

DONALDSON COAL **ANNUAL ENVIRONMENTAL** **MANAGEMENT REPORT**

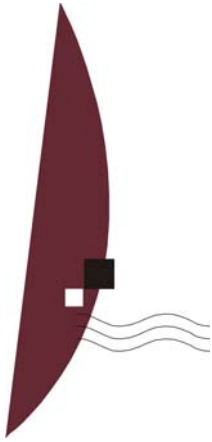
*As prescribed by Donaldson Coal
Development Consent (114 –116) and the Mining Act 1992.*

DONALDSON COAL MINE

Reporting Period:

1st November 2003 to 31st October 2004

Name of mine:	<i>Donaldson Coal Mine.</i>
Mining Titles/Leases:	<i>Mining Lease 1461</i>
MOP Commencement Date	<i>1st June 2002</i>
MOP Completion date (nominal)	<i>1st June 2006</i>
Name of leaseholder:	<i>Donaldson Coal Pty Ltd</i>
Name of mine operator (if different):	<i>Cooks Construction Pty Ltd</i>
Reporting Officer:	<i>Mr Phillip Brown</i>
Title:	<i>Environmental Officer</i>
Signature
Date	/ /



DONALDSON COAL MINE

Annual Environmental Management Report (AEMR) 2003-2004

Prepared by:

Phillip Brown - Environmental Officer
Donaldson Coal Pty Ltd

Authorised by:	Doug Gordon (General Manager Operations)
Signature:	
Distributed to:	
Location:	

CONTENTS

I	PURPOSE OF THE REPORT	1
II	DONALDSON COAL ENVIRONMENTAL POLICY.....	1
1	<u>INTRODUCTION AND GENERAL INFORMATION.....</u>	2
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.....	3
1.4	ACTIONS REQUIRED AT PREVIOUS AEMR REVIEW.....	4
2	<u>OPERATIONS DURING THE REPORTING PERIOD</u>	6
2.1	EXPLORATION.....	6
2.2	LAND PREPARATION.....	6
2.3	CONSTRUCTION.....	7
2.4	MINING.....	7
2.5	MINERAL PROCESSING.....	8
2.5.1	<i>Plant Throughput and Saleable Production.....</i>	8
2.6	WASTE MANAGEMENT.....	9
2.6.1	<i>Tailings and Rejects.....</i>	9
2.6.2	<i>Sewerage Treatment/Disposal.....</i>	9
2.6.3	<i>Fuel Containment.....</i>	9
2.6.4	<i>Oil and Grease Containment and Disposal.....</i>	9
2.6.5	<i>Rubbish Disposal.....</i>	9
2.6.6	<i>Additional Waste Streams.....</i>	9
2.7	PRODUCT STOCKPILES.....	10
2.8	WATER MANAGEMENT.....	10
2.8.1	<i>Water Storage Structures.....</i>	11
2.8.2	<i>Sediment Control Structures.....</i>	11
2.8.3	<i>Water Consumption/Balance.....</i>	11
2.9	HAZARDOUS MATERIAL MANAGEMENT.....	13
2.9.1	<i>Explosives.....</i>	13
2.9.2	<i>Bulk Fuel Storage.....</i>	13
2.9.3	<i>Chemicals.....</i>	13
3	<u>ENVIRONMENTAL MANAGEMENT AND PERFORMANCE</u>	14
3.1	ENVIRONMENTAL MANAGEMENT STRATEGY (EMS).....	14
3.1.1	<i>Environmental Risk Assessment.....</i>	14
3.2	ENVIRONMENTAL MANAGEMENT CONTROLS.....	16
3.2.1	<i>Meteorological Monitoring.....</i>	16
	<i>Rainfall.....</i>	17
	<i>Wind Speed and Direction.....</i>	18
3.2.2	<i>Air Pollution.....</i>	18
	<i>Depositional Dust Gauges.....</i>	19
	<i>High Volume Air Samplers.....</i>	20
	<i>PM₁₀.....</i>	20
	<i>Total Suspended Particulates.....</i>	20
	<i>DustTrak Monitors.....</i>	21
	<i>PM_{2.5} Air Quality Monitoring.....</i>	22

