course | 60                  | 59                                | 51  | 6   | 21.7   |
| "Bartter Enterprise"   | 60                  | 60                                | 44  | 2   | 16.7   |

**Total Suspended Particulates**

TSP measurements were performed at the "Bartter Enterprise" location, using a high volume air sampler. Details of these measurements are included in **Table 13**.

The annual average TSP result at "Bartter Enterprise's (34 µg/m<sup>3</sup>) was well below the annual average criteria of 90 µg/m<sup>3</sup>. While there are no specified criteria for a 24-hr TSP maximum in the Donaldson consent or EPA licence, all TSP results were well below the US EPA short term good air quality criteria of 260 µg/m<sup>3</sup>.

In general, the results recorded during this reporting period are similar to the corresponding measurements of the 2006 AEMR reporting period indicating a low dust impact from mining operations. The ratio of PM<sub>10</sub> to TSP over the reporting period was 49%, which was very similar to the last reporting period results (50%).

**TABLE 13: CONCENTRATION MONITORING (TSP HIGH VOLUME SAMPLERS).**

| Sample Site          | No Samples Required | No samples collected and analysed | Maximum TSP Value ( $\mu\text{g}/\text{m}^3$ ) | Minimum TSP Value ( $\mu\text{g}/\text{m}^3$ ) | Mean TSP Value ( $\mu\text{g}/\text{m}^3$ ) |
|----------------------|---------------------|-----------------------------------|--|--|---|
| "Bartter Enterprise" | 60                  | 60                                | 77   | 9  | 33.8  |

**Table 14** displays the data capture rate for the three high volume air sampler units during the period. There was only one day of non-capture by the Beresfield Golf Course PM<sub>10</sub> that was due to nearby construction activities and the violent storm on the 10 June 2007 that affected the Hunter. Data capture was slightly lower than compared with the last reporting period.

**TABLE 14: HIGH VOLUME SAMPLER DATA CAPTURE RATE.**

| Monitoring Location                         | Data Capture Rate (%) |
|---|-----------------------|
| Bartter (PM <sub>10</sub> )                 | 100                   |
| Bartter (TSP)                               | 100                   |
| Beresfield, Golf Course (PM <sub>10</sub> ) | 98                    |

### **DustTrak Monitors**

Donaldson operates two continuous DustTrak air quality monitors. One has been permanently located on a property owned and occupied by "Bartter Enterprise's". The second unit is designed to be mobile and as such rotates to various key locations around the mine as required. The mobile DustTrak has been located on Weakley's Drive (east of the mine site) throughout the entire duration of this reporting period. This location is preferred as it is close to the mine and is located at the residence of one of the Community Consultative Committee (CCC) members. Both units are interrogated remotely from the mine by way of mobile phone telemetry. The results are logged and stored on the mine Environmental Monitoring computer system.

**Table 15** summarises the DustTrak monitoring data and the data capture rate. The measurements of PM<sub>10</sub> by optical methods (such as the DustTrak monitors) are known to be particularly sensitive to rainfall or high humidity events. Monthly inspections of the DustTrak monitors and regular servicing of the instruments assist with reducing occasions when the measurements become unstable or drift from sensible values. It was considered appropriate to exclude non-valid data from the calculations of the highest 24-hour average PM<sub>10</sub>, annual average PM<sub>10</sub> and the lowest 24-hour average PM<sub>10</sub>. Despite this, the valid data recovery rate, refer **Table 15**, upon which the PM<sub>10</sub> averages are based are still adequate.

In some instances the assessment of whether collected data was valid or not was difficult to determine. Obvious erroneous measurements included negative values, extremely high values persisting for extended periods of time (i.e. continuously for days) and data, which exhibited no variation for, extended periods of time. Holmes Air Sciences determined data averaging and validity.

The monthly air quality monitoring reports provided to Donaldson Coal by Holmes Air Sciences provide graphs of all the data collected, including valid and non-valid data.



**TABLE 15: DETAILS OF DUSTTRAK CONTINUOUS MONITORING**

| Site                | Data collection | Total data recovery (%) | Valid data recovery (%) | Highest 24-hour average PM <sub>10</sub> | Annual average PM <sub>10</sub> | Lowest 24-hour average PM <sub>10</sub> |
|---------------------|-----------------|-------------------------|-------------------------|--|---------------------------------|---|
| Weakley's Drive     | Continuous      | 92                      | 79                      | 79                                       | 20                              | 0                                       |
| "Barter Enterprise" | Continuous      | 61                      | 61                      | 55                                       | 16                              | 1.4                                     |

Note: Data in this table is for the annual reporting period 1 November 2006 to 31 October 2007 as reported by Holmes Air Sciences.

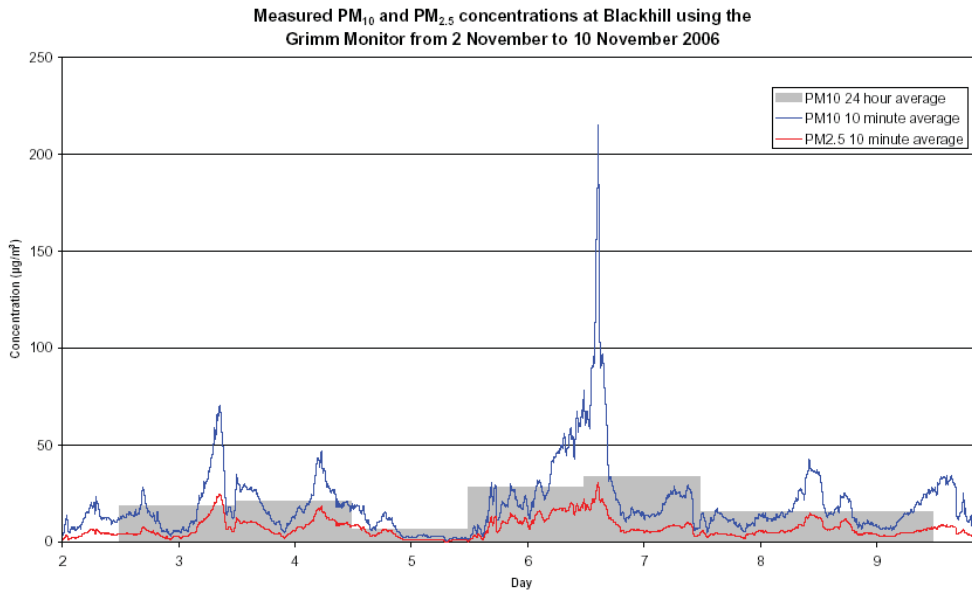
The results from DustTrak monitoring are comparable to those obtained from the PM<sub>10</sub> High Volume Air Sampling and the annual averages were again, below the maximum NEPM annual average criteria.

#### ***PM<sub>2.5</sub> Air Quality Monitoring***

PM<sub>2.5</sub> dust monitoring was undertaken by a GRIMM monitor for three campaign events during this reporting period at the Bartter (Blackhill) site. Monitoring was conducted continuously over the period 2<sup>nd</sup> November to 10<sup>th</sup> November 2006, 24<sup>th</sup> May to 31<sup>st</sup> May 2007 and the 18<sup>th</sup> October to 26<sup>th</sup> October 2007. 10-minute averages were obtained and are provided in **Figures 3, 4 and 5**.

Data collected during the November 2006, May 2007 and October 2007 sampling events showed that PM<sub>10</sub> measured at the site consisted of approximately 36% to 40% PM<sub>2.5</sub> particles respectively. This is similar to previous recorded results and is a relatively low fraction. It is typical of a semi-rural area such as where the particulate matter is likely to be crustal (dust particles) rather than from the combustion process such as the burning of fuel in motor cars. There is however likely to be some contribution from motor cars due to the proximity of major roads to the monitoring location.

**Figure 3: PM10 and PM2.5 chart for the period 2<sup>nd</sup> to 10<sup>th</sup> November 2006**



**Figure 4: PM10 and PM2.5 chart for the period 24<sup>th</sup> May to 31<sup>st</sup> May 2007**

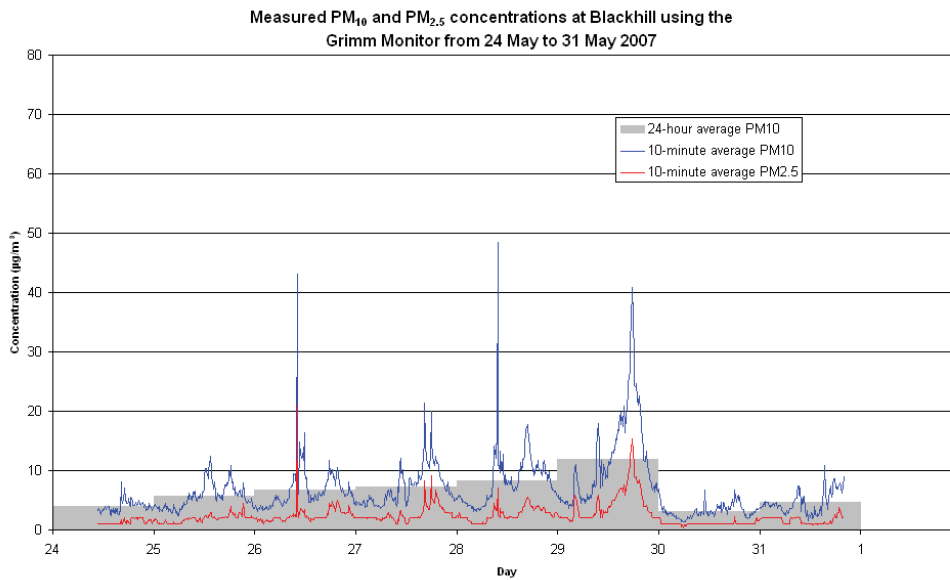
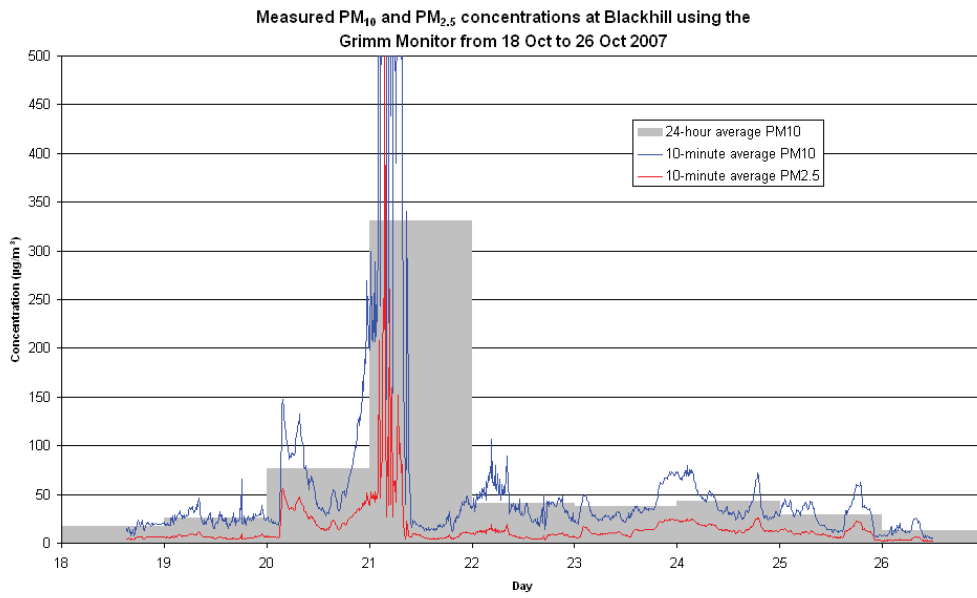


Figure 4: PM10 and PM2.5 chart for the period 18 October 2007 to 26th October 2007



### 3.2.3 Erosion and Sediment Control

The Erosion and Sediment Control Plan (Global Soil Systems, 2000) details the methods for erosion and sediment control at the site. The works are progressively constructed in conjunction with the advancing mining operations.

Since the last inspection the following additional works have been completed at the Donaldson Mine:

- Routine maintenance of sediment dams A, B and C alongside the coal haul road;
- Drainage lines on the rehabilitated areas were regraded and pasture seeded to minimise scouring and assist in sediment removal. Drainage design was checked immediately after construction to assess consistent grade and ensure they were free draining. This is now standard practice on site;
- Hydro mulching and straw mulching was undertaken on the visual bund along John Renshaw Drive and other exposed areas where required;
- Ongoing minor works, including but not limited to, silt fences, hay bales and seeding using hybrid pasture grass species such as rye-corn, silk sorghum and oats; and
- Regular inspections of silt fencing is undertaking around the site and in particular following significant rainfall events.

Graded banks and waterways will continue to be used to divert all water from the reshaped and revegetated areas prior to release from the site. Where possible, banks will be built with a stable outlet. If this cannot be achieved in the short term, or if necessary to drop the banks short, the downstream consequences will be assessed and if unacceptable, an alternate design will be adopted.

#### **Control Strategy:**

The following control measures are employed at the Donaldson in order to control erosion and sediment leaving the mine:

- Minimal disturbance (only what is required for mining);
- Diversionary works to separate clean and sediment laden waters;
- Sediment control dams;
- The employment of sediment fencing and hay bales to provide interim protection; and
- Revegetation as soon as is practical

#### **Environmental Performance:**

There were no complaints received by the mine relating to sediment control issues. Routine water quality monitoring undertaken at locations upstream and downstream of the mine is used to assess the performance of the sediment retention structures. Total Suspended Solids (TSS) are reported as an indicative measure of the effectiveness of sediment control. **Table 16** includes TSS data

collected during the 2006 AEMR reporting period. Where necessary flocculates have been used in the past to precipitate sediment from solution and ensure an appropriate water quality.

A program of checking all sediment control structures is employed following rainfall events greater than 20mm in any one 24 hr period. Any repair works that are required (e.g. clean out sediment dams or re-erect silt fencing etc) are undertaken as soon as is practical after the rainfall event.

### 3.2.4 Surface Water

The Water Management Plan (Perrens, 2000) details the measures employed by Donaldson Coal to ensure protection of surface water on and around the mine site. Surface water monitoring has been ongoing since June 2000. A plan showing the location of the water monitoring sites appears in **Appendix 2**. Ecowise Environmental (EE) is engaged by Donaldson to undertake routine sampling and analysis of six (6) permanent surface water stream monitoring locations. Grab samples are also taken opportunistically from various other locations around the mine area as required (sediment dams and mine water storage dams). The surface stream water monitoring sites include:

- Four Mile Creek Upstream (EM1);
- Four Mile Creek Downstream (EM2);
- Scotch Dairy Creek Upstream (EM3);
- Scotch Dairy Creek Downstream (EM4);
- Weakley's Flat Creek Downstream (EM5); and
- Weakley's Flat Creek Upstream (EM6).

Samples collected from the six existing stream sites are analysed for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS) and Sulfates (SO<sub>4</sub>), on a monthly basis. A full suite analysis is also carried out on a quarterly basis and includes analysis for EC, pH, TDS, SS, SO<sub>4</sub>, Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Fluoride (F), Arsenic (As), Aluminium (Al), Barium (Ba), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chromium (Cr), Iron (Fe), Manganese (Mn), Lead (Pb), Zinc (Zn), Total Alkalinity as CaCO<sub>3</sub>, Nitrates and Phosphates (total). Surfactants (detergents) and Total Petroleum Hydrocarbons (TPH) are included in the suite of analysis for the industrial area sump or as required.

Rising Stage Samplers (RSS) have been installed upstream and downstream of the site. These samplers collect water quality information during flow events with sample bottles located upward from the streambed at 0.2m intervals to a maximum of 1m. Samples are collected from these sites as soon as possible after flows, however this is limited to some extent by access to the sites during extended wet periods.

In addition to the physical and chemical water quality work, biological monitoring (macroinvertebrates) has been ongoing as part of the environmental impact assessment. The program consists of:

- A pre-mining baseline survey;
- A construction survey; and
- Twice yearly operational surveys.

One monitoring survey was completed during the AEMR 2007 reporting period, 20<sup>th</sup> April 2007, and another survey was completed earlier on the 5<sup>th</sup> October 2006. Although this earlier survey falls outside this 2007 AEMR period, the results are included in this AEMR because they were not reported in the 2006 AEMR as the final report was not available at the time of preparation of the 2006 AEMR.

#### **Control Strategy:**

The following control measures are employed at the Donaldson in order to ensure an appropriate level of protection to surface water on and around the mine site (there are a number of similarities with the Erosion and Sediment Control Plan as detailed above):

- Minimal disturbance;
- Source separation in order to separate water of differing quality;
- Collection and containment of mine water for dust suppression;
- Grey water and sewerage is treated by bio-cycle technology; and
- Water from workshop and washdown areas (to be constructed) is directed through a simple oil/water separator prior to the Industrial Area dam and then via a channel drain to the mine water storage dam.

#### **Environmental Performance:**

There were no water-related complaints received during the 2006 AEMR reporting period. In addition, monthly water monitoring results were routinely reviewed to determine whether there were any changes as a result of activities at the mine.

#### **Chemical & Physical Monitoring:**

A summary of three key parameters, required by the DEC Pollution Control Licence, for the reporting period as well as the pre-mining baseline is included in **Table 16** for reference.

Mean pH values for all stream-monitoring locations as recorded on a monthly basis are generally comparable to the pre-mining pH levels. The average pH of most sites is within the recommended ANZECC Guideline (pH 6.5 – 9.0) for fresh and marine waters for the protection of aquatic ecosystems.

The corresponding mean EC values in **Table 16** are also generally comparable to the pre-mining values, except in three cases. Scotch Creek Upstream, Four Mile Creek Upstream and Weakley's Flat Creek Upstream annual average EC results were higher than pre-mining results. These higher results may be attributed to ongoing drought conditions throughout the region. In any case, upstream EC results are higher than downstream EC results along the three watercourses suggesting that Donaldson is not having any significant impact on EC levels

The annual mean TSS values at monitoring locations were generally higher than the respective pre-mining levels.

**TABLE 16: SUMMARY OF KEY WATER QUALITY PARAMETERS COMPARED WITH PRE-MINING DATA.**

| Sample Site                   | No Samples Required | No samples collected and analysed | Highest Sample Value |            |             | Lowest Sample value |            |            | Mean Sample Value |            |            |
|-------------------------------|---------------------|-----------------------------------|----------------------|------------|-------------|---------------------|------------|------------|-------------------|------------|------------|
|                               |                     |                                   | pH                   | EC         | TSS         | pH                  | EC         | TSS        | pH                | EC         | TSS        |
| Four Mile Ck Upstream         | 12                  | 12                                | 7.2                  | 985        | 82          | 6.2                 | 160        | 8          | 6.7               | 475        | 28         |
| <b>Pre-mining</b>             | ---                 | ---                               | <b>7.44</b>          | <b>522</b> | <b>90</b>   | <b>6.7</b>          | <b>265</b> | <b>180</b> | <b>7.06</b>       | <b>276</b> | <b>32</b>  |
| Four Mile Ck Downstream       | 12                  | 12                                | 7.4                  | 480        | 452         | 6.3                 | 100        | 2          | 6.8               | 190        | 54         |
| <b>Pre-mining</b>             | ---                 | ---                               | <b>7.73</b>          | <b>265</b> | <b>32</b>   | <b>6.4</b>          | <b>120</b> | <b>2</b>   | <b>7.15</b>       | <b>175</b> | <b>8</b>   |
| Scotch Dairy Creek Upstream   | 12                  | 11                                | 6.5                  | 710        | 8930        | 4.8                 | 290        | 6          | 5.6               | 503        | 950        |
| <b>Pre-mining</b>             | ---                 | ---                               | <b>6.81</b>          | <b>200</b> | <b>47</b>   | <b>5.90</b>         | <b>71</b>  | <b>9</b>   | <b>6.33</b>       | <b>210</b> | <b>22</b>  |
| Scotch Dairy Creek Downstream | 12                  | 11                                | 7.1                  | 410        | 556         | 5.0                 | 40         | 17         | 6.1               | 195        | 162        |
| <b>Pre-mining</b>             | ---                 | ---                               | <b>6.8</b>           | <b>270</b> | <b>1283</b> | <b>5.8</b>          | <b>145</b> | <b>12</b>  | <b>6.43</b>       | <b>180</b> | <b>271</b> |
| Weakley's Flat Ck Upstream    | 12                  | 12                                | 7.5                  | 2530       | 46          | 6.6                 | 310        | 4          | 7.0               | 955        | 19         |
| <b>Pre-mining</b>             | ---                 | ---                               | <b>7.49</b>          | <b>310</b> | <b>3</b>    | <b>6.6</b>          | <b>200</b> | <b>1</b>   | <b>7.15</b>       | <b>249</b> | <b>2</b>   |
| Weakley's Flat Ck Downstream  | 12                  | 12                                | 6.9                  | 1180       | 220         | 5.1                 | 280        | 11         | 6.3               | 600        | 48         |
| <b>Pre-mining</b>             | ---                 | ---                               | <b>7.28</b>          | <b>546</b> | <b>17</b>   | <b>6.4</b>          | <b>230</b> | <b>3</b>   | <b>7.01</b>       | <b>419</b> | <b>8.2</b> |
| <b>Pre-mining</b>             | ---                 | ---                               | ---                  | ---        | ---         | ---                 | ---        | ---        | ---               | ---        | ---        |

### Biological Monitoring

Assessment of stream fauna is used to assess areas of environmental stress through the diversity of the macroinvertebrate population and the presence of pollutant sensitive or pollutant tolerant species. Macroinvertebrate monitoring was undertaken on the 11<sup>th</sup> April 2006. Six sites are targeted on the three major tributaries traversing the mine site. **Table 17** includes the results for the last 14 surveys as well as the baseline survey.