3.2.3	<i>Erosion and Sediment Control</i>	23
3.2.4	<i>Surface Water</i>	24
	<i>Chemical & Physical Monitoring:</i>	26
	<i>Biological Monitoring:</i>	27
3.2.5	<i>Ground Water</i>	30
3.2.6	<i>Contaminated Land</i>	31
3.2.7	<i>Threatened Flora</i>	32
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>	38
	<i>Results of Unattended Continuous Surveys</i>	40
	<i>Results of Attended Surveys</i>	44
3.2.12	<i>Visual and Stray Lighting</i>	51
3.2.13	<i>Cultural and Natural Heritage Conservation</i>	52
3.2.14	<i>Spontaneous Combustion</i>	53
3.2.15	<i>Bushfire</i>	54
3.2.16	<i>Mine Subsidence</i>	55
3.2.17	<i>Public Safety</i>	55
3.3	REPORTABLE INCIDENTS	55
4	<u>COMMUNITY RELATIONS</u>	56
4.1	ENVIRONMENTAL COMPLAINTS	56
4.2	COMMUNITY LIAISON	56
4.2.1	<i>Community Consultative Committee (CCC)</i>	56
4.2.2	<i>Site Tours/Inspections</i>	56
4.2.3	<i>Community Newsletters</i>	56
4.2.4	<i>Donaldson Coal Internet Site (www.doncoal.com.au)</i>	57
4.3	SOCIAL/ECONOMICAL CONTRIBUTIONS	57
4.3.1	<i>Employment Status and Demography</i>	57
4.3.2	<i>Roll-on Employment Effects</i>	58
4.3.3	<i>Value Adding Programs Directly Benefiting the Community</i>	58
5	<u>REHABILITATION</u>	59
5.1	BUILDINGS	59
5.2	REHABILITATION OF DISTURBED LAND	59
5.2.1	<i>Management of Potentially Acid Material</i>	59
5.3	OTHER INFRASTRUCTURE	59
5.4	REHABILITATION STATUS AT END OF THE REPORTING PERIOD	59
5.5	REHABILITATION TRIALS AND RESEARCH	60
5.6	FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN	60
6.	<u>ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD</u>	61
7.	<u>DEVELOPMENT CONSENT COMPLIANCE REVIEW</u>	61
8.	<u>REFERENCES</u>	62

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 fulfil 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 Mineral Resources (DMR) and as such was prepared in accordance with the revised *Environmental Management Guidelines for Industry – Guidelines to the mining, rehabilitation and Environmental Management Process*¹ (Version 2 dated December 2002). This guideline replaces the following guidelines previously relevant to the compilation of this report:

- Guidelines to The Mining, Rehabilitation And Environmental Management Process: DOC: 080600001.gui Issue 2 Revision 5 dated February 1998;
- Guidelines for the Preparation of Annual Environmental Management Reports (AEMR) DOC: 080600003.gui Issue 2 Revision 5 dated February 1998; and
- The Annual Rehabilitation Report Form Open Cut Mines DOC: 080600003.rec1 Issue 2 Revision 2 dated March 1998;
- Revised guidelines to The Mining, Rehabilitation And Environmental Management Process: DOC: Version dated April 2002;

This report provides a detailed review of the site environmental management over the annual reporting period 1st November 2003 to 31st October 2004.

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.

¹ NSW Mineral Resource (2002) *Guidelines to the Mining, Rehabilitation and Environmental Management Process*, EDG03, Version 2 (dated December 2002).

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 Weakleys 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 25th 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 26th March 2001. To date approximately 4,981,000 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"> • A copy of the mining lease is available for review at the Donaldson Coal office.
Mining Operations Plan Development Consent	1/06/02 14/10/99	1/06/06 March 2011	<ul style="list-style-type: none"> • Amended MOP as approved by the DMR. • A copy of the Development Consent is available for review at the Donaldson Coal office. • 11 years after the commencement of mining. • Certain conditions of the consent will continue to operate after the consent for mining operations has lapsed.
Environment Protection Licence (No. 11080).	13/09/00	13/09/03	<ul style="list-style-type: none"> • Licence was reviewed in June 2004. • Latest Annual Return submitted to the DEC on the 11th November 2004.
Water Works Licence (No. 20SL060534)	19/02/01		<ul style="list-style-type: none"> • The licence covers earthworks associated with the construction of clean water diversion around the mining operation and out of pit emplacement.
Bore Licence (No. 20BL168123)	12/11/01		<ul style="list-style-type: none"> • Issued to cover groundwater extraction as a result of the active mining area.
Bore Licence (No. 20BL168124)	12/11/02		<ul style="list-style-type: none"> • 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.

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 the DMR in September 2000 to enable operations to commence in January 2001.

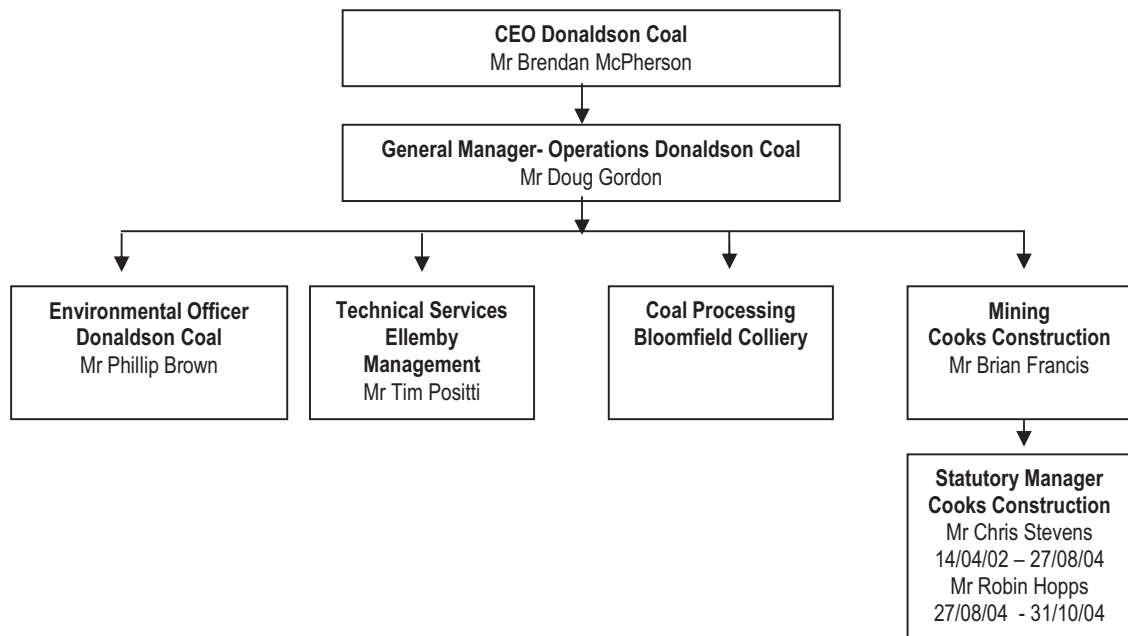
An amended MOP and associated plans were submitted to the DMR to cover the period January 2002 through to June 2006 (which represents about half way through the mine life). It is also the point that the Hunter Water Board pipelines will require re-location across the backfill. This AEMR reporting period is covered under the current (amended) MOP as approved by the DMR.

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 as such 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 Officer:

Donaldson Coal Mine
Four Mile Creek Road
PO Box 2275
GREENHILLS NSW 2323

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

1.4 ACTIONS REQUIRED AT PREVIOUS AEMR REVIEW

An officer of the DMR and DLWC conducted an annual environmental inspection at Donaldson Coal Mine on the 25th February 2004. 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 DMR following the inspection and includes the works undertaken by Donaldson, as well as the date that the works were completed.