It is observed that the streams examined support a relatively diverse ecology including species typical of the Hunter Region, and some sensitive families of invertebrates. The predominance of mildly impaired invertebrate species is indicative of fair water quality in the streams. The majority of AUSRIVAS scores for the sites included in this report are reasonable, refer to **Table 17**.

There was no indication of obvious deterioration in water quality in the downstream sites which could be attributed to intermediate land use activities. Overall, there is no indication of obvious deterioration in water quality in the downstream sites, which could be directly attributed to intermediate mining activity of Donaldson (Tuft and Associates, 2007a and 2007b). Individual site conclusions are provided by Tuft and Associates (2007a and 2007b) and these reports may be supplied upon request.

**Table 17: MACROINVERTEBRATE MONITORING (SPRING/AUTUMN 2001-2007) RESULTS COMPARED WITH BASELINE.**

|                     | Four Mile Upstream | Four Mile Downstream | Scotch Dairy Upstream | Scotch Dairy Downstream | Weakley's Flat Downstream | Weakley's Flat Upstream |
|---------------------|--------------------|----------------------|-----------------------|-------------------------|---------------------------|-------------------------|
| <b>DIVERSITY</b>    |                    |                      |                       |                         |                           |                         |
| Spring 2007         | 28                 | 20                   | 16                    | 19                      | 27                        | 24                      |
| Autumn 2007         | 22                 | 20                   | 11                    | 16                      | 19                        | 22                      |
| Spring 2006         | 24                 | 20                   | 17                    | 20                      | 18                        | 17                      |
| Autumn 2006         | 16                 | 23                   | 13                    | 18                      | 16                        | 21                      |
| Spring 2005         | 19                 | 24                   | 23                    | 23                      | 15                        | 26                      |
| Autumn 2005         | 11                 | 27                   | 20                    | 21                      | 12                        | 25                      |
| Spring 2004         | 17                 | 25                   | 12                    | 15                      | 10                        | 30                      |
| Autumn 2004         | 17                 | 31                   | 17                    | 31                      | 22                        | 34                      |
| Spring 2003         | 17                 | 27                   | 17                    | 13                      | 16                        | 28                      |
| Autumn 2003         | 14                 | 28                   | 19                    | 27                      | 27                        | 33                      |
| Spring 2002         | 21                 | 24                   | 12                    | 20                      | 22                        | 25                      |
| Autumn 2002         | 22                 | 19                   | 33                    | 27                      | 24                        | 34                      |
| Spring 2001         | 37                 | 30                   | NR                    | 30                      | 26                        | 31                      |
| Autumn 2001         | 20                 | 30                   | 18                    | 25                      | 36                        | 31                      |
| <b>BASELINE</b>     | 30                 | 36                   | 39                    | 32                      | 39                        | 44                      |
| <b>SIGNAL INDEX</b> |                    |                      |                       |                         |                           |                         |
| Spring 2007         | 5.4                | 6.1                  | 5.1                   | 4.7                     | 5.1                       | 4.7                     |
| Autumn 2007         | 5.7                | 5.3                  | 6.0                   | 5.2                     | 5.4                       | 4.8                     |
| Spring 2006         | 5.4                | 5.3                  | 5.5                   | 5.3                     | 4.3                       | 4.3                     |
| Autumn 2006         | 6.4                | 4.8                  | 4.7                   | 5.6                     | 5.7                       | 4.4                     |
| Spring 2005         | 5.7                | 5.7                  | 5.1                   | 6.0                     | 5.7                       | 4.3                     |
| Autumn 2005         | 5.2                | 5.6                  | 5.2                   | 6.2                     | 4.6                       | 4.4                     |
| Spring 2004         | 5.7                | 5.5                  | 5.2                   | 4.9                     | 4.6                       | 5.0                     |
| Autumn 2004         | 6.0                | 5.5                  | 5.0                   | 4.9                     | 5.4                       | 5.0                     |
| Spring 2003         | 6.0                | 5.9                  | 4.6                   | 5.7                     | 5.5                       | 5.3                     |
| Autumn 2003         | 6.1                | 5.7                  | 5.2                   | 5.5                     | 4.6                       | 5.0                     |
| Spring 2002         | 6.0                | 5.7                  | 4.0                   | 5.9                     | 5.7                       | 5.4                     |
| Autumn 2002         | 5.7                | 5.4                  | 5.2                   | 6.0                     | 5.5                       | 5.3                     |
| Spring 2001         | 5.8                | 5.8                  | NR                    | 5.6                     | 5.7                       | 5.4                     |
| Autumn 2001         | 5.6                | 5.3                  | 5.3                   | 5.6                     | 5.3                       | 5.0                     |
| <b>BASELINE</b>     | 6.0                | 5.7                  | 5.7                   | 5.6                     | 5.5                       | 5.4                     |
| <b>AUSRIVAS</b>     |                    |                      |                       |                         |                           |                         |
| Spring 2007         | 0.65 (Band B)      | 0.77 (Band B)        | 0.46 (Band C)         | 0.58 (Band B)           | 0.78 (Band B)             | 0.69 (Band B)           |
| Autumn 2007         | 0.64 (Band B)      | 0.73 (Band B)        | 0.29 (Band C)         | 0.69 (Band C)           | 0.78 (Band B)             | 0.55 (Band B)           |
| Spring 2006         | 0.78 (Band B)      | 0.58 (Band B)        | 0.48 (Band C)         | 0.89 (Band A)           | 0.77 (Band B)             | 0.39 (Band C)           |
| Autumn 2006         | 0.54 (Band B)      | 0.49 (Band B)        | 0.48 (Band B)         | 0.69 (Band B)           | 0.68 (Band B)             | out of range            |
| Spring 2005         | 0.19 (Band C)      | 0.68 (Band B)        | 0.68 (Band B)         | 0.48 (Band C)           | 0.60 (Band B)             | 0.58 (Band B)           |
| Autumn 2005         | 0.52 (Band B)      | 0.31 (Band C)        | 0.48 (Band B)         | 0.6 (Band B)            | 0.42 (Band C)             | 0.45 (Band C)           |
| Spring 2004         | 0.78 - Band B      | 0.58 - Band B        | 0.48 - Band C         | 0.88 - Band A           | 0.58 - Band B             | 0.69 - Band B           |
| Autumn 2004         | 0.55 - Band B      | 0.97 - Band A        | 0.95 - Band A         | 0.68 Band B             | 0.93 - Band A             | 0.79 - Band B           |
| Spring 2003         | 0.69 - Band B      | 0.73 - Band B        | 0.6 - Band B          | 1.06 - Band A           | 0.9 - Band A              | 0.78 - Band B           |
| Autumn 2003         | 0.69 - Band B      | 0.73 - Band B        | 0.6 - Band B          | 1.06 - Band A           | 0.9 - Band A              | 0.78 - Band B           |
| Spring 2002         | 0.67 - Band B      | 0.57 - Band B        | 0.29 - Band C         | 0.59 - Band B           | 0.58 - Band B             | 0.49 - Band C           |
| Autumn 2002         | 0.87 - Band A      | 0.93 - Band A        | 1.03 - Band A         | 1.09 - Band A           | 0.78 - Band B             | 103 - Band A            |
| Spring 2001         | 1.08 - Band A      | 0.58 - Band B        | NR                    | 0.9 - Band A            | 0.96 - Band A             | 0.69 - Band B           |
| Autumn 2001         | 0.68 - Band B      | 0.61 - Band B        | 0.83 - Band A         | 0.95 - Band A           | 0.87 - Band A             | 0.87 - Band A           |
| <b>BASELINE</b>     | 0.93 - Band A      | 1.04 - Band A        | 1.08 - Band A         | 0.82 - Band A           | 0.86 - Band A             | 0.82 - Band A           |

At each site a detailed field observation sheet was completed covering riparian (stream bank) vegetation, stream geomorphology, visual characteristics and odour. The RCE was calculated following the assessment which evaluates the condition of the:

- Adjacent land
- Banks
- Channel & bed (includes in-stream vegetation and algae); and
- Riparian vegetation

**Table 18** provides a summary of the RCE ranking results for the last eleven (11) surveys as well as the baseline survey.



**TABLE 18: RCE RANKING FOR ALL MONITORING SITES (2000-2006).**

| Site                  | Date of Collection | Bank Condition Scores | Bank Condition Rating | Bed Condition Score | Bed Condition Rating | Stream Condition (RCE) | RCE Rating |
|-----------------------|--------------------|-----------------------|-----------------------|---------------------|----------------------|------------------------|------------|
| Four Mile Ck U/S      | 26/09/00           | 22                    | Excellent             | 10                  | Good                 | 45                     | Excellent  |
|                       | 19/03/01           | 16                    | Good                  | 6.5                 | Fair                 | 45                     | Excellent  |
|                       | 11/10/01           | 16                    | Good                  | 9                   | Good                 | 40                     | Good       |
|                       | 15/04/02           | 12                    | Fair                  | 7                   | Fair                 | 34                     | Fair       |
|                       | 9/10/02            | 18                    | Good                  | 9                   | Good                 | 43                     | Good       |
|                       | 17/04/03           | 19                    | Excellent             | 8                   | Fair                 | 43                     | Good       |
|                       | 10/10/03           | 16                    | Good                  | 11                  | Excellent            | 43                     | Good       |
|                       | 1/4/04             | 19                    | Excellent             | 9                   | Good                 | 48                     | Excellent  |
|                       | 6/10/04            | 14                    | Good                  | 8                   | Fair                 | 40                     | Good       |
|                       | 15/4/05            | 15                    | Good                  | 7                   | Fair                 | 40                     | Good       |
|                       | 27/9/05            | 15                    | Good                  | 9                   | Good                 | 41                     | Good       |
|                       | 11/4/06            | 15                    | Good                  | 10                  | Good                 | 41                     | Good       |
|                       | 17/11/06           | 14                    | Good                  | 9                   | Good                 | 40                     | Good       |
|                       | 20/4/07            | 15                    | Good                  | 7                   | Fair                 | 39                     | Good       |
| 5/10/07               | 15                 | Good                  | 11                    | Excellent           | 41                   | Good                   |            |
| Four Mile Ck D/S      | 26/09/00           | 21                    | Excellent             | 6                   | Poor                 | 39                     | Good       |
|                       | 19/03/01           | 15                    | Good                  | 7                   | Fair                 | 39                     | Good       |
|                       | 11/10/01           | 16                    | Good                  | 7                   | Fair                 | 37                     | Good       |
|                       | 15/04/02           | 16                    | Good                  | 6                   | Poor                 | 36                     | Fair       |
|                       | 9/10/02            | 20                    | Excellent             | 9                   | Good                 | 45                     | Good       |
|                       | 17/04/03           | 19                    | Excellent             | 10                  | Good                 | 45                     | Good       |
|                       | 10/10/03           | 16                    | Good                  | 11                  | Excellent            | 43                     | Good       |
|                       | 1/4/04             | 17                    | Good                  | 10                  | Good                 | 44                     | Good       |
|                       | 6/10/04            | 14                    | Good                  | 10                  | Good                 | 41                     | Good       |
|                       | 15/4/05            | 14                    | Good                  | 10                  | Good                 | 39                     | Good       |
|                       | 27/9/05            | 15                    | Good                  | 10                  | Good                 | 40                     | Good       |
|                       | 11/4/06            | 15                    | Good                  | 8                   | Fair                 | 38                     | Good       |
|                       | 17/11/06           | 16                    | Good                  | 10                  | Good                 | 43                     | Good       |
|                       | 20/4/07            | 16                    | Good                  | 8                   | Fair                 | 40                     | Good       |
| 5/10/07               | 15                 | Good                  | 10                    | Good                | 40                   | Good                   |            |
| Scotch Dairy Ck U/S   | 26/09/00           | 21                    | Excellent             | 8                   | Fair                 | 39                     | Good       |
|                       | 19/03/01           | 15                    | Good                  | 7                   | Poor                 | 37                     | Good       |
|                       | 11/10/01           | NR                    | NR                    | NR                  | NR                   | NR                     | NR         |
|                       | 15/04/02           | 12                    | Fair                  | 9                   | Good                 | 37                     | Good       |
|                       | 9/10/02            | 16                    | Fair                  | 9                   | Good                 | 43                     | Good       |
|                       | 17/04/03           | 17                    | Good                  | 6                   | Poor                 | 36                     | Fair       |
|                       | 21/10/03           | 15                    | Good                  | 5                   | Poor                 | 36                     | Fair       |
|                       | 1/4/04             | 19                    | Excellent             | 5                   | Poor                 | 40                     | Good       |
|                       | 6/10/04            | 14                    | Good                  | 5                   | Poor                 | 36                     | Good       |
|                       | 15/4/05            | 14                    | Good                  | 5                   | Poor                 | 34                     | Fair       |
|                       | 27/9/05            | 14                    | Good                  | 5                   | Poor                 | 33                     | Fair       |
|                       | 11/4/06            | 13                    | Good                  | 5                   | Poor                 | 33                     | Fair       |
|                       | 17/11/06           | 16                    | Good                  | 4                   | Very Poor            | 37                     | Good       |
|                       | 20/4/07            | 14                    | Good                  | 5                   | Poor                 | 36                     | Fair       |
| 5/10/07               | 13                 | Good                  | 5                     | Poor                | 35                   | Fair                   |            |
| Scotch Dairy Ck D/S   | 26/09/00           | 20                    | Excellent             | 5                   | Poor                 | 39                     | Good       |
|                       | 19/03/01           | 17                    | Good                  | 7                   | Fair                 | 39                     | Good       |
|                       | 11/10/01           | 16                    | Good                  | 11                  | Excellent            | 42                     | Good       |
|                       | 15/04/02           | 15                    | Good                  | 8                   | Fair                 | 40                     | Good       |
|                       | 9/10/02            | 16                    | Good                  | 5                   | Poor                 | 34                     | Fair       |
|                       | 17/04/03           | 17                    | Good                  | 5                   | Poor                 | 35                     | Fair       |
|                       | 21/10/03           | 15                    | Good                  | 6                   | Poor                 | 37                     | Good       |
|                       | 1/4/04             | 17                    | Good                  | 5                   | Poor                 | 40                     | Good       |
|                       | 6/10/04            | 13                    | Good                  | 7                   | Fair                 | 37                     | Good       |
|                       | 15/4/05            | 15                    | Good                  | 6                   | Poor                 | 37                     | Good       |
|                       | 27/9/05            | 16                    | Good                  | 6                   | Poor                 | 38                     | Good       |
|                       | 11/4/06            | 14                    | Good                  | 5                   | Poor                 | 35                     | Fair       |
|                       | 17/11/06           | 15                    | Good                  | 6                   | Poor                 | 36                     | Fair       |
|                       | 20/4/07            | 16                    | Good                  | 8                   | Fair                 | 35                     | Fair       |
| 5/10/07               | 16                 | Good                  | 8                     | Fair                | 40                   | Good                   |            |
| Weakley's Flat Ck D/S | 26/09/00           | 21                    | Excellent             | 7                   | Fair                 | 41                     | Good       |
|                       | 19/03/01           | 18                    | Good                  | 6                   | Poor                 | 40                     | Good       |
|                       | 11/10/01           | 14                    | Good                  | 10                  | Good                 | 40                     | Good       |
|                       | 15/04/02           | 14                    | Good                  | 5                   | Good                 | 37                     | Good       |
|                       | 9/10/02            | 17                    | Good                  | 8                   | Fair                 | 42                     | Good       |
|                       | 17/04/03           | 17                    | Good                  | 8                   | Fair                 | 39                     | Good       |
|                       | 10/10/03           | 15                    | Good                  | 12                  | Excellent            | 42                     | Good       |
|                       | 1/4/04             | 17                    | Good                  | 9                   | Good                 | 45                     | Good       |
|                       | 6/10/04            | 14                    | Good                  | 7                   | Fair                 | 39                     | Good       |
|                       | 15/4/05            | 13                    | Good                  | 6                   | Poor                 | 36                     | Fair       |
|                       | 27/9/05            | 12                    | Fair                  | 8                   | Fair                 | 37                     | Good       |
| 11/4/06               | 15                 | Good                  | 9                     | Good                | 37                   | Good                   |            |

| Site | Date of Collection | Bank Condition Scores | Bank Condition Rating | Bed Condition Score | Bed Condition Rating | Stream Condition (RCE) | RCE Rating |
|------|--------------------|-----------------------|-----------------------|---------------------|----------------------|------------------------|------------|
|      | 17/11/06           | 14                    | Good                  | 10                  | Good                 | 36                     | Fair       |
|      | 20/4/07            | 17                    | Good                  | 8                   | Fair                 | 37                     | Good       |
|      | 5/10/07            | 15                    | Good                  | 8                   | Fair                 | 38                     | Good       |

Table 18 continued

| Site                     | Date of Collection | Bank Condition Scores | Bank Condition Rating | Bed Condition Score | Bed Condition Rating | Stream Condition (RCE) | RCE Rating |
|--------------------------|--------------------|-----------------------|-----------------------|---------------------|----------------------|------------------------|------------|
| Weakley's Flat<br>Ck U/S | 26/09/00           | 19                    | Excellent             | 5                   | Poor                 | 34                     | Fair       |
|                          | 19/03/01           | 14                    | Good                  | 6.5                 | Fair                 | 33.5                   | Fair       |
|                          | 11/10/01           | 15                    | Good                  | 6                   | Poor                 | 34                     | Fair       |
|                          | 15/04/02           | 12                    | Fair                  | 9                   | Good                 | 37                     | Good       |
|                          | 9/10/02            | 16                    | Good                  | 8                   | Fair                 | 39                     | Good       |
|                          | 17/04/03           | 15                    | Good                  | 9                   | Good                 | 38                     | Good       |
|                          | 10/10/03           | 15                    | Good                  | 7                   | Fair                 | 36                     | Fair       |
|                          | 1/4/04             | 17                    | Good                  | 9                   | Good                 | 39                     | Good       |
|                          | 6/10/04            | 14                    | Good                  | 6                   | Poor                 | 35                     | Fair       |
|                          | 15/4/05            | 14                    | Good                  | 5                   | Poor                 | 30                     | Fair       |
|                          | 27/9/05            | 14                    | Good                  | 8                   | Fair                 | 36                     | Fair       |
|                          | 11/4/06            | 11                    | Fair                  | 8                   | Fair                 | 34                     | Fair       |
|                          | 17/11/06           | 13                    | Good                  | 6                   | Poor                 | 29                     | Fair       |
|                          | 20/4/07            | 11                    | Fair                  | 7                   | Fair                 | 33                     | Fair       |
|                          | 5/10/07            | 14                    | Good                  | 7                   | Fair                 | 34                     | Fair       |

### 3.2.5 Groundwater

The Water Management Plan (Perrens, 2000) details the measures employed by Donaldson Coal to ensure protection of ground water on and around the mine site.

Groundwater monitoring has been ongoing since June 2000. The groundwater monitoring locations at Donaldson Coal were reviewed by the DECC (EPA) as part of the EPL licence review. There are now 10 current monitoring sites, the locations of which are shown on the revised "Location of Site Groundwater Wells – Figure 5.12". A copy is provided in **Appendix 2**. Groundwater bores are replaced when rehabilitation has been undertaken. A total of four groundwater bores have been replaced in line with the review. Ecowise Environmental is engaged by Donaldson Coal to undertake the routine sampling and analysis of the monitoring sites.

**Comment [MH5]:** This needs to be checked OK PB

#### **Control Strategy:**

The groundwater piezometers are monitored to determine impacts on both Standing Water Levels (SWL) and ground water quality. In some cases there are several piezometers in the one hole (multi-level) measuring several aquifers throughout the strata.

A regional site was included in the monitoring program, REGDPZ1. It is located in Avalon Estate approximately 1.2km to the north of the active mining area.

The analytes EC, pH, TDS, TSS and SO<sub>4</sub> are routinely taken each month at all of the current piezometer sites. A full suite analysis is taken every six months and includes analysis of EC, pH, TDS, TSS, SO<sub>4</sub>, Ca, Mg, Na, K, Cl, Fl, As, Al, Ba, Cd, Co, Cu, Cr, Fe, Mn, Pb, Zn and Total Alkalinity as CaCO<sub>3</sub>.

The standing water level of each of the monitoring wells is routinely measured each month.

### Environmental Performance:

There were no groundwater-related complaints received by the mine. In addition, monthly water monitoring results were routinely reviewed to determine whether there were any changes as a result of activities at the mine.

A summary of the three key parameters required by the EPL (pH, EC and the Standing Water Level) for the reporting period as well as the pre-mining baseline is included in **Table 19**.