TABLE 2: ACTIONS REQUIRED FROM THE FEBRUARY 2004 ANNUAL INSPECTION.

Action Required	Where Dealt with in this AEMR
The surface of the out of pit emplacement was partially rehabilitated and although overdue, it was accepted that the rehabilitation of the emplacement could be completed in 2004. It was suggested that the emplacement could be rehabilitated in sections to reduce the risk of erosion of topsoiled area awaiting seeding.	Section 5.4
Some drainage banks (in the area of tree plantings in cover crop) did not have a consistent grade - some sections too steep, others not draining freely. Repairs are required in one bank due to tunnelling and also water flowing over the top. All graded banks should be checked for grade immediately upon completion to ensure the banks have a stable grade that is free draining.	Section 3.2.3
Drainage bank design. Where possible banks should be built and provided with a stable outlet. Where banks are needed to be dropped short, or the outlet may be unstable, the downstream consequences need to be assessed.	Section 3.2.3
Spreading of topsoil and mulch is incomplete in isolated sections of areas recently rehabilitated and topsoiling requires completing	Section 5.2
Stabilisation of table drains near the culvert on the mine entrance road. Recent drainage works on the entrance road have resulted in a large area of disturbance near a creek. When required, this type of disturbance should not need to disturb the surrounding bushland.	Section 3.2.3

The final report stated: "The inspection report found general compliance with the relevant statutory approval instruments administered by the DMR. The reporting officers found that the progress of the rehabilitated areas, and in particular the use of cover crops with tree plantings, appeared to be very successful. Additionally, they observed that the sediment dam on the northern rehabilitation had recently managed a large storm and proved to be very effective. The reduction of complaints was also welcome."

2 OPERATIONS DURING THE REPORTING PERIOD

The following section briefly describes the general operation at the Donaldson Coal mine during the AEMR reporting period 1st November 2003 – 31st October 2004.

2.1 EXPLORATION

An exploration program was undertaken during the AEMR reporting period. It included the drilling of twelve (12) part cored holes for lox line confirmation in advance of the operation. The data from these holes were used in refining the mine geological model and confirming coal quality.

Exploration is planned during the next AEMR reporting period:

- Twelve (12) partially cored holes in advance of the operation for coal quality purposes;

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 (eg. 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 salvage 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. Officers of the DMR and the Department of Land and Water Conservation (DLWC) inspected these structures during the site inspection held on the 25th February 2004.

The noise abatement bund has been constructed ahead of the active pit. Breaks in the bund have been left around the 132KV power line and also to ensure that natural drainage lines are not blocked.

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

Several construction activities were undertaken at the mine during the reporting period. Some additional water storage and sediment control structures were installed including a large mine water dam with a capacity of 400ML. Water from this dam will be used for dust suppression. A wash down bay was constructed by Cook's Construction in their industrial area for the retention of sediment and the separation and treatment of contaminated water.

The Rumbels Storage dam was increased in size during the year to 40ML. This dam is used for the temporary storage of run-off water from rehabilitated areas.

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

	Cumulative Production (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	End of next reporting (estimated)
Topsoil stripped	113,672	130,340	130,440
Topsoil used/spread	0	28,000	50,000
Waste Rock	9,185,796	15,396,555	21,166,681
Coal (ROM)	2,464,000	4,619,353	6,843,638
Processing Waste	415,000	1,103,521	1,698,428
Product Coal (tonnes)	1,812,819	3,504,583	5,184,163

The total amount of waste rock moved in the AEMR period was 6,261,297 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 the Department of Mineral Resources (DMR).

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.

(tonnes)	Nov 2003	Dec 2003	Jan 2004	Feb 2004	Mar 2004	Apr 2004
Plant Feed	176,633	135,176	114,029	165,865	195,017	145,267
Washed Coal	124,945	93,752	86,134	138,988	172,729	115,629
Sizing	18,571	20,971	11,338	6,167	4,381	19,200

(tonnes)	May 2004	June 2004	July 2004	Aug 2004	Sep 2004	Oct 2004
Plant Feed	206,340	187,728	204,075	171,643	166,900	107,988
Washed Coal	154,925	138,491	139,051	118,892	119,907	73,594
Sizing	5,532	4,197	12,489	8,253	17,257	2,455

Totals for the reporting period were:

(tonnes)	TOTAL
Plant Feed	1,976,661
Washed Coal	1,477,037
Sizing	130,811

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

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

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 Project office and 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 a oil: water separator or collected and disposed of by a licensed waste disposal contractor.

2.6.5 Rubbish Disposal

Currently a 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

WASTE TYPE	Method of Disposal or Treatment
Green Waste	Trees are removed for posts, poles, rails and woodchip. Those trees not used are windrowed and buried in the pit ahead of backfilling.
Oil Filters	Oil filters are drained and placed in 205L drums for recycling by a licensed waste disposal contractor.
Redundant Chemicals	Redundant chemicals are taken out of operation, labelled and disposed of by a licensed waste disposal contractor.
Batteries	Batteries are stockpiled on pallets and taken by licensed waste disposal contractors for recycling.
Tyres	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.
Scrap Metal	All scrap metal is collected in designated skips and recycled by a licensed scrap metal recycler.
Coolant	Coolant is collected in designated drums and disposed of by a licensed waste disposal contractor
Contaminated Soil	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.
Parts Wash Degreasers	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 Bloomfields CHPP and as such are specifically managed by Bloomfields. **Table 6** shows the washed and sizing stockpile capacities allocate to Donaldson Coal at Bloomfields.

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

(tonnes)	ROM	Product
Sizing Coal	10,000	25,000
Washed Coal	40,000	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 Bloomfields 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 Bloomfields.

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 400ML mine water dam was constructed during 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 runoff water from rehabilitated areas.

The 35 ML and the 80 ML dams that were used for storage of mine water were mined through in 2004. All water was then transferred to the 400 ML dam.

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.

2.8.3 Water Consumption/Balance.

The site Environmental Officer 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 for the Donaldson Mine. All water for this monitoring period was obtained from site supplies.

FIGURE 1: WATER CONSUMPTION AND SITE RAINFALL.