Generally the average Standing Water Levels (SWL) were lower than the baseline period, however the variation in water level could be attributed to seasonal variations as there are similar trends across all sites. Additionally, the SWL are generally higher than the corresponding values in the 2006 AEMR reporting period. This is most likely due to the recharge of the aquifers after the heavy rain events in June 2007.

Average pH values are comparable to the pre-mining values and have generally not fluctuated substantially from the values recorded in the 2006 AEMR reporting period, refer to **Table 19**. The EC values are generally either lower or similar to pre-mining values. The piezometers **DPZ 1** and **DPZ 2 and DPZ 6** were dry on those sampling events, and **DPZ 7** was destroyed in September 2007 and **DPZ 8** was destroyed in March 2007 due to mining operations.

Overall, it appears that Donaldson has had negligible or no impact on water quality of the surrounding off site groundwater resources during the 2007 AEMR reporting period.

**TABLE 19: SUMMARY OF KEY GROUNDWATER PARAMETERS COMPARED WITH PRE-MINING BASELINE DATA.**

| Sample Site       | No Samples Required | No samples collected and analysed | Highest Sample Value  |              |              | Lowest Sample value |              |              | Mean Sample Value |              |              |
|-------------------|---------------------|-----------------------------------|---|--------------|--------------|---------------------|--------------|--------------|-------------------|--------------|--------------|
|                   |                     |                                   | pH  | EC           | SWL*         | pH                  | EC           | SWL*         | pH                | EC           | SWL*         |
| DPZ2              | 12                  | 0                                 | -   | -            | -            | -                   | -            | -            | -                 | -            | -            |
| <b>Pre-mining</b> | ---                 | ---                               | <b>No pre-mining samples available</b>  |              |              |                     |              |              |                   |              |              |
| DPZ3              | 12                  | 12                                | 7.0   | 16000        | 10.8         | 5.8                 | 400          | 8.4          | 6.3               | 8221         | 9.9          |
| <b>Pre-mining</b> | ---                 | ---                               | <b>6.96</b>   | <b>11350</b> | <b>11.51</b> | <b>5.99</b>         | <b>10200</b> | <b>12.05</b> | <b>6.59</b>       | <b>10860</b> | <b>11.76</b> |
| DPZ5              | 12                  | 12                                | 7.0   | 8570         | 7.2          | 5.6                 | 700          | 6.6          | 6.1               | 2807         | 6.9          |
| <b>Pre-mining</b> | ---                 | ---                               | <b>7.21</b>   | <b>8520</b>  | <b>5.73</b>  | <b>6.72</b>         | <b>4280</b>  | <b>5.9</b>   | <b>7.37</b>       | <b>6986</b>  | <b>5.81</b>  |
| DPZ6              | 12                  | 12                                | 6.1   | 3680         | 25.3         | 5.4                 | 3310         | 23.1         | 5.7               | 3530         | 24.8         |
| <b>Pre-mining</b> | ---                 | ---                               | <b>No pre-mining samples available</b>  |              |              |                     |              |              |                   |              |              |
| DPZ7@50m          | 10                  | 10                                | 6.2   | 2100         | 24.2         | 5.8                 | 2010         | 23.8         | 6.0               | 2070         | 24.0         |
| <b>Pre-mining</b> | ---                 | ---                               | <b>6.14</b>   | <b>2390</b>  | <b>21.47</b> | <b>5.36</b>         | <b>2180</b>  | <b>22.00</b> | <b>5.76</b>       | <b>2270</b>  | <b>21.78</b> |
| DPZ8              | 12                  | 12                                | 6.2   | 2020         | 25.6         | 5.7                 | 1660         | 25.0         | 5.9               | 1894         | 25.1         |
| <b>Pre-mining</b> | ---                 | ---                               | <b>5.66</b>   | <b>1820</b>  | <b>24.35</b> | <b>5.46</b>         | <b>1690</b>  | <b>24.35</b> | <b>5.56</b>       | <b>1755</b>  | <b>24.35</b> |
| DPZ9              | 4                   | 4                                 | 7.3   | 2300         | 32.9         | 6.9                 | 2150         | 32.9         | 7.1               | 2213         | 32.9         |
| <b>Pre-mining</b> | ---                 | ---                               | <b>6.32</b>   | <b>2940</b>  | <b>17.37</b> | <b>5.47</b>         | <b>2221</b>  | <b>17.65</b> | <b>6.02</b>       | <b>2563</b>  | <b>17.49</b> |
| DPZ10             | 12                  | 12                                | 6.6   | 3830         | 14.0         | 6.1                 | 3210         | 13.4         | 6.4               | 3583         | 13.8         |
| <b>Pre-mining</b> | ---                 | ---                               | <b>6.97.13</b>  | <b>3760</b>  | <b>12.4</b>  | <b>6.48</b>         | <b>3670</b>  | <b>12.4</b>  | <b>6.71</b>       | <b>3611</b>  | <b>12.4</b>  |
| DPZ12             | 12                  | 12                                | 6.9   | 25060        | 23.4         | 6.3                 | 2990         | 15.5         | 6.6               | 17554        | 19.0         |
| <b>Pre-mining</b> | ---                 | ---                               | <b>No pre-mining samples taken due to restricted access to private property</b> |              |              |                     |              |              |                   |              |              |
| DPZ13             | 12                  | 12                                | 7.2   | 16120        | 7.6          | 6.5                 | 12250        | 7.2          | 6.8               | 13616        | 7.4          |
| <b>Pre-mining</b> | ---                 | ---                               | <b>7.22</b>   | <b>13750</b> | <b>7.01</b>  | <b>6.67</b>         | <b>12200</b> | <b>7.25</b>  | <b>6.87</b>       | <b>12907</b> | <b>7.14</b>  |

\* Standing Water Level is recorded as metres (m) below the natural surface.

### 3.2.6 Contaminated Land

Donaldson coal has been operating since January 2001, and as such there is little occurrence of contaminated land on the site. The exception to this would be some minor surface contamination of hydrocarbons in areas where hydrocarbons are stored, in the workshop area and the go-line (where trucks are parked between shifts and at crib). There has also been some minor surface contamination recorded at the bulk fuel storage facility and refueling point.

#### **Control Strategy:**

The following control measures are employed at the Donaldson Coal Mine in order to ensure that contamination of land is minimal.

- There are no underground storage tanks (UST) on the site;
- Earthen and concrete bunding is used as secondary containment for the bulk storage of hydrocarbons and chemicals;
- Oil spill mop and absorbents are used to clean up spills;
- When spills occur the contaminated material is excavated and taken to a landfarm where it is remediated prior to being placed back in the fill;
- Oil/Water separators are used to remove any residual hydrocarbon from washdown waters;
- Spills are recorded on an Environmental Incidents report. This form is used to identify where improvements can be made to reduce the likelihood of the incident re-occurring;
- Both the mining contractor and the Donaldson Coal Environmental Officer undertake informal and formal inspections of the workshop areas to ensure hydrocarbons and chemicals are stored appropriately;
- All new employees are taken through an Environmental Awareness Induction prior to commencing work at the mine. This includes an explanation of ways to avoid spills and to ensure that appropriate actions are taken to clean up the spill and ensure that it is remediated;
- Toolbox talks are undertaken with all employees to explain ways to avoid spills and to ensure that appropriate actions are taken to clean up the spill and ensure that it is remediated; and
- A land farm area has been constructed on the out-of pit dump where contaminated soil is stored temporarily and treated to remove the hydrocarbons before being placed back on the rehabilitated areas and revegetated.

#### **Environmental Performance:**

There are no significant areas of land contamination. In addition, routine monitoring for hydrocarbons and surfactants is undertaken at the Industrial Area dam that receives the water from the workshop area. To date hydrocarbons (measured as Total Petroleum Hydrocarbons (TPH)) have not been recorded in routine environmental monitoring of the Industrial Area Dam. Ongoing monitoring and routine inspections will continue to detect the occurrence of spills (accidental or otherwise) and remediate them appropriately.

### 3.2.7 Threatened Flora

There was one species of threatened flora identified during the EIS, *Tetratheca juncea* (Black-eyed Susan). As a result a *Tetratheca juncea* Management Plan was developed by Gunninah (2000b).

The aim of the plan is to provide a comprehensive program for the *Tetratheca juncea* population in the south western portion of the mine site.

A survey and identification report (Gunninah 2000c) was completed, which located the boundaries of the population and defined the limit of the conservation precinct. Subsequent work during 2001 and 2002 has extended the boundary and up to an additional 200 plants have been found during routine monitoring and vegetation characterisation.

In addition approximately four hundred plants have been discovered during routine pre-clearing surveys and monitoring episodes. A large proportion of these plants fall outside of the active mine area, adding further conservation significance to the area(s) identified and managed by Donaldson Coal as the *Tetratheca juncea* Conservation Area (TjCA) (as discussed below).

In 2005, a design was developed for the experimental translocation of *Tetratheca juncea* from the planned mine disturbance area. The relocation is a management technique addressed in the *Tetratheca juncea* Management Plan (Gunninah 2000b).

The experimental design for the translocation was based on a study currently being conducted in the Gwandalan area (Ecobiological 2005). The ongoing monitoring of the translocated plants will focus on collecting data and information about the circumstances under which the plants are growing. Each plant and each recipient site has been photographed following translocation and will be photographed every twelve months for 5 years. The plants were monitored and watered on a weekly basis for 6 weeks post planting to help ensure maximum initial survival and will be inspected twice per year for the five-year period.

The *Tetratheca juncea* Conservation Area Annual Report 2006 (Ecobiological, 2006) was prepared during this 2007 AEMR period.

#### **Control Strategy:**

The following control measures are employed at the Donaldson Coal Mine in order to ensure a high level of conservation for the threatened plant species *Tetratheca juncea*:

- The dedication of 650ha of bushland conservation around the mine to conserve habitat;
- The reduction of the proposed mining footprint and the establishment of a conservation precinct protecting a known population of *Tetratheca juncea*;
- Ongoing mapping and management protocols; and
- Pre-clearing surveys by a qualified biologist prior any clearing activities.

In addition Donaldson Coal has supported both financially and technically, an honours student completing studies in Environmental Management at the University of Newcastle. The project commenced in January 2002 and is considering the ecology and growth of *Tetratheca juncea*.

#### **Environmental Performance:**

A baseline report was completed in January 2003 by Barker Harle, which describes the implementation of the TjMP and includes baseline information for use in subsequent reports. Subsequent monitoring and reporting is undertaken on an annual basis.

The following is a summary of the monitoring program and works that has been completed in the *Tetratheca juncea* Conservation Area (TjCA).

- The overall monitoring and collection of data for the population is based on a 40 x 40m grid, which has been established permanently across the entire population;
- One hundred individual plants have been permanently pegged and tagged. The co-ordinates of these plants have been referenced into the 40 x 40m grid. The location of each of these plants was selected so those individuals growing within the range of the micro-vegetative communities present in the TjCA were represented. The size of these plants has been recorded;
- A detailed survey has been carried out to describe the overstorey, shrubs to 2m high and groundcover vegetative communities present in the TjCA;
- Ten 10 x 10m monitoring quadrants have been pegged out throughout the population. Following the completion of the vegetation survey these quadrants have been located so that each one is in a different vegetative community in which *T. juncea* grows. The floristic content and abundance, using the modified Braun-Blanquet scale, of the vegetation within each of these quadrants has been described in detail;
- A detailed plant count was planned for late 2002 and again in 2004, however persistent drought conditions have significantly reduced the flowering season, meaning that a count was not considered reliable during this reporting period.

The following is a summary from the *Tetratheca juncea* Conservation Area Annual Report 2006 (EcoBiological, 2006):

- The pollinator activity (total number of seed capsules divided by the total number of flowers produced on plants) was 25% in 2006 compared to 32% in 2005. Flower fertilisation and subsequent seed capsule development is likely to be pollinator limited meaning that the amount of seed produced is entirely dependant on the number of available pollinators (i.e. native bees);
- These results suggest a potential loss rate of 5% of the 100 pegged plants. This should not be extrapolated across the population since the 100 pegged plants were selected because they were discrete as opposed to diffuse spreading patches. It should also be noted that some of the discrete clumps originally pegged have developed into spreading patches;
- During pre-clearing surveys and targeted searches a number of new *Tetratheca juncea* populations have been found on the Donaldson property since the initial surveys prior to the commencement of mining. It is now evident that the population in the TjCA was part of substantial metapopulation in the area.

Two relocation events of *Tetratheca juncea* plants were undertaken during the 2006/2007 AEMR periods, as these plants were in the path of mining activities. This occurred in October 2006, where 53 plants were tagged and relocated, and April 2007 where 107 plants were tagged and relocated into an existing relocation program. The plants were then watered and monitored over a period of 6 to 8 weeks. Fortunately the region had significant rain events throughout both of these relocation periods. The plants will continue to be monitored and results will be reported annually in conjunction with the monitoring results for the existing relocation program.

*Grevillea parviflora* subsp. *parviflora* is listed as a Vulnerable species in both the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. During pre-clearing surveys, several populations of the species have been located on the Donaldson property with some being potentially within the mining footprint. The Donaldson Flora and Fauna Management Plan (EcoBiological 2007) requires that where threatened plants are found to be within the mine disturbance area, and it is not possible to plan around them, the plants be relocated using the best available information and methods. The recipient sites were located as close as possible to the source sites to minimise the disturbance during transport. The

plants were then watered and monitored up to 6 weeks after relocation and generally greater than 70% survival rate was observed.

### **3.2.8 Threatened Fauna**

Several species of threatened fauna were identified during the EIS and supplementary reports, including both the areas proposed for mining and the immediate environs. They include the following:

- The Powerful Owl;
- The Masked Owl;
- The Barking Owl;
- The large footed Myotis; and
- Little Bent-winged Bat.

Since the initial development of the Flora & Fauna Management Plan the Sooty Owl and the Squirrel Glider have also been recorded on site.

#### ***Control Strategy:***

The following control measures are employed at the Donaldson Coal Mine in order to ensure a high level of conservation for the threatened fauna species found on the site:

- The dedication of 650ha of bushland conservation around the mine to conserve habitat;
- Ongoing survey and management protocols;
- Pre-clearing surveys by a qualified biologist prior any clearing activities;
- Routine annual quadrant monitoring,
- Minimal clearance to only what is required; and
- Ongoing and progressive rehabilitation of disturbed areas.

The following flora and fauna monitoring activities were undertaken during the reporting period:

- Surveys of the foliage projective cover of each quadrat;
- Surveys of height and basal area of trees within each quadrat;
- Small mammal trapping (coinciding with autumn) within a radius of 300 metres centered on each quadrat;
- Insectivorous bat call recording at each quadrat;
- Owl call playback in the vicinity of each quadrat;
- Spotlighting in the area around each quadrat to observe any nocturnal birds and mammals;

- General observations around the larger conservation area; and
- Threatened species assessment.

Six monthly and annual reports are produced compiling the work undertaken throughout the year, along with detailed annual data interpretation and comparison with the baseline study. In addition Donaldson Coal has previously supported both financially and technically, an honors student completing studies in Environmental Management at the University of Newcastle. The project commenced in July 2002 and considered a comparison in the ecology of the Powerful Owl in both disturbed and undisturbed environments. The individuals at Donaldson Coal are an important population considered in this research project.

#### **Environmental Performance:**

The monitoring undertaken to date suggests that there is no evidence of any significant impact on the local fauna. As reported in the six monthly Fauna Monitoring report (Ecobiological, 2004), the return of the Powerful Owl to an area near their original nesting site and the capture of squirrel gliders at quadrat 8 suggest that the natural habitat of these fauna has not been adversely affected by the operations of Donaldson Coal.

**Comment [MH6]:** Is there a recent Fauna Monitoring Report available? PB NO

The consultants, Ecobiological, did not find any signs (sightings, scats or scratchings) of Koalas during their searches during the 2007 reporting period.

#### **3.2.9 Weeds and Pests**

The area was heavily disturbed by fire, dumping of rubbish, 4 wheel drive vehicles and motorcycles prior to the commencement of mining. As a result there have been a number of weeds introduced into the area (pests are not considered as much of a problem).

Donaldson has undertaken to manage the weeds and pests as part of the management of the property including the areas in the Bushland Conservation Area (BCA) the areas to be disturbed by mining and the rehabilitated areas.

#### **Control Strategy:**

The weed management program involves the active control and monitoring throughout the site to control and prevent the spread of invasive weeds (including the rehabilitated areas). The following control strategies may be used on the site:

- Observance of the requirements prescribed by the NSW Noxious Weeds Act (1993);
- Assessment of weeds during pre-clearing and monitoring surveys;
- Dedicated weed control programs along access roads, tracks and exploration lines;
- Ensuring vehicles coming onto the site are clean and free of soil that could transfer weeds from other sites; and
- Restricting access to the Donaldson mine site by the erection of a fence and gates in an attempt to control illegal dumping.

The primary objective of the pest control strategy is to control the number of feral animals on the site. This is achieved by assessing the presence of pests during the routine monitoring program, pre-clearing surveys and during day to day activities. Where necessary the following specific control measures may be employed:



- Detailed surveys for feral animals; and
- Targeted baiting and trapping programs.

### **Environmental Performance:**

Donaldson Coal continued the noxious weed control by the spraying of *Pampas Grass* plants around the site on disturbed areas. Weed control of *Pampas Grass* was conducted in April 2007 within and adjacent to the *Tetratheca juncea* Conservation Area. This was carried out by suitably qualified personnel utilising manual shears and a Glyphosate product. The poisoning did occur in areas where *Tetratheca juncea* plants were growing and care was taken to contain the poison. The works was carried out within one day. A total of more than 200 individual *Pampas Grass* plants were cut at the stem and immediately painted with the herbicide. All seed heads were bagged and disposed off site in a safe and secure manner.

Feral animals are not considered a major problem, however should it be determined in the future that action is required, the above control strategies will be employed.

### **3.2.10 Blasting**

Blasting activities commenced at Donaldson Coal mine on the 15<sup>th</sup> November 2001. A total of 88 blasts were undertaken at the mine during the 2007 AEMR reporting period compared to 43 blasts in the 2006 AEMR reporting period.

Prior to the commencement of blasting in 2001, structural surveys of all properties within 1.5km of the blast locations at the mine were completed. A copy of each report was presented to the resident and also kept on file at the mine.

On the 1<sup>st</sup> May 2001, five permanent blast monitoring stations (measuring peak particle velocity - ppv (mm/s) and Airblast (dB Linear) were installed and commissioned at the five locations described below:

1. Fairfax Regional Printing Facility;
2. Bartter Poultry Farm – Farm 6;
3. Weakley's Drive (Chidgey), Beresfield;
4. Avalon Estate, Thornton; and
5. The Hunter Water Pipeline.

A map, showing the blast monitors location is included in **Appendix 2** of this report.

The nearest unit to the mine (Weakley's Drive) was established as a trigger unit. When it records a blast at the mine it triggers the other units to capture the relevant data. A trigger limit for peak particle velocity (mm/s) has been determined in order to minimise the number of spurious events recorded by the monitor. The loggers are automatically downloaded at the end of each day using scheduling software. Waveforms are recorded by the logger for each event and are used in the interpretation of the results (e.g. separating wind gust from overpressure events). This system was found to miss small blasts of low vibration and a near field unit was established in March 2003 to improve data capture. This is discussed in more detail below.

The Barter site monitor results have not been included, as the site has been vacated and is now derelict. The Fairfax Regional Printing facility is monitored for ground vibration as required by the development consent.

### **Control Strategy:**

The following control measures have been employed at the Donaldson Coal Mine in order to ensure that the limits set out in the Development Consent and DECC (EPA) Licence are not exceeded.

- Establishment of a site specific site law using a ten (10) hole trial blasting program and detailed computer modeling;
- Blast design considerations (burden and spacing, stemming, MIC, etc);
- Considerations of explosive loading, initiation hook up and firing;
- Use of experienced blast contractors;
- Monitoring the meteorological conditions prior to blasting;
- Avoidance of concurrent blasts with adjoining Coal Mines; and
- Notifying Landowners and occupiers of blast events.

### ***Environmental Performance:***

A summary of the Peak Particle Velocity monitoring results for blasts undertaken during the period is presented in **Table 20**. The maximum vibration (peak particle velocity) recorded at the sites, excluding the Hunter Water Pipeline site, during the reporting period was 0.96 mm/s, which was below the applicable criteria (5 mm/s).

**TABLE 20: SUMMARY OF PEAK PARTICLE VELOCITY (ppv) MONITORING RESULTS (mm/s).**

| Sample Site            | No Samples Required | No samples collected and analysed | Highest Sample Value | Lowest Sample value | Mean Sample Value |
|------------------------|---------------------|-----------------------------------|----------------------|---------------------|-------------------|
| Weakley's Dr (Chidgey) | 79                  | 73                                | 0.43                 | 0.026               | 0.097             |
| Fairfax Printing       | 79                  | 77                                | 0.96                 | 0.03                | 0.114             |
| Avalon Estate          | 79                  | 75                                | 0.369                | 0.019               | 0.093             |
| HWC Pipeline           | 79                  | 77                                | 13.601               | 0.044               | 1.690             |

A summary of the overpressure monitoring results for blasts undertaken during the period is presented in **Table 21** below. DECC (EPA) Licence criteria are applicable at the Weakley's Drive and Avalon Estate monitors. All blasts at these sites recorded blast overpressure below 115dB(L), well within the Licence conditions.