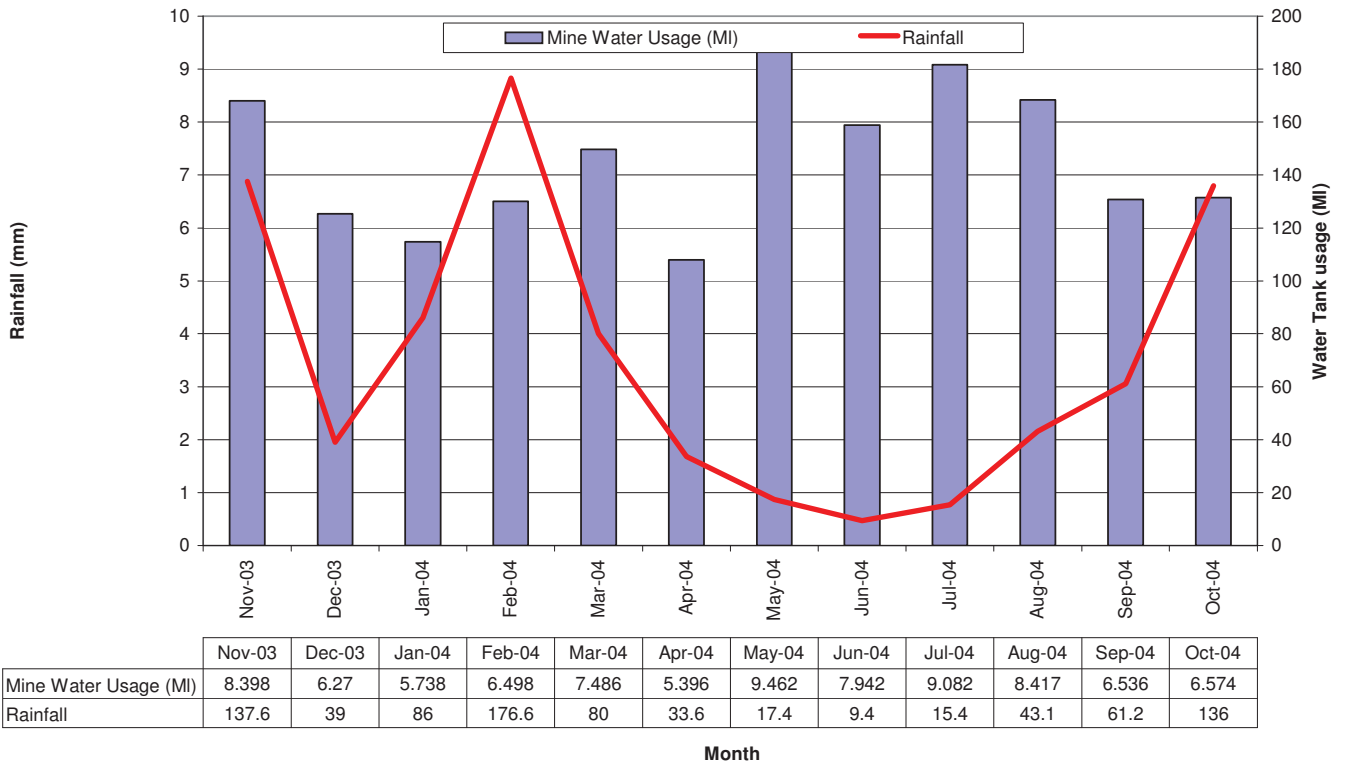


Table 7 shows the volume of water stored on site at the start and end of the reporting period. It also includes reference to the storage capacity available.

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
Dirty water	11.35	5.36	22
Contaminated water*	44.637	89.44	441
Controlled discharge water** (salinity trading schemes)	N/A	NA	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.

During the reporting period improved procedures were implemented to survey and record water storage volumes on a monthly basis. This should improve the accuracy of the water consumption data in future AEMR.

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 16th June 2004, Roche Sasol Blasting was contracted to provide blasting services to the mine. Previously blasting was conducted by UEE. Roche Sasol Blasting manage 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. Work has continued on this document and is now scheduled for completion in the 2005 AEMR period.

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.

3.1.1 Environmental Risk Assessment

A detailed Environmental Risk Assessment was previously undertaken by Donaldson Coal 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 DMR 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.

Environmental Aspect	Potential Environmental Impact	Internal Rating
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 powerline	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

A complete review of all the site environmental aspects and the associated risk assessment is scheduled for completion in 2005. Results will be reported in the next AEMR.

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 DMR guidelines. Summary tables of all monitoring data are included for consideration by the DMR. 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 3rd 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/m²), 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 Citect 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 Environmental Officer office and the Shift Foreman office.

Rainfall

Table 9 details the rainfall for the 2004 AEMR reporting period. A total of 835.3 mm was recorded during the 2004 AEMR reporting period, substantially more than the corresponding 2003 AEMR period but slightly less than the historical average. **Table 9** also includes a comparison between the historical monthly average rainfall from the Bureau of Meteorology site at East Maitland (site 061034) and the rainfall recorded at the Donaldson Weather Station since January 2000.

FIGURE 2: WEATHER STATION SCREEN.

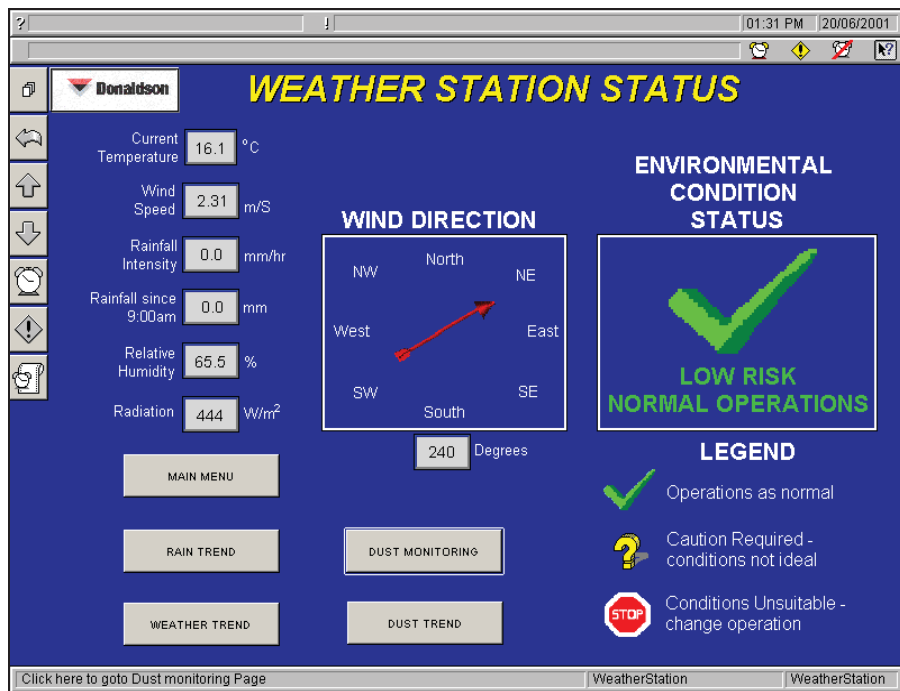


TABLE 9: COMPARISON BETWEEN AVERAGE MONTHLY RAINFALL OF 2004 AEMR REPORTING PERIOD AND PREVIOUS REPORTING PERIODS.

Period	Average Monthly Rainfall (mm)												
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Historical Average	94	98	113	84	71	84	64	54	57	63	67	88	937
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			658.7

Note: Bold results are for this monitoring period.

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 2004 reporting period are included in **Appendix 5**. A windrose chart for the entire annual period is also included in **Appendix 5**.

The winds display a high degree of seasonality. Winds typically blow from the south eastern quadrants from November to March and from the west from April to August.

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, PM₁₀ and Total Suspended Particulates (TSP)). The second source is from the combustion of diesel fuel, which is measured as PM_{2.5} particles.

Donaldson operates the following dust monitoring equipment:

- one High Volume Air Sampler (HVAS) measuring TSP and
- two HVAS measuring PM₁₀;
- two continuous DustTrack monitors measuring PM₁₀;
- eleven Depositional Dust Gauges measuring insoluble solids; and
- one GRIMM monitor measuring PM₁₀ and PM_{2.5} 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 Donaldson Air Quality Management Plan (Holmes, 2000) 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 2004 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 (ie. summer versus winter) and in some cases high readings have been recorded on the DustTraks 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 130 monthly samples at eleven (11) dust gauges out of a possible total of 132. Two results were not obtained due to vandalism of the monitoring gauge, 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/m².month. Results are displayed in **Table 11**.

TABLE 10: MISSING DEPOSITIONAL DUST GAUGE DATA.

Location	Date	Reason for exclusion
DG9	28/01/04 - 27/02/04	Vandalised gauge –funnel broken
DG9	29/07/04 - 30/08/04	Vandalised gauge – funnel broken

TABLE 11: CONCENTRATION MONITORING - DEPOSITIONAL DUST GAUGES

Sample Site	No. Samples Required	No. samples collected and analysed	Maximum Insoluble Solids (g/m ² .month)	Minimum Insoluble Solids (g/m ² .month)	Mean Insoluble Solids (g/m ² .month)
DG1	12	12	8.2*	0.2	1.3
DG2	12	12	1.5	0.5	0.8
DG3	12	12	6.6	0.5	2.1
DG4	12	12	2.2	0.6	1.2
DG5	12	12	1.3	0.3	0.8
DG6	12	12	3.1	0.7	1.8
DG7	12	12	1.6	0.8	1.1
DG8	12	12	12.1*	0.9	3.6
DG9	12	10	4.8	0.9	1.6
DG10	12	12	16.7*	0.6	2.5
DG11	12	12	2.3	0.8	1.4

* Several high results were recorded in dust gauges DG1, DG8 and DG10. There were no unusual dust generating operations on site that could have contributed to the very high results and it is possible that insect, vegetation or bird dropping contamination may have impacted on the results. Field observations suggested contamination. Deleting the possibly contaminated gauges from the results, the averages at sites DG1, DG8 and DG10 are 0.8, 1.9 and 1.1 g/m².month respectively. The re-calculated averages are similar to previously recorded results.