**TABLE 21: SUMMARY OF OVERPRESSURE (dBL) MONITORING RESULTS.**

| Sample Site            | No Samples Required | No samples collected and analysed | Highest Sample Value | Lowest Sample value | Mean Sample Value |
|------------------------|---------------------|-----------------------------------|----------------------|---------------------|-------------------|
| Weakley's Dr (Chidgey) | 79                  | 73                                | 109.0                | 89.9                | 99.7              |
| Avalon Estate          | 79                  | 75                                | 117.0                | 89.3                | 99.4              |
| HWC Pipeline           | 79                  | 77                                | 121.8                | 91.8                | 108.1             |

Overall the data capture rate during the reporting period has been very good. **Table 22** shows the data capture rate for each of the blast monitoring units during the reporting period. None of the blasts undertaken at Donaldson during the period were too small to trigger the monitors that are

some 1100m from the mine. This is an improvement from last year. The table below considers the data capture rate (%) both with and without the smaller blasts.

**TABLE 22: SUMMARY OF DATA CAPTURE RATES – BLAST MONITORING UNITS**

| Monitoring Location             | % Data Capture<br>(including small blast) |
|---------------------------------|---|
| Chidgey (Weakley's Drive)       | 92.4                                      |
| Fairfax Regional Printing Press | 97.5                                      |
| McDonnell's (Avalon Estate)     | 94.9                                      |
| Hunter Water Pipeline           | 97.5                                      |
| <b>OVERALL:</b>                 | <b>95.6</b>                               |

The main causes for data loss have been non-delivery of the SMS trigger signal due to non-specific problems with the Telstra network, and the blast monitor failing to log onto the network. The rate of data capture was slightly better from that recorded in the 2006 AEMR reporting period. The high rate of data capture has been achieved by way of the following initiatives implemented by the mine.

- a) A near field "trigger" unit was established on the 17 March 2003 in the pit to ensure that the smaller blasts are not missed. When the monitor's vibration threshold is triggered it transmits the trigger to the outlying units;
- b) Detailed reviews of system failures (replacement of faulty components). This includes a monthly test of components in the field and re-calibration and servicing once a year;
- c) Monitors are now interrogated by the automatic scheduler system on a daily basis to detect any failures early and ensure correction prior to a blast; and
- d) The units will be upgraded as part of the annual calibration. Each monitor will get the latest software updates each time they are sent for service repair or calibration.

### 3.2.11 Noise

Richard Heggies & Associates<sup>2</sup> have completed four routine quarterly unattended continuous noise surveys for Donaldson during the reporting periods. The dates for the surveys are as follows:

- Tuesday 28<sup>th</sup> November – Thursday 7<sup>th</sup> December 2006;
- Monday 20<sup>th</sup> February- Thursday 2<sup>nd</sup> March 2006
- Friday 12<sup>th</sup> May – Friday 19<sup>th</sup> May 2006; and
- Thursday 13<sup>th</sup> – Tuesday 19<sup>th</sup> September 2006

Operator attended surveys were also conducted to verify the unattended logging results and to determine the character and contribution of noise sources to the total ambient noise. The dates of these attended surveys were as follows:

- Tuesday 28<sup>th</sup> November (daytime) and Thursday 30<sup>th</sup> November 2006 (evening and night time);
- Monday 20<sup>th</sup> February (daytime) and Wednesday 1<sup>st</sup> March 2006( daytime and nighttime)
- Friday 12<sup>th</sup> May (daytime) and Wednesday 17<sup>th</sup> May 2006(nighttime); and
- Thursday 13<sup>th</sup> September 2006 (daytime) and Tuesday 19<sup>th</sup> September 2006( nighttime)

Richard Heggies & Associates<sup>2</sup> have performed baseline and preceding quarterly surveys at 11 locations around the Donaldson mine site Richard Heggies & Associates, (2004, 2005a-c). Based on these surveys, the noise monitoring is now concentrated at the four potentially most affected areas at time of survey. These locations are provided in **Table 23**.

**TABLE 23: LIST OF PRESENT NOISE MONITORING SITES**

| Location                                  | Donaldson Monitoring location |
|---|-------------------------------|
| 98 Weakley's Dr., Beresfield              | Location A                    |
| Leneghans Drive                           | Location C                    |
| 684 Black Hill Road , Black Hill          | Location F                    |
| 3 Lord Howe Drive, Ashtonfield            | Location I                    |
| Bus Depot- Spotted Gum Drive, Ashtonfield | Location J                    |
| "Bartter Enterprise"s, Farm No. 6         | Location K                    |

As the mine moves further to the south/west, additional monitoring sites will be included as required. A map showing the location of the above monitoring sites can be found attached as **Appendix 2** to this report.

#### **Control Strategy:**

The following control measures have been employed at the Donaldson Coal Mine in order to ensure that the limits set out in the development consent are not exceeded:

- Construction of an 8m high acoustic barrier which will be progressively moved with the excavation;
- Reduced night time operations, operating only on a day and afternoon roster with the full overburden removal and mining fleets;
- Testing of all equipment prior to being put to work at the operation;
- Constructing roadways and dumps to best use the natural shielding of the topography;

<sup>2</sup> RICHARD HEGGIES & ASSOCIATES (Newcastle Office), Newcastle, NSW. Ph:02 49698571

- Routine noise monitoring and complaint based investigative monitoring to determine compliance with noise limits;
- Monitoring the meteorological conditions and re-arranging the pit where possible to shield noisy activities during temperature inversions.

### **Environmental Performance:**

Donaldson Coal has been monitoring noise from the mine since the commencement of operations in January 2001. The following sections summarise the results from both the routine attended and continuous monitoring undertaken during the reporting period.

### **Results of Unattended Continuous Surveys**

**Tuesday 28<sup>th</sup> November – Thursday 7<sup>th</sup> December 2006 (December Quarter)**

**Table 24** presents a comparison between the noise statistics collected during the December quarter 2006 unattended continuous survey and the pre-mining baseline statistics.

**TABLE 24: Unattended Continuous Monitoring Ambient Noise Levels, DECEMBER 2006 MONITORING PERIOD.**

| Location                                    | Period       | LA1 | LA10 | LAeq | LA90 |
|---|--------------|-----|------|------|------|
| A<br>Weakley's Drive<br>Beresfield          | Daytime      | 59  | 65   | 55   | 49   |
|   | Evening      | 59  | 55   | 53   | 46   |
|   | ENCM Daytime | 59  | 56   | 54   | 47   |
|   | Night-time   | 58  | 53   | 51   | 40   |
| C<br>28 Phoenix<br>Drive<br>Black Hill      | Day time     | 57  | 49   | 53   | 39   |
|   | Evening      | 55  | 49   | 48   | 41   |
|   | ENCM Daytime | 57  | 49   | 51   | 38   |
|   | Night        | 50  | 47   | 47   | 37   |
| F<br>Lot 684 Black<br>Hill Rd<br>Black Hill | Daytime      | 74  | 57   | 60   | 42   |
|   | Evening      | 69  | 48   | 56   | 38   |
|   | ENCM Daytime | -   | -    | -    | -    |
|   | Night-time   | 53  | 46   | 53   | 38   |
| K<br>Bartter Farm<br>No.6                   | Daytime      | 57  | 55   | 57   | 47   |
|   | Evening      | 55  | 51   | 51   | 43   |
|   | ENCM Daytime | 57  | 55   | 55   | 44   |
|   | Night-time   | 55  | 49   | 49   | 48   |

*Note: EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime – 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm to 10.00 pm; Night-time - 10.00 pm to 7.00 am, Monday to Saturday, 10.00 pm to 8.00 am Sunday.  
EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night-time 10.00 pm to 7.00 am.*

### **Ambient LA<sub>90</sub> Noise Levels**

A summary of ambient LA<sub>90</sub> noise levels can be found within Table 24.

Location A – Weakley’s Drive. Results show that the ambient LA<sub>90</sub> day-time noise levels recorded during the quarter ending December 2006 are slightly higher (up to 4 dBA) than levels measured during the baseline monitoring period. Given the observations made during attended noise surveys this is not likely to be caused by the Donaldson mine operation. In addition, ambient LA<sub>90</sub> levels recorded during the same quarter last year, December 2005 and the last quarter, September 2006 have remained consistent (within 2dBA) to those recorded in December 2006.

Location C – 28 Phoenix Rd, Black Hill. Ambient LA<sub>90</sub> noise levels during the December 2006 quarter remain within 2 dBA of levels recorded during the baseline monitoring period. Given the consistency of recorded noise levels and observations made during attended noise surveys it is likely that the Donaldson mine would remain inaudible at this location throughout the entire monitoring period. No comparison can be made with levels recorded during this time last year, December 2005 or during the last quarter, September 2006 due to the change in noise monitoring location.

Location F - Lot 684 Black Hill Rd, Black Hill. Noise logger vandalism has lead to limited unattended noise monitoring results for the December 2006 period. Nonetheless, observations made during attended noise surveys indicate that the Donaldson mine is inaudible at this location during the day, evening and night time periods. These observations are consistent to those made during previous monitoring periods and therefore it is likely that this trend would continue during the December 2006 monitoring period.

Location K – Bartter Farm No. 6. Results show that ambient LA<sub>90</sub> noise levels recorded during the December 2006 quarter were higher than levels measured for the baseline monitoring period during the day (up to 6 dBA), evening (up to 3 dBA) and night-time (up to 4 dBA) periods. Similarly, ambient LA<sub>90</sub> noise levels recorded during the December 2006 period are also higher than those measured in December 2005 during the day (up to 4 dBA) and night-time (up to 5 dBA) periods and September 2006 during the day-time (up to 4 dBA) period. Observations made during operator attended noise surveys during day, evening and night-time periods quantified a similar noise contribution from Donaldson mine to observations made during September 2006 quarter. This suggests that the increase in ambient LA<sub>90</sub> noise levels is unlikely to be caused by Donaldson mining operation and rather from identified noise sources during operator attended noise surveys such as traffic on John Renshaw Dr and the increase in ambient fauna noise, i.e. cicadas during the day-time and crickets during the night-time.

#### **Ambient LA<sub>10</sub> Noise Levels**

A summary of ambient LA<sub>10</sub> noise levels can be found within Table 24.

Location A – Weakley’s Drive. Results show that ambient daytime LA<sub>10</sub> noise levels recorded for the quarter ending December 2006 were generally similar (within 2 dBA) to levels measured during the baseline monitoring period for day, evening and night-time periods. In addition, ambient LA<sub>10</sub> levels recorded during the same quarter last year, September 2005, and the last quarter, June 2006, have remained consistent (within 2 dB) to those recorded in December 2006.

Location C - Leneghans Drive Ambient LA<sub>10</sub> noise levels during the December 2006 quarter remain within 3 dBA of levels recorded during the baseline monitoring period for day, evening and night-time periods. Given the consistency of recorded noise levels and observations made during operator attended noise surveys it is likely that Donaldson mine would remain inaudible at this location throughout the entire monitoring period. As mentioned previously, no comparison can be made with levels recorded during this time last year (December 2005) or during the last quarter (September 2006) due to the change in noise monitoring location.

Location F – Black Hill Road. Unfortunately, noise logger vandalism has lead to limited unattended noise monitoring results for the December 2006 period. Nonetheless, observations made during operator attended noise surveys indicate that Donaldson mine is inaudible at this location during

day, evening and night time periods. These observations are consistent to those made during previous monitoring periods and therefore it is likely that this trend would continue during the December 2006 monitoring period.

Location K - Bartter Farm 6. Results show that ambient daytime LA10 noise levels recorded for the quarter ending September 2006 were generally similar to levels measured for the baseline monitoring process during the day, evening and night-time periods. Comparison of December 2006 ambient LA10 noise levels with December 2005 noise levels show an increase of 4dBA during the day-time period. Levels recorded during evening and night-time periods remain consistent to levels measured during December 2005. Comparison of December 2006 ambient LA10 noise levels with September 2006 noise levels show an increase of 8 dBA during the evening period. Levels recorded during day and night-time periods remain consistent to levels measured during September 2006. Observations made during operator attended noise surveys during day, evening and night-time periods quantified a similar noise contribution from Donaldson mine than to the September 2006 quarter. This suggests that any increase in ambient LA10 noise levels is unlikely to be caused by Donaldson mining operation and rather from identified noise sources during operator attended noise surveys such as traffic on John Renshaw Dr and the increase in ambient fauna noise, i.e. cicadas during the day-time and crickets during the night-time.

### Wednesday 7<sup>th</sup> February – Tuesday 13<sup>th</sup> February 2007 (March Quarter)

**Table 25** presents a comparison between the noise statistics collected during the March 2007 quarter unattended continuous survey and the pre-mining baseline statistics.

**TABLE 25: Unattended Continuous Monitoring Ambient Noise Levels, MARCH 2007 MONITORING PERIOD.**

| Location                                    | Period       | LA1 | LA10 | LAeq | LA90 |
|---|--------------|-----|------|------|------|
| A<br>Weakley's Drive<br>Beresfield          | Daytime      | 60  | 57   | 57   | 50   |
|   | Evening      | 61  | 57   | 57   | 47   |
|   | ENCM Daytime | 60  | 57   | 58   | 48   |
|   | Night        | 58  | 52   | 56   | 39   |
| C<br>28 Phoenix Drive                       | Daytime      | 54  | 47   | 49   | 37   |
|   | Evening      | 52  | 47   | 49   | 39   |
|   | ENCM Daytime | 53  | 47   | 49   | 38   |
|   | Night        | 49  | 45   | 48   | 35   |
| F<br>Lot 684 Black Hill<br>Road, Black Hill | Daytime      | 64  | 55   | 54   | 40   |
|   | Evening      | 59  | 50   | 54   | 36   |
|   | ENCM Daytime | 63  | 55   | 66   | 37   |
|   | Night        | 54  | 45   | 52   | 31   |
| K<br>Bartter Farm No.6                      | Daytime      | 55  | 52   | 50   | 42   |
|   | Evening      | 55  | 50   | 50   | 41   |
|   | ENCM Daytime | 55  | 50   | 50   | 42   |
|   | Night        | 54  | 49   | 53   | 36   |

*EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime - 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm to 10.00 pm; Night - 10.00 pm to 7.00 am, Monday to Saturday, 10.00 pm to 8.00 am Sunday.*

*EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night 10.00 pm to 7.00 am.*

### **Ambient LA<sub>90</sub> Noise Levels**

The summary of results in Table 25 show that ambient day, evening and night time LA<sub>90</sub> noise levels recorded for the quarter ending March 2007 were generally similar to levels measured for the baseline monitoring process for Locations A, C and K. Noise levels recorded at location F remain consistent with those recorded during the baseline monitoring process for day and evening periods, although, a significant increase in night-time LA<sub>90</sub> noise levels is evident. This increase has been caused by night-time roadwork's occurring approximately 70m from the noise logger location and not from Donaldson Mine activity.

A comparison of the current monitoring period (March 2007) with the previous monitoring period (December 2006) indicates that LA<sub>90</sub> noise levels are generally similar at all monitoring locations during day, evening and night-time periods.

A comparison of the current monitoring period (March 2007) with the coinciding monitoring period last year (March 2006) indicates that LA<sub>90</sub> noise levels recorded during all periods were generally similar at Location C and K, although due to a noise logger fault at Location A during the March 2006 monitoring period no comparison can be made. Once again, LA<sub>90</sub> noise levels at Location F remain constant during the day and evening periods although an increase in night-time noise levels is evident due to roadwork's occurring approximately 70m from the noise logger location and not from Donaldson Mine activity.

### **Ambient LA<sub>10</sub> Noise Levels**

Ambient day, evening and night-time LA<sub>10</sub> noise levels recorded during the March 2007 quarter were generally similar to levels measured for the baseline monitoring process at all locations.

A comparison of ambient LA<sub>10</sub> noise levels recorded during the current monitoring period (March 2007) to those recorded during the last monitoring period (December 2006) found a maximum 3 dBA variance during day, evening and night-time periods. This result is seen as consistent and concludes that no significant increase has occurred between both monitoring periods.

A comparison of the current monitoring period (March 2007) with the coinciding monitoring period last year (March 2006) indicates that LA<sub>10</sub> noise levels recorded during all periods were generally similar for Location C and K, although due to a noise logger fault at Location A during the March 2006 monitoring period no comparison can be made. Once again, LA<sub>10</sub> noise levels at Location F remain constant during the day and evening periods although an increase in night-time noise levels is evident due to roadwork's occurring approximately 70m from the noise logger location and not from Donaldson Mine activity.

### **Thursday 24<sup>th</sup> May – Wednesday 30<sup>th</sup> May 2007 (June quarter)**

**Table 26** presents a comparison between the noise statistics collected during the June 2006 quarter unattended continuous survey and the pre-mining baseline statistics.



**TABLE 26: Unattended Continuous Monitoring Ambient Noise Levels, JUNE MONITORING PERIOD.**

| Location                                       | Period       | LA1 | LA10 | LAeq | LA90 |
|--|--------------|-----|------|------|------|
| A<br>Weakley's Drive<br>Beresfield             | Daytime      | 59  | 55   | 57   | 46   |
|  | Evening      | 58  | 55   | 53   | 48   |
|  | ENCM Daytime | 59  | 55   | 57   | 46   |
|  | Night        | 58  | 52   | 51   | 39   |
| C<br>28 Phoenix Drive<br>Black Hill            | Daytime      | 56  | 49   | 59   | 40   |
|  | Evening      | 53  | 48   | 48   | 43   |
|  | ENCM Daytime | 54  | 49   | 49   | 38   |
|  | Night        | 53  | 49   | 47   | 39   |
| F<br>Lot 684 Black<br>Hill Road, Black<br>Hill | Daytime      | *   | *    | *    | *    |
|  | Evening      | *   | *    | *    | *    |
|  | ENCM Daytime | *   | *    | *    | *    |
|  | Night        | *   | *    | *    | *    |
| K<br>Bartter Farm<br>No.6                      | Daytime      | 58  | 54   | 59   | 40   |
|  | Evening      | 58  | 54   | 53   | 41   |
|  | ENCM Daytime | 57  | 52   | 52   | 41   |
|  | Night        | 58  | 54   | 52   | 40   |

Note: \* Noise logger failed

Note: EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime - 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm to 10.00 pm; Night - 10.00 pm to 7.00 am, Monday to Saturday, 10.00 pm to 8.00 am Sunday.

EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night 10.00 pm to 7.00 am.

#### Ambient LA<sub>90</sub> Noise Levels

The summary of results in Table 26 show that ambient day, evening and night time LA<sub>90</sub> noise levels recorded for the quarter ending June 2007 were generally similar to levels recorded during the baseline monitoring process at Locations A and C. A slight increase in noise levels was recorded at Location K during the night-time period which may have been caused by Donaldson Mine activity. Operator attended noise surveys at this Location identify Donaldson Mine operations which may have contributed to the increase in LA<sub>90</sub> noise levels, although the contribution was found to be within the relevant consent limit for receivers in the Black Hill area.

A comparison of the current monitoring period (June 2007) with the previous monitoring period (March 2007) indicates that LA<sub>90</sub> noise levels have remained consistent at Locations A and C. A slight increase in LA<sub>90</sub> noise levels is evident at Location K, and again operator attended surveys have confirmed that the contribution is within the relevant consent limit for receivers in the Black Hill area.

A comparison of the current monitoring period (June 2007) with the coinciding monitoring period last year (June 2006) indicates that LA<sub>90</sub> noise levels recorded during all periods were generally similar at Location A and C. LA<sub>90</sub> noise levels at Location K remain consistent during the day and evening periods with an increase in night-time noise levels evident. Similarly, operator attended noise surveys have quantified that the Donaldson Mine contribution at this location is within the relevant consent for receivers in the Black Hill area.

### Ambient L10<sub>10</sub> Noise Levels

The summary of results in Table 26 show that ambient day, evening and night time LA<sub>10</sub> noise levels recorded for the quarter ending June 2007 were generally similar to levels recorded during the baseline monitoring process at Locations A and C. A slight increase in noise levels was recorded at Location K during the night-time period which may have been caused by Donaldson Mine activity. Operator attended noise surveys at this Location identify Donaldson Mine operations which may have contributed to the increase in LA<sub>10</sub> noise levels although the contribution was found to be within the relevant consent limit for receivers in the Black Hill area.

A comparison of the current monitoring period (June 2007) with the previous monitoring period (March 2007) indicates that LA<sub>10</sub> noise levels have remained consistent at Locations A and C. A slight increase in LA<sub>10</sub> noise levels is evident at Location K, and again operator attended surveys have confirmed that the contribution is within the relevant consent limit for receivers in the Black Hill area.

A comparison of the current monitoring period (June 2007) with the coinciding monitoring period last year (June 2006) indicates that LA<sub>10</sub> noise levels recorded during all periods were generally similar at Location A and C. LA<sub>10</sub> noise levels at Location K remain consistent during the day and evening periods with an increase in night-time noise levels evident. Operator attended noise surveys at this location identify a mine contribution which may have contributed to the increase in LA<sub>10</sub> noise levels although the contribution was found to be within the relevant consent limit for receivers in the Black Hill area.

### Friday 14<sup>th</sup> September 2007 – Tuesday 18<sup>th</sup> September 2007 (September quarter)

Table 27 presents a comparison between the noise statistics collected during the September 2006 quarter unattended continuous survey and the pre-mining baseline statistics.

**TABLE 27: Unattended Continuous Monitoring Ambient Noise Levels, SEPTEMBER 2007 MONITORING PERIOD.**

| Location                                       | Period       | LA1 | LA10 | LAeq | LA90 |
|--|--------------|-----|------|------|------|
| A<br>Weakley's Drive<br>Beresfield             | Daytime      | 60  | 56   | 47   | 55   |
|  | Evening      | 58  | 54   | 44   | 51   |
|  | ENCM Daytime | 58  | 54   | 45   | 53   |
|  | Night        | 58  | 53   | 36   | 51   |
| C<br>28 Phoenix Drive                          | Daytime      | 55  | 48   | 38   | 49   |
|  | Evening      | 50  | 47   | 39   | 44   |
|  | ENCM Daytime | 53  | 47   | 38   | 48   |
|  | Night        | 51  | 46   | 33   | 48   |
| F<br>Lot 684 Black<br>Hill Road, Black<br>Hill | Daytime      | 66  | 55   | 42   | 54   |
|  | Evening      | 60  | 53   | 48   | 52   |
|  | ENCM Daytime | 63  | 53   | 42   | 53   |
|  | Night        | 55  | 49   | 37   | 49   |
| K<br>Bartter Farm<br>No.6                      | Daytime      | 57  | 53   | 44   | 53   |
|  | Evening      | 58  | 54   | 38   | 52   |
|  | ENCM Daytime | 56  | 52   | 39   | 52   |
|  | Night        | 57  | 50   | 30   | 50   |

*Note: EPA periods used for the Industrial Noise Policy (INP) are defined as Daytime - 7.00 am to 6.00 pm Monday to Saturday, 8.00 am to 6.00 pm Sunday; Evening - 6.00 pm to 10.00 pm; Night - 10.00 pm to 7.00 am, Monday to Saturday, 10.00 pm to 8.00 am Sunday.  
EPA Periods used for the Environmental Noise Control Manual (ENCM) Daytime 7.00 am to 10.00 pm, Night 10.00 pm to 7.00 am.*

### **Ambient LA<sub>90</sub> Noise Levels**

The summary of results in **Table 27** show that ambient day, evening and night time LA<sub>90</sub> noise levels recorded for the quarter ending September 2007 were generally similar to levels recorded during the baseline monitoring process at Locations A, C and K. A significant increase in noise levels was recorded at Location F during the evening (13 dBA) and night-time (6 dBA) period which may have been caused by Donaldson Mine activity. Operator attended noise surveys at this Location identify Donaldson Mine operations which may have contributed to the increase in LA<sub>90</sub> noise levels, although the contribution was found to be within the relevant consent limit for receivers in the Black Hill area.

A comparison of the current monitoring period (September 2007) with the previous monitoring period (June 2007) indicates that LA<sub>90</sub> noise levels have remained similar to or less than those recorded in the June 2007 period at Locations A, C and K. No comparison can be made for Location F due to a logger fault in the June 2007 monitoring period.

A comparison of the current monitoring period (September 2007) with the coinciding monitoring period last year (September 2006) indicates that LA<sub>90</sub> noise levels recorded during all periods were generally similar at Location A, C and K. LA<sub>90</sub> noise levels at Location F remain consistent during the day and night-time periods with an increase in evening noise levels evident. Similarly, operator attended noise surveys have quantified that the Donaldson Mine contribution at this location is within the relevant consent for receivers in the Black Hill area.

### **Ambient LA<sub>10</sub> Noise Levels**

The summary of results in **Table 27** show that ambient day, evening and night time LA<sub>10</sub> noise levels recorded for the quarter ending September 2007 were generally similar to levels recorded during the baseline monitoring process at all locations.

A comparison of the current monitoring period (September 2007) with the previous monitoring period (June 2007) indicates that LA<sub>10</sub> noise levels have remained similar to or less than levels recorded during the June 2007 period at all locations.

A comparison of the current monitoring period (September 2007) with the coinciding monitoring period last year (September 2006) indicates that LA<sub>10</sub> noise levels recorded during all periods were generally similar at Locations A, C and F. LA<sub>10</sub> noise levels at Location K remain consistent during the day and night-time periods although a significant increase in evening noise levels (11 dBA) is evident. Operator attended noise surveys at Location K identified that mining activities were not audible. Furthermore, mine noise contributions noted in previous monitoring periods have been below the consent limits for nearest receivers in the Black Hill area and therefore it is unlikely that the increase in unattended noise levels for the September 2007 quarter was caused by Donaldson Mine activity.

## **Results of Attended Surveys**

### **Tuesday 28<sup>th</sup> November and Thursday 30<sup>th</sup> November 2006**

Operator attended noise measurements were conducted during the daytime time period on Tuesday 28 November 2006 and for the evening and night time periods on Thursday 30 November 2006.

The results of the operator attended noise measurements are given in **Tables 28 to 31**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

**TABLE 28: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD.**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 $\mu$ Pa) |                 |                  |                  |                  | Description of Noise Emission<br>and Typical Maximum Levels<br>L <sub>Amax</sub> – dBA  |
|---|-------------------------|--|-----------------|------------------|------------------|------------------|---|
|   |                         | L <sub>Amax</sub>                                | L <sub>A1</sub> | L <sub>A10</sub> | L <sub>A90</sub> | L <sub>Aeq</sub> |   |
| 28/11/06<br>2:04 pm Day<br>W = Calm<br>Temp = 35°C        | Ambient                 | 60   | 58              | 55               | 47               | 52               | Traffic (Weakley's Drive) ~ 47-53.<br>Neighbour Activities to 60.<br>Ambient farm noises ~ 53-54.<br>Cicadas ~ 45.<br>Donaldson mine inaudible. |
| 30/11/06<br>8:22 pm<br>Evening<br>W = Calm<br>Temp = 17°C | Ambient                 | 93   | 83              | 76               | 53               | 72               | Passing cars to 83.<br>Passing trucks to 93.<br>All noise descriptors set by<br>passing traffic.<br>Donaldson mine inaudible.                   |
| 30/11/06<br>10:03 pm Night<br>W = Calm<br>Temp = 15°C     | Ambient                 | 90   | 84              | 73               | 50               | 70               | Passing cars to 84.<br>Passing trucks to 90.<br>Insects ~ 47<br>Donaldson mine inaudible.   |

**TABLE 29: ATTENDED SURVEY RESULTS – LOCATION C – PHOENIX DRIVE**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 $\mu$ Pa) |     |      |      |                  | Description of Noise Emission<br>and Typical Maximum Levels<br>L <sub>Amax</sub> – dBA  |
|---|-------------------------|--|-----|------|------|------------------|---|
|   |                         | L <sub>Amax</sub>                                | LA1 | LA10 | LA90 | L <sub>Aeq</sub> |   |
| 28/11/06<br>2:28 pm Day<br>W = Calm<br>Temp = 35°C        | Ambient                 | 60   | 54  | 49   | 44   | 47               | Passing car - 60<br>Distant traffic noise (F3) ~ 45 - 48.<br>Ambient Birds ~ 45<br>cicadas ~ 44 - 46<br>Donaldson mine inaudible. |
| 30/11/06<br>8:44 pm<br>Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 62   | 54  | 49   | 45   | 48               | Passing Car - 62<br>Distant traffic noise (F3) ~ 45 - 48.<br>Ambient<br>Insects (crickets) ~ 50 - 53                              |
| 30/11/06<br>10:28 pm Night<br>W = Calm<br>Temp = 20°C     | Ambient                 | 57   | 53  | 49   | 45   | 47               | Distant traffic (F3) ~ 45 - 48.<br>Ambient<br>insects (crickets) ~ 50-52<br>Donaldson mine inaudible.                             |

**TABLE 30: ATTENDED SURVEY RESULTS - LOCATION F – LOT 684 BLACK HILL RD, BLACK HILL**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 $\mu$ Pa) |     |      |      |                  | Description of Noise Emission<br>and Typical Maximum Levels<br>L <sub>Amax</sub> – dBA   |
|---|-------------------------|--|-----|------|------|------------------|--|
|   |                         | L <sub>Amax</sub>                                | LA1 | LA10 | LA90 | L <sub>Aeq</sub> |  |
| 28/11/06<br>2:50 pm Day<br>W = Calm<br>Temp = 35°C        | Ambient                 | 75   | 67  | 51   | 41   | 53               | Passing cars to 75<br>Traffic (John Renshaw Drive) ~ 41 – 42.<br>Cicadas ~ 45<br>Donaldson mine inaudible.                                     |
| 30/11/06<br>9:12 pm<br>Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 79   | 56  | 48   | 45   | 52               | Passing car to 79.<br>Distant traffic (John Renshaw Dr) 45 - 48.<br>Ambient insects (crickets) ~ 50-52 (dominant)<br>Donaldson mine inaudible. |
| 30/11/06<br>10:55 pm Night<br>W = Calm<br>Temp = 20°C     | Ambient                 | 78   | 63  | 49   | 41   | 53               | Traffic constant 62-56, trucks to 57.<br>Insects ~ 47-50.<br>Donaldson mine inaudible.   |

**TABLE 31: ATTENDED SURVEY RESULTS – LOCATION K –BARTTER ENTERPRISES FARM 6, BLACK HILL.**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |      | Description of Noise Emission<br>and Typical Maximum Levels<br>LAmax – dBA  |
|---|-------------------------|---|-----|------|------|------|---|
|   |                         | LAmix                                       | LA1 | LA10 | LA90 | LAeq |   |
| 28/11/06<br>3:19 pm Day<br>W = Calm<br>Temp = 32°C        | Ambient                 | 70  | 59  | 55   | 48   | 52   | Distant traffic ~ 45-46.<br>Farm noise to 70.<br>Ambient cicadas ~48-50<br>Truck (engine noise), possibly mining;<br>LA10 Contribution ~ 40-42                                    |
| 30/11/06<br>9:32 pm<br>Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 57  | 53  | 50   | 43   | 47   | Passing traffic;<br>cars to 58.<br>Insects (crickets) ~ 46.<br>Possible mine contribution;<br>Trucks (engine noise) ~ 40-41,<br>Reverse Alarm < 40.<br>LA10 contribution ~ 40-42. |
| 30/11/06<br>11:17pm Night<br>W = Calm<br>Temp = 19°C      | Ambient                 | 60  | 57  | 50   | 42   | 47   | Passing cars to 60.<br>Insects (crickets) ~ 46.<br>Possible mine contribution;<br>Trucks (engine noise) ~ 40-41,<br>Reverse Alarm < 40.<br>LA10 contribution ~ 40-42.             |

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations. Also, increase in the ambient air temperature has the effect of increasing ambient fauna noise. In particular, cicadas dominated ambient noise levels during the day-time measurements and crickets during the evening and night-time measurements at all locations.

No mine noise contribution was audible at locations A (Weakley's Dr), C (Phoenix Dr) or F (Black Hill) which is likely given the distance of the monitoring locations to Donaldson mine. It is anticipated that this trend would remain consistent throughout the monitoring period.

Observations made during the Location K (Bartter Farm 6) operator attended noise surveys detect possible mine contribution during day, evening and night-time periods. Evening and night-time attended surveys observed truck reversing alarms with an approximate LA10 contribution less than 40 dBA. Day, evening and night-time noise surveys observed truck engine noise during loading/unloading activity with an approximate LA10 contribution of 40 – 42 dBA. Given the relative distance from the monitoring location to the nearest effected receivers within Black Hill, it is unlikely that the exceedance detected at the monitoring location would be evident within ambient noise levels at these receivers and therefore would meet the relevant criteria during the December 2006 monitoring period.

**Tuesday 13<sup>th</sup> February 2007**

Operator attended noise measurements were conducted during the day, evening and night-time periods on Tuesday 13<sup>th</sup> February 2007. The results of this survey are presented in **Tables 32-35**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

**TABLE 32: ATTENDED SURVEY RESULTS – (LOCATION A) 98 WEAKLEYS DRIVE, BERESFIELD**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |      | Description of Noise Emission and Typical Maximum Levels<br>LAmax – dBA  |
|---|-------------------------|---|-----|------|------|------|--|
|   |                         | LAmax                                       | LA1 | LA10 | LA90 | LAeq |  |
| 13/02/07<br>10:17 am<br>Day W = Calm<br>Temp = 24°C       | Ambient                 | 71  | 59  | 57   | 51   | 55   | Traffic (Weakley's Drive) ~ 52-54.<br>Impact Noise ~ 52-53<br>Cicadas up to 55<br>Truck brakes ~ 61<br>Operator noise - 71<br><b>Donaldson mine inaudible.</b> |
| 13/02/07<br>8:25 pm<br>Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 84  | 74  | 68   | 52   | 66   | Passing cars to 75<br>Passing trucks to 84<br>Distant traffic (New England highway) < 50.<br>Insects ~ 50-52<br><b>Donaldson mine inaudible.</b>               |
| 13/02/07<br>10:08 pm<br>Night<br>W = Calm<br>Temp = 20°C  | Ambient                 | 82  | 76  | 69   | 52   | 65   | Passing cars to 69.<br>Passing trucks to 82<br>Insects ~ 52-53<br><b>Donaldson mine inaudible.</b>   |

**TABLE 33: ATTENDED SURVEY RESULTS – (LOCATION C) 28 PHEONIX RD, BLACK HILL**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |      | Description of Noise Emission and Typical Maximum Levels<br>LAmax – dBA   |
|---|-------------------------|---|-----|------|------|------|---|
|   |                         | LAmax                                       | LA1 | LA10 | LA90 | LAeq |   |
| 13/02/07<br>10:42 am<br>Day W = Calm<br>Temp = 24°C       | Ambient                 | 58  | 48  | 44   | 40   | 42   | Birds ~ 42-45, up to 55<br>Resident Activity (impact) ~ 52<br>Distant traffic noise (F3) ~ 41-42<br>Dog Bark ~ 46-47<br>Wind ~ 43<br><b>Donaldson mine inaudible.</b> |
| 13/02/07<br>8:51 pm<br>Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 55  | 51  | 49   | 45   | 48   | Distant traffic noise (F3) ~ 40-49.<br>Insects < 44, Birds 55<br><b>Donaldson mine inaudible.</b>   |
| 13/02/07<br>10:25 pm<br>Night<br>W = Calm<br>Temp = 20°C  | Ambient                 | 51  | 48  | 46   | 41   | 44   | Distant traffic (F3) ~ 40-47<br>Insects ~ 39<br>Birds ~ 42<br>Distant truck brakes ~ 46<br><b>Donaldson mine inaudible.</b>   |

**TABLE 34: ATTENDED SURVEY RESULTS – (LOCATION F) LOT 684 BLACK HILL ROAD, BLACK HILL**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |      | Description of Noise Emission<br>and Typical Maximum Levels<br>LAmax – dBA   |
|---|-------------------------|---|-----|------|------|------|--|
|   |                         | LAmax                                       | LA1 | LA10 | LA90 | LAeq |  |
| 13/02/07<br>11:27 am Day<br>W = Calm<br>Temp = 24°C       | Ambient                 | 67  | 60  | 52   | 39   | 49   | Operator Noise ~ 55<br>Passing cars to 62<br>Passing truck to 61<br>Traffic (John Renshaw Dr) ~ 38 - 44<br>Resident Activities ~ 41 – 43.<br><b>Donaldson mine inaudible.</b>    |
| 13/02/07<br>9:13 pm<br>Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 61  | 58  | 51   | 39   | 46   | Trucks (John Renshaw Dr) to 52.<br>Distant traffic (John Renshaw Dr) 40-42.<br>Insects < 39.<br>Passing car ~ 61<br><b>Donaldson mine inaudible.</b>                             |
| 13/02/07<br>10:47 pm<br>Night<br>W = Calm<br>Temp = 20°C  | Ambient                 | 57  | 54  | 50   | 40   | 47   | Distant Traffic (John Renshaw Dr) ~ 50<br>Frogs &<br>Insects ~ 40-41 (dominant)<br>Car pass-by ~ 57<br>Distant trucks audible, possibly mining;<br><b>LA10 contribution ~ 40</b> |

**TABLE 35: ATTENDED SURVEY RESULTS – (LOCATION K) BARRTER ENTERPRISES FARM 6, BLACK HILL.**

| Date/Start Time<br>Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |      | Description of Noise Emission<br>and Typical Maximum Levels<br>LAmax – dBA  |
|---|-------------------------|---|-----|------|------|------|---|
|   |                         | LAmax                                       | LA1 | LA10 | LA90 | LAeq |   |
| 13/02/07<br>11:03 am Day<br>W = Calm<br>Temp = 20°C       | Ambient                 | 67  | 53  | 48   | 43   | 46   | Distant traffic 46 - 54.<br>Insects 42 – 45.<br>Cows ~ 53<br><b>Donaldson mine inaudible.</b>   |
| 13/02/07<br>9:45 pm<br>Evening<br>W = Calm<br>Temp = 20°C | Ambient                 | 77  | 74  | 64   | 47   | 62   | Passing cars 60-74.<br>Passing truck 77.<br>Insects ~ 45.<br>Trucks audible, possibly mining;<br><b>LA10 contribution ~ 51.</b>                                       |
| 13/02/07<br>11:19 pm<br>Night<br>W = Calm<br>Temp = 20°C  | Ambient                 | 86  | 73  | 61   | 43   | 63   | Passing cars to 73<br>Passing truck 86<br>Distant Traffic ~ 42-43<br>Insects ~ 41<br>Drilling noise audible,<br>possibly mining; LA10<br><b>contribution ~ 42-43.</b> |

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as ambient cicada, insect and frog noise. Donaldson Mine operations were observed to be audible at Location K (Bartter) during the evening and night-time and Location F (Lot 684 Black Hill Road) during the night time only.

Black Hill Roads' quantified LA10 contribution is approximately 2 dBA above the consent limit. The INP states (Section 11) that for a development to be deemed non-complaint, the monitored noise level must exceed the noise criteria for the development by more than 2 dBA. In this case, the measured noise level at Location F is within 2 dBA of the consent limit, concluding that Donaldson Mine is in compliance with the consent limit at this location.



The Bartter Farm attended noise survey was taken adjacent to John Renshaw Drive, approximately 150m from Location K. The recorded mine noise contribution was then utilised to calculate the approximate mine noise contribution back to the actual receiver location. Results found that the observed exceedance at the survey location (1 dBA in the daytime and 2-3 dBA in the evening and night-time) is in compliance with the consent limit at Location K.

Although noise levels at Location K are found to be in compliance with the original consent, Heggies have been informed that condition 23 of schedule 2 of the consent is currently operable at the Bartter Farm site and henceforth an agreement is in place for the receiver to accept higher noise levels. Therefore, the compliance achieved at Location K is irrelevant given that the original consent noise limits are not applicable.

Operator attended noise surveys at Location K have therefore been used to determine compliance of consent limits within the Black Hill area. The mine noise level contribution observed during the Location K operator attended survey was used to calculate the mine noise contribution at residents in Black Hill. This calculated noise level is within the relevant consent noise limit for residents within the Black Hill area.

Based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine did not exceed noise emission goals for any period.

#### **Monday 28<sup>th</sup> May and Wednesday 30<sup>th</sup> May 2007**

Operator attended noise measurements were conducted during the daytime period on Wednesday 30<sup>th</sup> May 2007. Operator attended noise measurements for evening and night-time periods were conducted on Monday 28<sup>th</sup> May.

The results of the operator attended noise measurements are given in **Tables 36-39**. Noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

**TABLE 36: ATTENDED SURVEY RESULTS – (LOCATION A) 98 WEAKLEYS DRIVE, BERESFIELD.**

| Date/Start Time Weather                                  | Measurement Description | Primary Noise Descriptor (dBA re 20 µPa) |     |      |      |      | Description of Noise Emission and Typical Maximum Levels<br>LAmax – dBA   |
|--|-------------------------|--|-----|------|------|------|---|
|  |                         | LAmax                                    | LA1 | LA10 | LA90 | LAeq |   |
| 30/05/07<br>09:15 am Day<br>W ~ 2-3m/s SW<br>Temp = 16°C | Ambient                 | 82                                       | 57  | 55   | 50   | 54   | Traffic (Weakley's Drive) ~ 50-54.<br>Birds < 45.<br>Truck brakes ~ 60.<br>Excavator (neighbour) up to 60.<br>Donaldson mine inaudible. |
| 28/05/07<br>8:31 pm Evening<br>W = Calm<br>Temp = 16°C   | Ambient                 | 79                                       | 75  | 69   | 50   | 64   | Traffic noise dominant;<br>Passing cars to 75,<br>Passing trucks to 80.<br>Crickets < 50.<br>Donaldson mine inaudible.                  |
| 28/05/07<br>10:10 pm Night<br>W = Calm<br>Temp = 14°C    | Ambient                 | 83                                       | 75  | 69   | 51   | 66   | Traffic noise dominant;<br>Passing cars to 69,<br>Passing trucks to 83.<br>Insects ~ 50-52.<br>Donaldson mine inaudible.                |

**TABLE 37: ATTENDED SURVEY RESULTS – (LOCATION C) 28 PHOENIX RD, BLACK HILL**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor (dBA re 20 µPa) |     |      |      |      | Description of Noise Emission and Typical Maximum Levels<br>LAmax – dBA   |
|--|-------------------------|--|-----|------|------|------|---|
|  |                         | LAmax                                    | LA1 | LA10 | LA90 | LAeq |   |
| 30/05/07<br>09:41 am Day<br>W = 3-5m/s<br>Temp = 16°C  | Ambient                 | 61                                       | 55  | 51   | 48   | 59   | Birds ~ 47-49<br>Distant traffic noise (F3) ~ 50<br>Wind ~ 48-50<br>Donaldson mine inaudible.                         |
| 28/05/07<br>8:58 pm Evening<br>W = Calm<br>Temp = 15°C | Ambient                 | 51                                       | 48  | 46   | 43   | 45   | Distant traffic noise (F3) ~ 40-43.<br>Insects/crickets/frogs ~ 40-42.<br>Dog bark ~ 46.<br>Donaldson mine inaudible. |
| 28/05/07<br>10:31 pm Night<br>W = Calm<br>Temp = 14°C  | Ambient                 | 50                                       | 48  | 46   | 40   | 43   | Distant traffic (F3) ~ 41-46.<br>Insects/frogs ~ 40.<br>Distant truck brakes ~ 48.<br>Donaldson mine inaudible.       |

**TABLE 38: ATTENDED SURVEY RESULTS – (LOCATION F) LOT 684 BLACK HILL ROAD, BLACK HILL**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |                 |                  |                  |                  | Description of Noise Emission and Typical Maximum Levels<br>L <sub>Amax</sub> – dBA  |
|--|-------------------------|---|-----------------|------------------|------------------|------------------|--|
|  |                         | L <sub>Amax</sub>                           | L <sub>A1</sub> | L <sub>A10</sub> | L <sub>A90</sub> | L <sub>Aeq</sub> |  |
| 30/05/07<br>10:03 am Day<br>W = Calm<br>Temp = 20°C    | Ambient                 | 65  | 60              | 51               | 38               | 49               | Passing cars to 60.<br>Passing truck to 65.<br>Traffic (John Renshaw Dr) ~ 38–42.<br>Dog bark ~ 45.<br>Donaldson mine inaudible.   |
| 28/05/07<br>9:21 pm Evening<br>W = Calm<br>Temp = 22°C | Ambient                 | 76  | 64              | 54               | 46               | 54               | Traffic (John Renshaw Dr) to 50.<br>Passing car ~ 63.<br>Passing truck ~ 74.<br>Crickets/insects/frogs ~ 45-47.<br>Distance truck noise (Donaldson Mine) ~ 40.<br>L <sub>10</sub> contribution ~ 38. |
| 28/05/07<br>10:58 pm Night<br>W = Calm<br>Temp = 15°C  | Ambient                 | 67  | 55              | 50               | 42               | 48               | Distant Traffic (John Renshaw Dr) ~ 50.<br>Crickets/insects/frogs ~ 43-45.<br>Car pass-by ~ 55.<br>Distance truck noise (Donaldson Mine) ~ 40.<br>L <sub>10</sub> contribution ~ 38.                 |

**TABLE 39: ATTENDED SURVEY RESULTS – (LOCATION K) BARRTER ENTERPRISES FARM 6, BLACK HILL.**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |                 |                  |                  |                  | Description of Noise Emission and Typical Maximum Levels<br>L <sub>Amax</sub> – dBA  |
|--|-------------------------|---|-----------------|------------------|------------------|------------------|--|
|  |                         | L <sub>Amax</sub>                           | L <sub>A1</sub> | L <sub>A10</sub> | L <sub>A90</sub> | L <sub>Aeq</sub> |  |
| 30/05/07<br>10:28 am Day<br>W = Calm<br>Temp = 20°C    | Ambient                 | 68  | 60              | 57               | 51               | 55               | Distant traffic;<br>cars 50-54,<br>trucks 60-64.<br>Donaldson Mine;<br>Truck reverse alarm < 51.<br>Truck engine noise ~ 53.<br>L <sub>10</sub> Contribution ~ 54.             |
| 28/05/07<br>9:45 pm Evening<br>W = Calm<br>Temp = 15°C | Ambient                 | 76  | 74              | 65               | 54               | 62               | Passing cars 70-73.<br>Passing truck 76.<br>Donaldson Mine;<br>Truck engine noise ~ 56,<br>Truck reverse alarm ~ 50,<br>Truck horn ~ 66.<br>L <sub>10</sub> Contribution ~ 54. |
| 28/05/07<br>11:19 pm Night<br>W = Calm<br>Temp = 15°C  | Ambient                 | 81  | 73              | 62               | 45               | 64               | Passing cars 70-72.<br>Passing truck 81.<br>Donaldson Mine;<br>Truck engine noise ~ 56,<br>Truck reverse alarm ~ 50.<br>L <sub>10</sub> Contribution ~ 54                      |

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as insect and frog noise. Donaldson Mine operations were observed to be audible at Location K (Bartter) during the day, evening and night-time

periods and Location F (Lot 684 Black Hill Road) during the evening and night-time periods.

Black Hill Roads' quantified LA10 contribution is approximately 38 dBA which meets the consent limit for this location.

Heggies have been informed that condition 23 of schedule 2 of the consent is currently operable at the Bartter Farm site and henceforth an agreement is in place for the receiver to accept higher noise levels. Furthermore, as Heggies understand the dwelling on the Bartter Farm site is currently unoccupied and therefore determining whether consent is achieved at this site is unnecessary. Therefore attended noise surveys conducted with relevance to Location K have been used to assess noise levels at nearest occupied residential receivers to the Bartter Farm site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the recorded mine contribution is negligible with comparison to background noise levels in the Black Hill area and therefore Donaldson mine are in compliance with their consent.

In conclusion, based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine do not exceed noise emission goals for any period.

#### Tuesday 18 September 2007

Operator attended noise measurements were conducted during the day, evening and night time periods on Tuesday 18<sup>th</sup> September 2007.

The results of the operator attended noise measurements are given in **Tables 40 to 43**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

**TABLE 40: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD.**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |                  | Description of Noise Emission and Typical Maximum Levels<br>L <sub>Amax</sub> – dBA   |
|--|-------------------------|---|-----|------|------|------------------|---|
|  |                         | L <sub>Amax</sub>                           | LA1 | LA10 | LA90 | L <sub>Aeq</sub> |   |
| 18/09/07<br>12:35 pm Day<br>W = calm<br>Temp = 24°C    | Ambient                 | 66  | 60  | 57   | 51   | 55               | Traffic noise dominant (Weakley's Drive);<br>Cars ~ 54-58,<br>Trucks ~ 60-64.<br>Birds ~ 47<br>Donaldson mine inaudible.                            |
| 18/09/07<br>8:40 pm Evening<br>W = Calm<br>Temp = 18°C | Ambient                 | 64  | 60  | 52   | 45   | 50               | Traffic noise dominant (Weakley's Drive);<br>Passing cars to 55,<br>Passing trucks to 62.<br>Crickets ~46.<br>Donaldson mine inaudible.             |
| 18/09/07<br>10:06 pm Night<br>W = Calm<br>Temp = 18°C  | Ambient                 | 60  | 56  | 51   | 43   | 48               | Traffic noise dominant (Weakley's Drive);<br>Passing cars to 54,<br>Passing trucks to 62.<br>Insects/crickets ~ 43-45.<br>Donaldson mine inaudible. |

**TABLE 41: ATTENDED SURVEY RESULTS – LOCATION C- 28 PHEONIX DRIVE, BLACK HILL**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |                  | Description of Noise Emission and Typical Maximum Levels L <sub>Amax</sub> – dBA                                 |
|--|-------------------------|---|-----|------|------|------------------|--|
|  |                         | L <sub>Amax</sub>                           | LA1 | LA10 | LA90 | LA <sub>eq</sub> |  |
| 18/09/07<br>12:58 am Day<br>W = calm<br>Temp = 24°C    | Ambient                 | 62  | 53  | 46   | 38   | 43               | Birds ~ 47-49<br>Distant traffic noise (F3) ~ 44<br>Farm noise ~ 52<br>Donaldson mine inaudible.                 |
| 18/09/07<br>9:02 pm Evening<br>W = Calm<br>Temp = 18°C | Ambient                 | 60  | 52  | 48   | 45   | 46               | Distant traffic noise (F3) ~ 41-44.<br>Insects/crickets/frogs ~ 43-44.<br>Donaldson mine inaudible.              |
| 18/09/07<br>10:30 pm Night<br>W = Calm<br>Temp = 18°C  | Ambient                 | 56  | 50  | 47   | 41   | 44               | Distant traffic (F3) ~ 41-44<br>Insects/frogs ~ 42-43<br>Distant truck brakes ~ 40.<br>Donaldson mine inaudible. |

**TABLE 42: ATTENDED SURVEY RESULTS – LOCATION F – LOT 684 BLACK HILL ROAD, BLACK HILL**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |                  | Description of Noise Emission and Typical Maximum Levels L <sub>Amax</sub> – dBA   |
|--|-------------------------|---|-----|------|------|------------------|--|
|  |                         | L <sub>Amax</sub>                           | LA1 | LA10 | LA90 | LA <sub>eq</sub> |  |
| 18/09/07<br>1:32 pm Day<br>W = Calm<br>Temp = 24°C     | Ambient                 | 74  | 68  | 55   | 41   | 55               | Passing cars to 68.<br>Passing truck to 74.<br>Traffic (John Renshaw Dr) ~ 38-42.<br>Donaldson mine inaudible.   |
| 18/09/07<br>9:32 pm Evening<br>W = Calm<br>Temp = 18°C | Ambient                 | 80  | 70  | 55   | 45   | 58               | Traffic (John Renshaw Dr);<br>Passing cars ~ 50-53.<br>Crickets/insects/frogs (dominant) ~ 45-47.<br>Donaldson mine inaudible.   |
| 18/09/07<br>10:55 pm Night<br>W = Calm<br>Temp = 18°C  | Ambient                 | 83  | 66  | 51   | 46   | 57               | Traffic (John Renshaw Dr);<br>Cars ~ 55,<br>Trucks to 69.<br>Crickets/insects/frogs ~ 45-47.<br>Car pass-by ~ 83.<br>Donaldson Mine;<br>Truck engine noise ~ 40.<br>Dozer track rattle < 40<br>L10 contribution ~ 38-40. |

**TABLE 43: ATTENDED SURVEY RESULTS – LOCATION K BARTTER ENTERPRISES FARM 6, BLACK HILL.**

| Date/Start Time Weather                                | Measurement Description | Primary Noise Descriptor<br>(dBA re 20 µPa) |     |      |      |      | Description of Noise Emission and Typical Maximum Levels LAmax – dBA  |
|--|-------------------------|---|-----|------|------|------|---|
|  |                         | LAmx  | LA1 | LA10 | LA90 | LAeq |   |
| 18/09/07<br>1:52 am Day<br>W = Calm<br>Temp = 24°C     | Ambient                 | 57  | 54  | 46   | 36   | 43   | Distant traffic;<br>cars 44-47,<br>trucks 52-57.<br>birds/insects ~ 40-42<br>Donaldson mine inaudible.  |
| 18/09/07<br>9:51 pm Evening<br>W = Calm<br>Temp = 18°C | Ambient                 | 95  | 85  | 71   | 46   | 73   | Passing cars up to 83.<br>Passing truck 95.<br>crickets/insects ~ 40-42<br>Donaldson mine inaudible.  |
| 18/09/07<br>11:22 pm Night<br>W = Calm<br>Temp = 18°C  | Ambient                 | 93  | 82  | 72   | 55   | 71   | Passing cars to 87.<br>Passing truck 93.<br>Donaldson Mine;<br>truck engine noise, truck<br>reverses alarm s and truck<br>horns audible.<br>Approx. L10 Contribution ~ 55 |

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as insect and frog noise. Donaldson Mine operations were observed to be audible at Location K (Bartter) and Location F (Lot 684 Black Hill Road) during the night. Black Hill Roads' quantified LA10 contribution is approximately 38-40 dBA which meets the consent limit for this location.

Heggies have been informed that condition 23 of schedule 2 of the consent is currently operable at the Bartter Farm site and henceforth an agreement is in place for the receiver to accept higher noise levels. Furthermore, as Heggies understand the dwelling on the Bartter Farm site is currently unoccupied and therefore determining whether consent is achieved at this site is unnecessary. Therefore attended noise surveys conducted with relevance to Location K have been used to assess noise levels at nearest occupied residential receivers to the Bartter Farm site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the recorded mine contribution is negligible with comparison to background noise levels in the Black Hill area and therefore Donaldson mine are in compliance with their consent.

In conclusion, based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine do not exceed noise emission goals for any period.

### ***Complaints Based Noise Monitoring***

There were no complaints based on noise monitoring during the 2007 AEMR reporting period.

### 3.2.12 Visual and Stray Lighting

Impacts on visual amenity were identified as one of the issues for residents in the Black Hill area during the EIS process. To date there have not been any complaints related to visual impact issues received by the mine. This includes complaints relating to stray lighting.

#### **Control Strategy:**

Visual impact is controlled by ensuring that (where possible) the waste emplacement dumps are shielded by the natural topography and trees. Once areas become available, rehabilitation commences as soon as possible to ensure that the visibility of the dumps is reduced.

To this end, the out of pit dump has deliberately been constructed at an appropriate RL to ensure that it cannot be seen from the Black Hill area.

#### **Environmental Performance:**

Visual impact and stray lighting is not considered an issue for the Donaldson Coal at the moment. Should it become an issue appropriate controls would be adopted to minimise any impacts.

### 3.2.13 Cultural and Natural Heritage Conservation

The following section outlines the commitment made by Donaldson to the protection of cultural and natural heritage of the area. A copy of a plan along with a summary table showing the known Aboriginal Cultural heritage sites is attached as **Appendix 3** of this report.

To date thirty-one sites of Aboriginal Cultural Heritage have been identified on property owned by Donaldson Coal. None of these sites were in areas that were impacted on by mining during the 2007 AEMR period.

**Comment [MH7]:** Check this statement. Correct PB

#### **Archaeological Studies**

Donaldson Coal has been the subject of four archaeological studies since 1998. During each study the principle aims have been to:

- a) Consult and involve the Aboriginal Community at every stage of the investigation and to provide continuous opportunities for the Aboriginal Community (through the MLC) to participate in the interpretation and decision making process.
- b) Identify and record by field survey the material evidence of Aboriginal cultural heritage or locations of potential evidence with the land owned by Donaldson.
- c) Assess the archaeological significance and understand the Aboriginal significance of material evidence of Aboriginal cultural heritage of the study area.
- d) Assess the impacts of the mine on Aboriginal Cultural Heritage.

#### **Management Plans**

In accordance with conditions 84, 85 and 86 of the Development Consent, Donaldson Coal has prepared an Aboriginal Sites Management Plan for the mine. Separate plans are produced for each year of operation at the mine. This provides a better opportunity to address specific issues for each year as well as an opportunity to review and address the management of Aboriginal Sites both inside the mine impact area and within associated conservation areas surrounding the mine.

An Aboriginal Sites Management Plan for Year 5 was prepared in consultation with the Mindaribba Local Aboriginal Land Council (MLC) and has been submitted to the National Parks and Wildlife Service.

**Control Strategy:**

The following control measures have been employed at the Donaldson Coal Mine in order to ensure that reasonable duty of care is taken to ensure sites of aboriginal cultural significance are not knowingly disturbed or destroyed:

- a) The MLC is actively involved in the management of Aboriginal Sites at Donaldson;
- b) Representatives of the Lands Council are invited on site to monitor clearing and topsoil stripping activities.

**Environmental Performance:**

Donaldson and MLC enjoy a good working relationship and to date there have been no complaints or incidents recorded in relation to the management of sites of aboriginal cultural heritage.

**3.2.14 Spontaneous Combustion**

Donaldson has not experienced spontaneous combustion in any of its stockpiles or in the coal seams in the pit itself.

**Control Strategy:**

Notwithstanding this, the potential for spontaneous combustion is controlled as follows:

- ROM and product coal stockpiles are expected to be of small size and of limited turnaround time;
- Currently the bulk of the coal is pre-sold and as such is not required to be stockpiled for periods longer than two (2) months;
- The pit geologist is responsible for inspecting coal stockpile areas and reporting any evidence of obvious heating or spontaneous combustion;
- Coal stockpiles will be sprayed with water, particularly in hot, dry weather;
- Care is taken to ensure coal stockpiles are established in clear, open areas where the threat from bushfire is minimal;
- Should coal on the stockpile begin to combust, it will be removed using earthmoving equipment readily available at the mine and quenched using the sprays from the water cart; and
- Should occurrences become frequent, stockpiles will be shaped and compacted as required to minimise spontaneous combustion.

Where the decision is made to spoil thin coal seams the pit geologist is responsible for making the contractor aware of the possibility for spontaneous combustion and is to ensure that the material is placed over a dump face where it will be buried.



**Environmental Performance:**

There have been no recorded incidents of spontaneous combustion during the reporting period.

**3.2.15 Bushfire**

A Bushfire Management Plan was prepared in 2004 for the areas owned by Donaldson Coal. This includes both those areas to be disturbed by mining activities and the area set-aside as conservation areas. The management plan was submitted to the NSW Rural Fire Service (RFS) for review and part of the review involved a site inspection by the RFS. The Cessnock/Maitland Bushfire Management Committee ratified the Bush Fire Management Plan for the Donaldson Coal site at its meeting in October 2006. The Bushfire Management Plan takes into consideration the requirement for hazard reduction burns, natural fire regime and the need to maintain the ecological value of the site for flora and fauna. There were recent consultations held between Donaldson Coal and the local RFS brigades, including Benwerrin, Louth Park and Thornton brigades, which included brigade officers receiving environmental inductions for the Donaldson Coal site.

**Comment [MH8]:** .Check this statement OK PB

**Control Strategy:**

Cooks Construction operates a 38,000L water cart for dust suppression on site. The water cart is fitted with a monitor (spray) which can be used as required to control fires on site. In addition, earthmoving equipment can be provided at short notice to construct fire breaks or access.

Hazard burn reductions were undertaken during the 2007 AEMR period by the Rural Fire Services in the northern part of the Bushland Conservation Area. Hazard reduction will be considered in the next AEMR reporting period as determined by the Bushfire Management Plan and the advice of the local RFS office. The program will maintain reduced fuel loading and protect mine assets and adjoining private properties.

**Comment [MH9]:** Check these statements. See changes

A 20m fuel free and 15m fuel reduced zone has been established around the Donaldson Coal administration office in accordance with the requirements of the Cessnock City Council.

Care is to be taken to ensure fires (both those lit accidentally or deliberately) are kept out of areas that have been recently revegetated. Fire management trails will be established to provide access into these areas as well as fire breaks should they be required. In addition, care will be taken to keep fire out of the active pit area, or run of mine stockpiles and overburden emplacement areas. This is to ensure that the risk of any carbonaceous material catching alight is kept to an absolute minimum.

**Environmental Performance:**

There were no reported fires on Donaldson Coal property during the period of this report.

**3.2.16 Mine Subsidence**

Mine subsidence is not considered an issue at Donaldson Coal Mine because the mine is by open cut methods only.

**3.2.17 Public Safety**

Donaldson has fenced the eastern and southern boundaries of the mining lease, which are the most accessible to the public.

Sign-posting advising the public of the presence of the mine have been placed at the entrance and around the perimeter of the lease. The fences are inspected on a weekly basis and repairs undertaken where necessary.

### 3.3 REPORTABLE INCIDENTS

There were no externally reportable environmental incidents recorded at the mine during the reporting period. There was one (1) internal environmental incident reported as a requirement of the Environmental Management Strategy, compared to the 2006 reporting period where three (3) internally reportable environmental incidents were recorded. **Table 44** shows the nature of those incidents.

**TABLE 44: LIST OF INTERNAL ENVIRONMENTAL INCIDENTS REPORTED.**

| Nature of the Incident                           | Number Recorded |
|--|-----------------|
| Oil spill to ground during service & maintenance | 1               |

An internal environmental incident form was completed in accordance with the requirements of the site Environmental Management Strategy (EMS). These forms enable preventative actions to be suggested and the recommendations implemented in order to continually improve environmental performance at the mine. The Donaldson Coal Environmental Manager is working with the mining contractor to address area(s) of repeat incidents.

## **4 COMMUNITY RELATIONS**

This section details the various aspects of the community relations program at the mine, including but not limited to, complaints received on the community hotline, community liaison, detail on the Community Consultative Committee (CCC) and the social and economic benefits resulting from the presence of the mine in the area.

### **4.1 ENVIRONMENTAL COMPLAINTS**

There was one (1) complaint received by Donaldson Coal on the 1800 111 271 community hotline during the 2007 AEMR reporting period, with two (2) received in the previous AEMR reporting period. The complaint was in relation to blast impacts, and information about the complaint is provided in **Appendix 4**. All complaints are followed up and remedial or additional monitoring is undertaken as required.

### **4.2 COMMUNITY LIAISON**

The following section relates specifically to information relevant to the Community Consultative Committee (CCC) and the community liaison program implemented by the mine.

#### **4.2.1 Community Consultative Committee (CCC).**

There was one CCC meeting held at the Donaldson Mine site during the 2007 AEMR reporting period. Included in **Table 45** are the details of the CCC meeting held during the reporting period.

**TABLE 45: CCC MEETING DETAILS**

| Date                        | Location       | No. of attendees |
|-----------------------------|----------------|------------------|
| 26 <sup>th</sup> March 2007 | Donaldson Coal | 6                |

#### **4.2.2 Site Tours/Inspections**

The CCC did not inspect the mine during the 2007 AEMR period. Donaldson proposes to continue site inspections on a regular basis so the CCC members can see the operation first hand.

#### **4.2.3 Community Newsletters**

There were no community newsletters prepared in the 2007 AEMR reporting period, however a Community Noticeboard has been established on the Donaldson Coal Internet Site which has proven to be successful and is the preferred avenue for communicating information about the mining operations to the local community and any other interested parties.

#### **4.2.4 Donaldson Coal Internet Site ([www.doncoal.com.au](http://www.doncoal.com.au))**

The Donaldson Coal Internet site was launched in August 2000. It has since been reviewed and improved, with additional information and a site upgrade in August 2004. The site has been developed to provide information to the wider community. It contains up to date copies of the CCC meeting minutes, a Community Noticeboard, Donaldson news and updates, the most recent Environmental Monitoring Report, pictures of the mine and general information. It also contains a list of contact details should anyone wish to contact the mine directly either by telephone or e-mail.

### 4.3 SOCIAL/ECONOMICAL CONTRIBUTIONS

This section details the employment status and demographics for all staff employed both directly and indirectly at the Donaldson Coal Mine. It is important to note that Donaldson operates only a day and afternoon shift roster for overburden and interburden removal. Coal removal is undertaken on all shifts (including night shift). Should the option to operate overburden and interburden on a night shift be taken up, the employee numbers would increase.

#### 4.3.1 Employment Status and Demography

Donaldson Coal directly employs or contracts 10 staff mainly within a technical services and management/supervision role. **Table 46** shows the breakdown of numbers for key functional areas as well as the percentage living in the Maitland Area.

**TABLE 46: SUMMARY OF DONALDSON COAL EMPLOYEE STATISTICS**

| Functional Area:   | No. | Place of Residence          |
|--------------------|-----|-----------------------------|
| Management         | 3   | Maitland (33%), Other (66%) |
| Environmental      | 1   | Other (100%)                |
| Technical Services | 6   | Maitland (50%), Other (50%) |

Cooks Construction Pty Ltd currently directly employs 69 full-time employees in the production, maintenance and management areas. **Table 47** shows the breakdown of numbers for key functional areas as well as the percentage living in the Maitland Area.

**TABLE 47: SUMMARY OF COOKS CONSTRUCTION EMPLOYEE STATISTICS**

| Functional Area:       | No. | Place of Residence          |
|------------------------|-----|-----------------------------|
| Management/Supervisor  | 9   | Maitland (44%), Other (56%) |
| Maintenance/Production | 60  | Maitland (32%) Other (68%)  |

In addition to those directly employed by either Donaldson or Cooks Construction there are a large number of additional sub contractors employed indirectly at the project. They include, but are not limited, the following areas:

- a) Coal Haulage (Daily);
- b) Coal Handling and Washing (Daily);
- c) Maintenance contractors and fitters (Daily as required);
- d) Cleaning staff;
- e) Other consultants and contractors (as required).

#### 4.3.2 Roll-on Employment Effects

The initial studies undertaken as part of the EIS detailed the importance of the coal mining industry to the economy of New South Wales. Donaldson Coal mine came on stream during a period where some of the mines in the upper valley were downsizing and offering redundancies. This has enabled a number of skilled workers an opportunity that may have otherwise not been available.

In addition there has been the roll on effect. The EIS used a multiplier (3.09) derived from the Australian Bureau of Statistics in order to calculate the roll on benefit of the operation. Based on the current numbers of direct employees (day and afternoon shift) it could be expected that up to the equivalent of an additional 244 jobs have been created as a result of the project taking place.

#### **4.3.3 Value Adding Programs Directly Benefiting the Community**

Donaldson Coal has also made a number of contributions to the local community. Donaldson has undertaken the following activities during the reporting period.

- Donaldson continues to be the major sponsor of an education initiative for local primary schools in the Maitland and surrounding area aimed at providing teaching resource aids, placing the local Maitland Mercury (newspaper) in Classrooms;
- Small financial contributions have been made to various local community based organisations in the area surrounding the mine.
- Donaldson has provided an avenue for training and employment for five individuals from the local Mindaribba Aboriginal Lands Council; and

## 5 REHABILITATION

This section describes the current rehabilitation activities during the reporting period at the Donaldson Coal Mine.

### 5.1 BUILDINGS

There were no changes to site buildings during this reporting period.

### 5.2 REHABILITATION OF DISTURBED LAND

It is proposed to re-establish a cover of native forest vegetation to the majority of the post-mining landform.

During the reporting period a total of 26.53 hectares were rehabilitated including the provision of drainage controls to provide a stable landform in line with MOP requirements.

**Comment [MH10]:** Check. This was obtained from the Rehab Plans OK PB

Several areas of incomplete topsoiling and mulching were identified in the previous DPI annual inspection. The areas were completed as part of this year's rehabilitation activities.

**Comment [PB11]:** OK

#### 5.2.1 Management of Potentially Acid Material

In late 2003 a final report was provided by URS Australia Pty Limited on the management of potentially acidic material. In line with the recommendations, the out of pit dump was limed. A copy of the report was submitted to MR and the final recommendations are implemented in rehabilitation practices. During the 2007 AEMR reporting period all areas of rehabilitation were treated following the recommendations of the URS report.

**Comment [PB12]:** OK PB

Actions undertaken during the 2007 AEMR period included the continued selective use of the top 7 meters of the upper overburden and interburden strata for capping over the dump areas.

### 5.3 OTHER INFRASTRUCTURE

Other than those already mention in this report, there was some other infrastructure works undertaken during the reporting period. These works included the following:

- Routine maintenance of the fence along John Renshaw Drive

All works were undertaken in accordance with the requirements of the approved MOP.

### 5.4 REHABILITATION STATUS AT END OF THE REPORTING PERIOD

The principal areas for rehabilitation are the two emplacement areas outside of the active mining area. These are known as the Top Dump, in the northern area of the mine, and the Out of Pit Emplacement, in the southern area of the mine. Due to the progression of mining operations less area was available in this AEMR reporting period due to the Top Dump not reaching final landform.

Approximately 26.5 Ha of rehabilitation was completed in this 2007 AEMR reporting period with a rehabilitation area of 38 Ha planned for 2007-2008. The area rehabilitated in 2006-7 was less than the projected MOP target due to the incomplete sections of the final landform in the Top Dump and Out of Pit Emplacement being available. The rehabilitation report for 2007 is provided in **Appendix 7**. The latest rehabilitation plan, October 2007, and the forecast plan for October 2008 are provided in **Appendix 8**.

**Comment [MH13]:** Check. This was obtained from the Rehab Plans OK PB

There is a small depression on the long dump that is a purpose built detention structure. This dam has been clay sealed to prevent percolation of runoff through the dump. The Draft DLWC *Draft Guidelines of establishing Stable Drainage Lines on Rehabilitated Mine site (1999)* promotes temporary detention runoff on spoil dumps as a means of reducing velocity and discharge off site.

An excellent result from direct tree seeding areas has been obtained by incorporating direct tree seeding with cover crops. This prevents weed growth, provides faster ground stabilisation, less soil erosion and sedimentation issues and has produced good uniform germination of all tree and shrub species. This technique will be continued at Donaldson Coal.

In 2008, the overburden material will continue to be placed in the dumps in a method that is commensurate with the final landform design. The design will minimise the final trim works required to achieve the designed post mining landform. Drainage control and erosion protection measures are being incorporated into the final landform design. This includes, but is not limited to, contour and graded banks, drains and sediment retention basins. Slopes are generally regraded to no greater than 10 degrees. Areas available for rehabilitation will be topsoiled and immediately seeded to reduce the risk of soil erosion.

The runoff from the Out of Pit Emplacement area is still being collected and pumped to the dirty water dam due to the mining out of the creek tributaries. Investigations will be undertaken over the ensuing twelve months to ascertain the buffer availability of the Weakley's Flat Creek to receive water from the out of pit emplacement areas.

## **5.5 REHABILITATION TRIALS AND RESEARCH**

In mid 2005 Donaldson mine initiated a field research program incorporating world first biotechnology examining the natural enhancement of drought resistance in native tree species. The research was initiated by Mark Burns of Global Soil Systems and was enthusiastically supported by Donaldson Mine.

The technology centers on the treatment of young trees with a threshold concentration of a naturally occurring plant compound, by treating tubestock and seed with citric acid. Glasshouse trials at Newcastle University and the University of British Columbia, Canada showed dramatic improvement in both fine root development and the ability of trees to reduce water loss when subject to drought stress. Preliminary results at Donaldson Mine confirmed these findings and support the possible wider use of this technology in rehabilitation, forestry, agriculture and any plant group where enhanced drought resistance in plants may be beneficial.

## **5.6 FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN**

Donaldson Coal recognises the need to manage rehabilitation of the Open Cut to ensure that the mine can function effectively and operate in accordance with statutory requirements. To this end Donaldson engaged Global Soil Systems (GSS) to prepare a Rehabilitation Management Plan (RMP) in accordance with the coal mining industry's best practice.

The report aims to specifically address rehabilitation in three (3) key areas including pre-mining operations (eg. clearing, seed collection, topsoil management, etc) post mining operations (eg. landform design, visual impact slope angles, water management and revegetation, etc) and mine closure and decommissioning (including but not limited to final void issues).

The rehabilitation strategies and concepts proposed for Donaldson Mine were formulated according to results of industry wide research and experience. All future site and industry research results will be utilised as input into a "cycle of continuous improvement" so that rehabilitation best practice is implemented at the site.

## **6. ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD**

The following initiatives by Donaldson Coal are proposed over the next twelve months.

There are no new initiatives planned for the ensuing twelve months.

## **7. DEVELOPMENT CONSENT COMPLIANCE REVIEW**

An Independent Environmental Audit of the Donaldson Coal Mine was conducted between the 11 and 13 April 2007 by the consulting company, Trevor Brown and Associates, to review the compliance of the Donaldson Coal Mine operations with the Minister's Conditions of Consent granted on the 14 October 1999, and the conditions attached to the Notice of Modification granted by the Minister for Planning on 26 August 2005. This compliance review and Audit was required as part of the Conditions of Consent.

The compliance review and Audit was conducted generally in accordance with the Australian/New Zealand Standards AS/NZS ISO 14010:2004 - Guidelines and General Principles for Environmental Auditing; and AS/NZS ISO 14011:2004 – Procedures for Environmental Auditing. The files held by Donaldson Coal at the mine site and interview/discussions with the site personnel provided the auditor with all the required information and documentation for the verification of compliance of the operations with the conditions of approval and other statutory approvals.

A summary of the findings contained in the Independent Environmental Audit Report were:

*"The audit findings confirmed a high degree of compliance with the requirements of the conditions attached to the Minister's Conditions of Consent, Environment Protection Licence and Mining Lease.*

*The preparation of documentation, reporting and operations of the Donaldson Mine demonstrate compliance with the conditions in relation to the activities and operations on the Mining Lease Area.*

*The status and availability of documentation held by Donaldson that was required to verify actions related to each condition of consent, provided the auditor with adequate information to undertake the audit in an efficient manner."*



## 8. REFERENCES

- Global Soil Systems (May 2000a) ***Erosion & Sediment Control Plan***, Unpublished report for Donaldson Coal Pty Ltd.
- Holmes Air Sciences (October 2007) ***Air Quality Management Plan***, Unpublished report for Donaldson Coal Pty Ltd.
- Perrens Consultants (November 2000) ***Water Management Plan***, Unpublished report for Donaldson Coal Pty Ltd.
- Robyn Tuft & Associates (2007a) ***Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey: Autumn 2007***, Unpublished report for Donaldson Coal Pty Ltd.
- Robyn Tuft & Associates (2007b) ***Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey: Spring 2007*** Unpublished report for Donaldson Coal Pty Ltd.
- Gunninah (July 2007) ***Donaldson Open-cut Coal Mine, Beresfield, Flora and Fauna Management Plan***. Unpublished Report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000a) ***Donaldson Open-cut Coal Mine, Tetratheca juncea Management Plan***. Unpublished Report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000b) ***Donaldson Open-cut Coal Mine Tetratheca juncea survey and identification report***, Unpublished Report for Donaldson Coal Pty Ltd.
- Global Soil Systems (2000b) ***Donaldson Coal Waste Management Plan***, Unpublished report completed by Donaldson Coal.
- Richard Heggies & Associates Pty Ltd (2006) ***Noise Monitoring Survey, Fourth Quarter 2006, Donaldson Mine***, Unpublished reported completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2007a) ***Noise Monitoring Survey, First Quarter 2007, Donaldson Mine***, Unpublished reported completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2007b) ***Noise Monitoring Survey, Second Quarter 2007, Donaldson Mine***, Unpublished reported completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2007c) ***Noise Monitoring Survey, Third Quarter 2007, Donaldson Mine***, Unpublished reported completed by Donaldson Coal
- EcoBiological ***The Experimental Translocation of Tetratheca juncea (tremandraceae) at Donaldson Coal Mine, Beresfield (2005)***, Unpublished report for Donaldson Coal Pty Ltd
- Hunter Eco ***Relocation of Grevillea parviflora subsp. Parviflora, Donaldson Open Cut Mine (2007)***, Unpublished report for Donaldson Coal Pty Ltd

**APPENDIX 1:**

**Donaldson Coal  
Environmental Policy**



Donaldson Coal Pty Ltd  
ABN 87 073 088 945

## ENVIRONMENTAL POLICY

Donaldson Coal recognises that it is operating in an environment that requires a genuine commitment to the environment. Donaldson aims to achieve and maintain a high standard of environmental care within all aspects of the operation.

Donaldson will achieve this by committing to the following principles:

- Compliance with all laws, regulations, consent conditions and standards applicable to the operation.
- Adopting a consultative approach and communicating openly with all stakeholders on the environmental issues;
- Ensuring that all employees, contractors and suppliers of goods and services are fully aware of their responsibilities by initiating regular communications and training;
- Always considering environmental factors when planning or making operational decisions or changes to the mining process;
- Ensuring continuous improvement through implementing and maintaining an Environmental Management Strategy (EMS) which aims to identify, control and monitor the environmental risks arising from the project;
- To develop, maintain and review environmental objectives, targets and performance indicators; and
- Managing all operational processes to minimise wastes, promote reuse and recycling principles so as to reduce the impacts upon the surrounding environments.

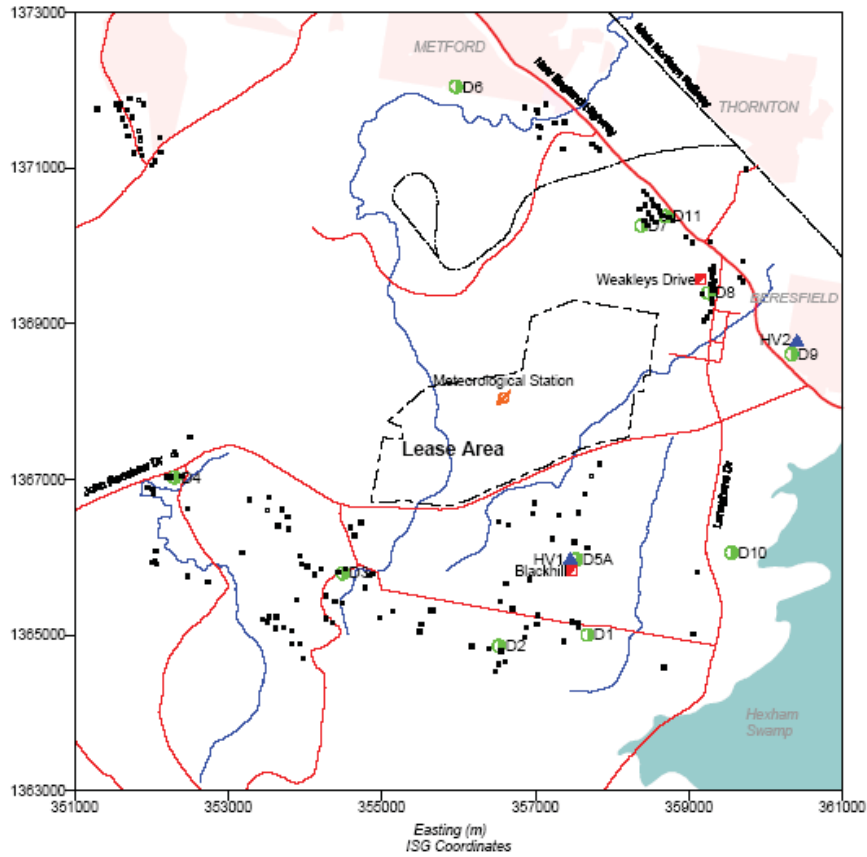
A handwritten signature in black ink, appearing to read "Brendan McPherson".

**BRENDAN McPHERSON**  
Chief Executive Officer – Donaldson Project.

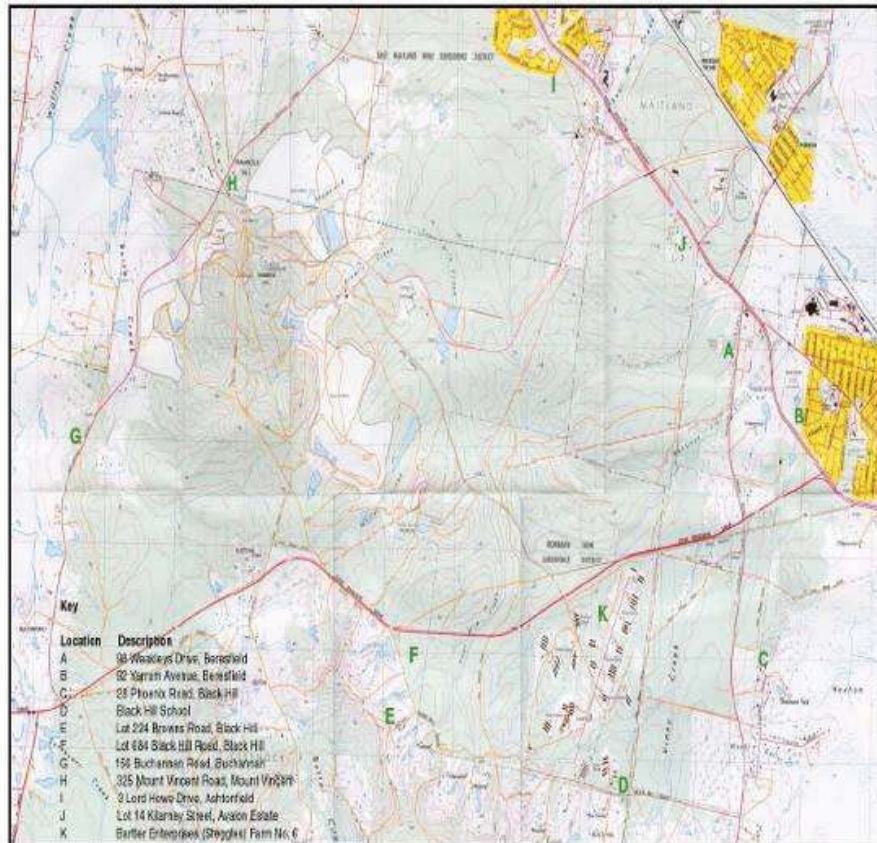
SEPTEMBER 2000.

**APPENDIX 2:**

**Site Locality Plan and  
Monitoring Locations**



**Locations of Air Pollution Monitoring Equipment.**



Locations of Noise Monitoring Equipment during the 2006 AEMR period.

Require water monitoring location plan to be inserted here

**APPENDIX 3:**

**Description and Location  
Plan of known Aboriginal  
Sites**



## Aboriginal Sites Within the Donaldson Mine Lease Area

| Site Name                         | Recorder           | Location   | Description   | Comments |
|-----------------------------------|--------------------|--|---|----------|
| <b>Bushland Conservation Area</b> |                    |  |   |          |
| FMC3                              | Effenberger (1997) | 368300E<br>6368900N<br>Bank of Four Mile Creek                             | Artefact scatter (5 artefacts), one axe grinding groove |          |
| FMC4                              | Effenberger (1997) | 368250E<br>6368650N<br>Lower slope above Four Mile Creek                   | Artefact scatter (2 artefacts)                          |          |
| FMC5                              | Effenberger (1997) | 368500E<br>6368700N<br>Lower slope above Four Mile Creek                   | Artefact scatter (2 artefacts)                          |          |
| FMC6                              | Effenberger (1997) | 368400E<br>6366100N<br>Upper slope above Four Mile Creek                   | Artefact scatter (4 artefacts)                          |          |
| FMC7                              | Effenberger (1997) | 367600E<br>6366500N<br>Crest between Four Mile Creek and a major tributary | Artefact scatter (3 artefacts)                          |          |
| FMC8                              | Effenberger (1997) | 367600E<br>6366850N<br>Upper slope above tributary of Four Mile Creek      | Scarred tree  |          |
| WFC1                              | Effenberger (1997) | 371200E<br>6369200N<br>Lower slope above Weakley's Flat Creek              | Artefact scatter (3 artefacts)                          |          |
| ISF3                              | Umwelt (1998)      | 368750E<br>6367650N<br>Lower slope above Four Mile Creek                   | Isolated find   |          |
| ISF4                              | Umwelt (2001)      | 370550E<br>6368625N<br>Mid slope above Weakley's Flat Creek                | Isolated find   |          |
| Four Mile Creek 1 (38-4-139)      | Brayshaw (1985)    | 368130E<br>6367020N<br>Bank of Four Mile Creek                             | Artefact scatter (19 artefacts)                         |          |

|                                 |                 |  |                                    |  |
|---------------------------------|-----------------|--|------------------------------------|--|
| Four Mile Creek 2<br>(38-4-140) | Brayshaw (1985) | 367820E<br>6366880N<br>Terrace of Four<br>Mile Creek                             | Artefact scatter (10<br>artefacts) |  |
| CA1                             | Umwelt (2001)   | 370658E<br>6368051N<br>Mid slope, south of<br>Weakley's Flat<br>Creek            | Isolated find                      |  |
| CA2                             | Umwelt (2001)   | 371132E<br>6369039N<br>Lower slope, north<br>west of Weakley's<br>Flat Creek     | Artefact scatter (2<br>artefacts)  |  |
| CA3                             | Umwelt (2001)   | 370985E<br>6370511N<br>Lower slope above<br>a tributary of<br>Scotch Dairy Creek | Isolated find                      |  |
| CA4                             | Umwelt (2001)   | 369568E<br>6370040N<br>Mid slope above<br>Scotch Dairy Creek                     | Isolated find                      |  |
| CA5                             | Umwelt (2001)   | 368391E<br>6366747N<br>Mid slope, east of<br>Four Mile Creek                     | Isolated find                      |  |
| CA6                             | Umwelt (2001)   | 368229E<br>6366592N<br>Lower slope above<br>a tributary of Four<br>Mile Creek    | Isolated find                      |  |
| CA7                             | Umwelt (2001)   | 367617E<br>6366456N<br>Mid slope above<br>Four Mile Creek                        | Isolated find                      |  |
| CA8                             | Umwelt (2001)   | 370746E<br>6369747N<br>Lower slope, south<br>of Scotch Dairy<br>Creek            | Isolated find                      |  |
| DMS2                            | Umwelt (2002)   | 370966E<br>6368184N<br>Mid slope, south of<br>Weakley's Flat<br>Creek            | Artefact scatter (2<br>artefacts)  |  |
| DMS4                            | Umwelt (2002)   | 368649E<br>6368181N<br>Mid slope, east of<br>Four Mile Creek                     | Isolated find                      |  |

|                         |                    |   |               |  |
|-------------------------|--------------------|---|---------------|--|
| DMS5                    | Umwelt (2002)      | 370665E<br>6368177N<br>Mid slope, south of<br>Weakley's Flat<br>Creek                     | Isolated find |  |
| DMS6                    | Umwelt (2002)      | 370809E<br>6369721N<br>Mid slope, south of<br>Scotch Dairy Creek                          | Scarred tree  |  |
| <b>Mine Impact Area</b> |                    |   |               |  |
| ISF1                    | (Effenberger 1997) | 370500E<br>6369100N<br>Lower slope above<br>small tributary of<br>Weakley's Flat<br>Creek | Isolated find | Consent to Destroy<br>granted (2002)                   |
| ISF2                    | (Effenberger 1997) | 369800E<br>6368950N<br>Lower slope above<br>tributary of<br>Weakley's Flat<br>Creek       | Isolated find | Consent to Destroy<br>granted (2002)                   |
| ISF5                    | Umwelt (2001)      | 370275E<br>6368626N<br>Mid slope above<br>Weakley's Flat<br>Creek                         | Isolated find | Application being<br>prepared for<br>consent to remove |
| ISF6                    | Umwelt (2001)      | 370305E<br>6368600N<br>Mid slope above<br>Weakley's Flat<br>Creek                         | Isolated find | Application being<br>prepared for<br>consent to remove |
| Ironbark 2 (38-4-339)   | Ruig (1993)        | 369190E<br>6367890N<br>Upper slope above<br>tributary of<br>Weakley's Flat<br>Creek       | Isolated find |  |
| DMS1                    | Umwelt (2002)      | 369734E<br>6369122N   | Isolated find | Consent to Destroy<br>granted (2002)                   |
| DMS3                    | Umwelt (2002)      | 369090E<br>6367962N<br>Mid slope above<br>Four Mile Creek                                 | Isolated find |  |

**APPENDIX 4:**

**List of Complaints  
Received by the Mine**

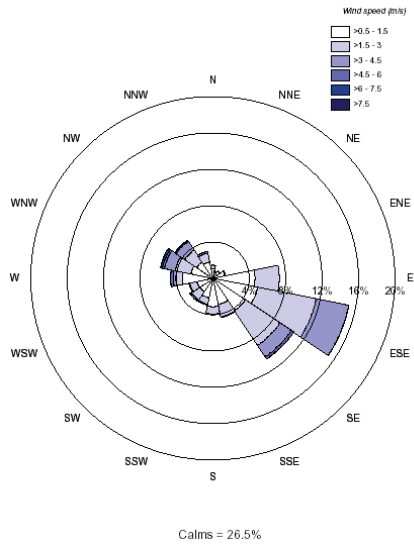
**SUMMARY OF COMPLAINTS RECEIVED BY DONALDSON COAL (in the 2007 AEMR reporting period)**

| <b>Number</b> | <b>Location</b> | <b>Date of Complaint</b> | <b>Time</b> | <b>Description</b> | <b>Actions/ Outcomes</b>   |
|---------------|-----------------|--------------------------|-------------|--------------------|--|
| 52            | Blackhill       | 15/06/2007               |             | Blasting           | Blast shook house. Advised resident of the levels that were measured at their house. |

# APPENDIX 5:

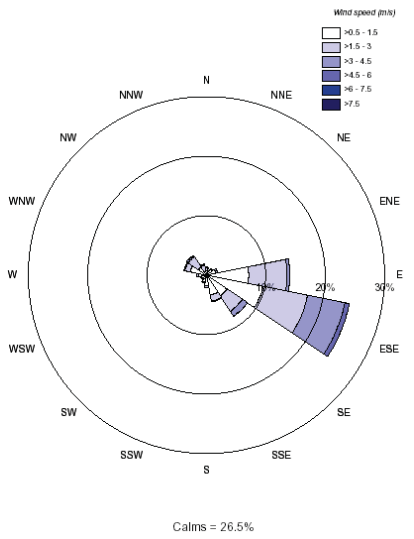
## Wind Speed & Direction (Windrose) Diagrams for the reporting period.

Windrose for Donaldson  
November 2006



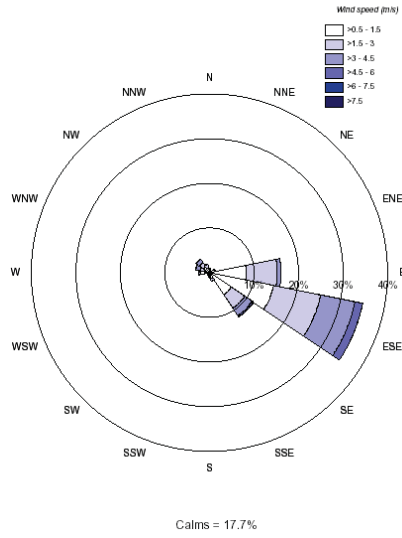
Windrose for Donaldson, November 2006

Windrose for Donaldson  
December 2006



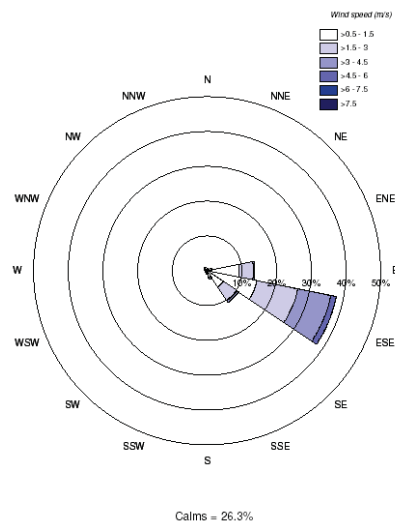
Windrose for Donaldson, December 2006

Windrose for Donaldson  
January 2007



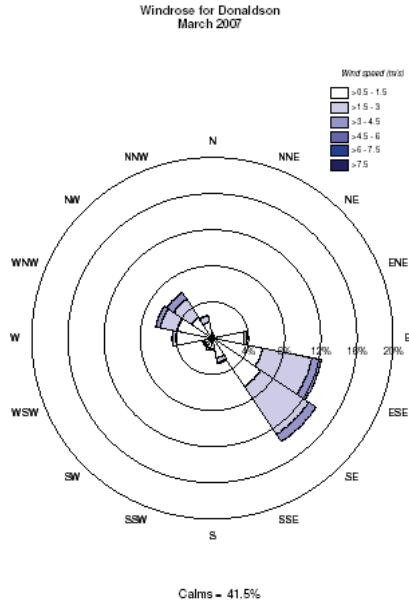
Windrose for Donaldson, January 2007

Windrose for Donaldson  
February 2007

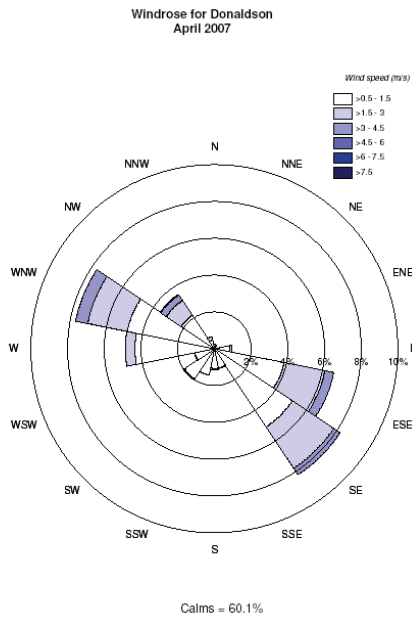


Windrose for Donaldson, February 2007



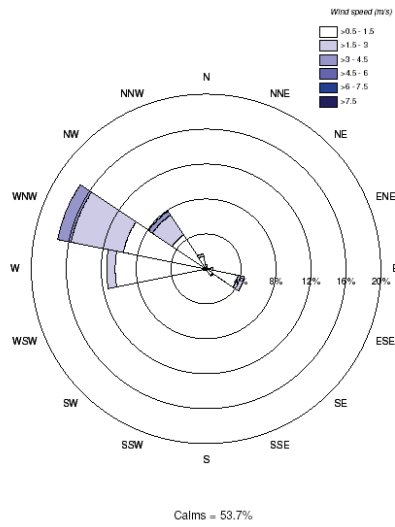


**Windrose for Donaldson, March 2007**



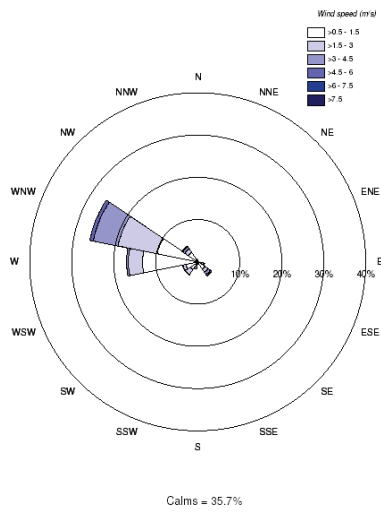
**Windrose for Donaldson, April 2007**

Windrose for Donaldson  
May 2007



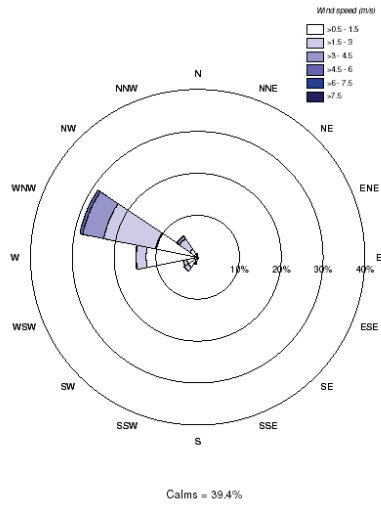
Windrose for Donaldson, May 2007

Windrose for Donaldson  
June 2007



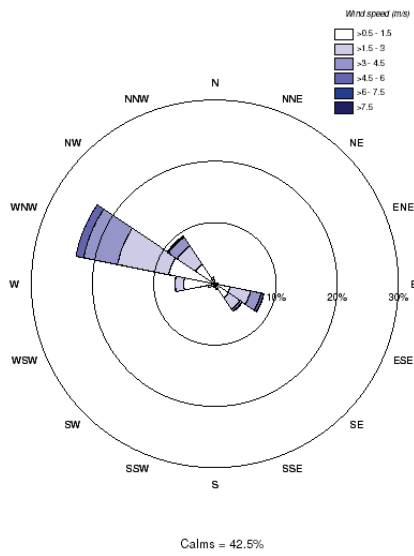
Windrose for Donaldson, June 2007

Windrose for Donaldson  
July 2007



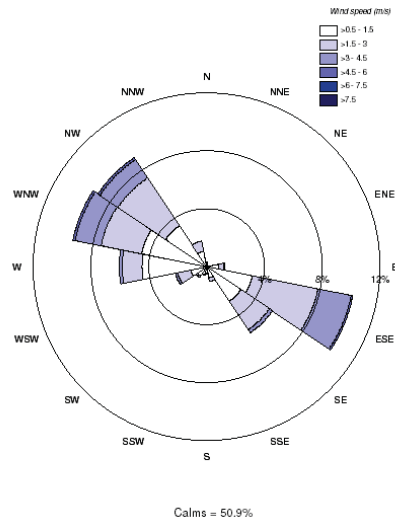
**Windrose for Donaldson, July 2007**

Windrose for Donaldson  
August 2007



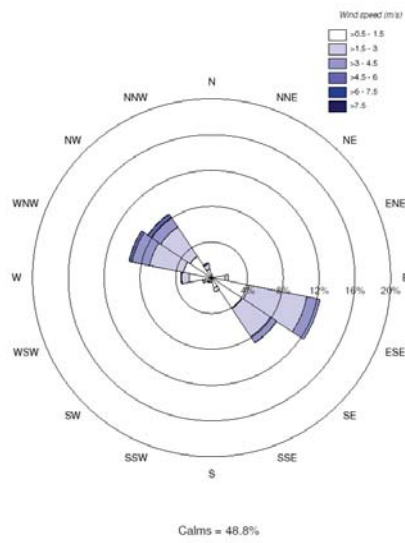
**Windrose for Donaldson, August 2007**

Windrose for Donaldson  
September 2007

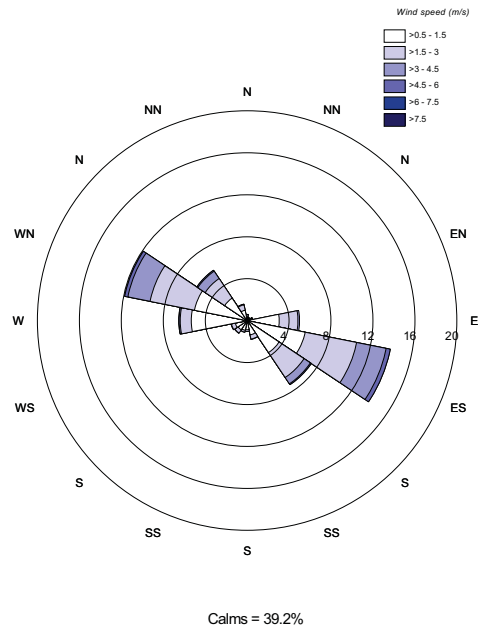


Windrose for Donaldson, September 2007

Windrose for Donaldson  
October 2007



Windrose for Donaldson, October 2007



**Annual Reporting Period Windrose  
November 2006 to October 2007**

# APPENDIX 6:

## **Newsletter**

**(There were no newsletters produced in this monitoring period)**

**Refer to website:**

**[www.doncoal.com.au](http://www.doncoal.com.au)**

**APPENDIX 7:**

**Annual Rehabilitation  
Report**

**TABLE: REHABILITATION SUMMARY**

|   |   | <b>Cumulative Area Affected (hectares)</b> |                    |                                |
|---|---|--|--------------------|--------------------------------|
|   |   | <b>To date</b>                             | <b>Last report</b> | <b>Next Report (estimated)</b> |
| <b>A: MINE LEASE AREA</b>               |   |  |                    |                                |
| <b>A1</b>                               | <b>Mine Lease(s) Area</b>   | 532.8                                      |                    |                                |
| <b>B: DISTURBED AREAS</b>               |   |  |                    |                                |
| <b>B1</b>                               | <b>Infrastructure area</b> (other disturbed areas to be rehabilitated at closure including facilities, roads) | 41.04                                      | 44.42              | 40.85                          |
| <b>B2:</b>                              | <b>Active Mining Area</b> (excluding items B3 – B5 below)   | 31.55                                      | 31.12              | 28.64                          |
| <b>B3</b>                               | <b>Waste emplacements,</b> (active/unshaped/in or out-of-pit)   | 37.51                                      | 24.39              | 23.26                          |
| <b>B4</b>                               | <b>Tailings emplacements,</b> (active/unshaped/uncapped)  | 0  | 0                  | 0                              |
| <b>B5</b>                               | <b>Shaped waste emplacement</b> (awaits final vegetation)   | 45.38                                      | 52.57              | 43.36                          |
| <b>ALL DISTURBED AREAS</b>              |   | <b>155.48</b>                              | <b>152.50</b>      | <b>136.11</b>                  |
| <b>C REHABILITATION PROGRESS</b>        |   |  |                    |                                |
| <b>C1</b>                               | <b>Total Rehabilitated area</b> (except for maintenance)  | 102.78                                     | 76.25              | 140.78                         |
| <b>D: REHABILITATION ON SLOPES</b>      |   |  |                    |                                |
| <b>D1</b>                               | <b>10 to 18 degrees</b>   | 0  | 0                  | 0                              |
| <b>D2</b>                               | <b>Greater than 18 degrees</b>  | 0  | 0                  | 0                              |
| <b>E: SURFACE OF REHABILITATED LAND</b> |   |  |                    |                                |
| <b>E1</b>                               | <b>Pasture and grasses</b>  | 0  | 0                  | 0                              |
| <b>E2</b>                               | <b>Native forest/ecosystems</b>   | 102.78                                     | 76.25              | 140.78                         |
| <b>E3</b>                               | <b>Plantations and crops</b>  | 0  | 0                  | 0                              |
| <b>E4</b>                               | <b>Other</b> (include nonvegetative outcomes)   | 0  | 0                  | 0                              |

F1

F2



**TABLE: MAINTENANCE ACTIVITIES ON REHABILITATED LAND**

(This period's activities and activities proposed in the next reporting period)

| NATURE OF TREATMENT  | Area Treated (ha) |             | Comment/control strategies/<br>treatment detail  |
|--|-------------------|-------------|--|
|  | Report period     | Next period |  |
| <b>Additional erosion control works</b> (drains re-contouring, rock protection)  | 0                 | 0           |  |
| <b>Re-covering</b> (detail - further topsoil, subsoil sealing etc)               | 0                 | 0           |  |
| <b>Soil treatment</b> (detail - fertiliser, lime, gypsum etc)                    | 0                 | 0           | <ul style="list-style-type: none"> <li>Lime has been added to areas along the haul road batters and the out of pit dump as part of the AMD Management Plan protocols.</li> <li>The addition of lime will continue to be a "short term" strategy to control isolated "hot spots" as required (as per URS recommendations).</li> </ul> |
| <b>Treatment/Management</b> (detail – grazing, cropping, slashing etc)           | 0                 | 0           |  |
| <b>Re-seeding/Replanting</b> (detail – species density, season etc)              | 0                 | 0           |  |
| <b>Adversely Affected by Weeds</b> (detail - type and treatment)                 | 0                 | 0           |  |
| <b>Feral animal control</b> (detail – additional fencing, trapping, baiting etc) | 0                 | 0           |  |

**APPENDIX 8:**

**Rehabilitation Plans**