High Volume Air Samplers

This section deals with the high volume air samplers located at Bartter Chicken Farms and the Beresfield Golf Course. Two sets of measurements have been performed during the reporting period, viz. PM₁₀ (particulate matter of diameter less than 10 µm) and TSP (total suspended particulate matter). A summary of these measurements is included below.

PM₁₀

The annual average PM₁₀ at both monitoring sites was below the annual goal of 30µg/m³. The annual average PM₁₀ at the Beresfield Golf Course has decreased while the annual average PM₁₀ at the Bartter Enterprise location has remained stable compared to the previous AEMR reporting period. Results are displayed in **Table 12**.

All PM₁₀ measurements recorded at the Bartter Enterprise location satisfied the 24 hour NEPM goal of 50 µg/m³. Only two of the 24 hour PM₁₀ measurements recorded at the Beresfield Golf Course location exceeded this goal and this is a significant improvement in air quality at both locations. By comparison with the last reporting period, PM₁₀ values exceeded the NEPM goal on 4 and 10 occasions at the Bartter Enterprise and Beresfield Golf Course locations respectively. The two higher PM₁₀ results were recorded on the 16 November 2003 (52 µg/m³) and on the 3 March 2004 (78 µg/m³). Predominant winds were from the SSE and WNW, (1-5m/s 70%), on the 16 November 2003 and from the ESE, (1-3 m/s 47%), on the 3 March 2004. 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 and have not been attributed to the mining activities of Donaldson Coal.

TABLE 12: DETAILS OF CONCENTRATION MONITORING (PM₁₀ HIGH VOLUME AIR SAMPLERS).

Sample Site	No Samples Required	No samples collected and analysed	Maximum PM ₁₀ Value (µg/m ³)	Minimum PM ₁₀ Value (µg/m ³)	Mean PM ₁₀ Value (µg/m ³)
Beresfield Golf Course	61	59	78	10	25.4
Bartter Enterprise	61	61	43	4	17.7

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 Enterprises (35.5 µg/m³) was well below the annual average goal of 90 µg/m³. 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 goal of 260 µg/m³.

In general, the results recorded during this reporting period are significantly lower than the corresponding measurements of the 2003 AEMR reporting period indicating a low dust impact from

mining operations. The TSP results for the 2003 reporting period were heavily influenced by bushfires and state-wide dust storms. The ratio of PM₁₀ to TSP over the reporting period was 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	61	61	88	11	35.5

Table 14 displays the data capture rate for the three high volume air sampler units during the period. Data capture has improved compared with the last reporting period due to less equipment faults and power failures. Two PM₁₀ results were not obtained at the Beresfield Golf Course site due to power outages.

TABLE 14: HIGH VOLUME SAMPLER DATA CAPTURE RATE.

Monitoring Location	Data Capture Rate (%)
Bartter (PM ₁₀)	100
Bartter (TSP)	100
Beresfield, Golf Course (PM ₁₀)	97

DustTrak Monitors

Donaldson operates two continuous DustTrak air quality monitors. One has been permanently located on a property owned and occupied by Bartter Enterprises. 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 Weakleys 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 details the DustTrak continual monitoring measurements and the data capture rate of these measurements. The measurement of PM₁₀ 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 PM₁₀, annual average PM₁₀ and the lowest 24-hour average PM₁₀. Despite this, the valid data recovery rate, refer **Table 15**, upon which the PM₁₀ averages are based are still substantial.

The determination of whether collected data was valid or not was difficult to identify in some instances. Obvious erroneous measurements included negative values, extremely high values persisting for extended periods of time (ie. continuously for days) and data which exhibited no variation for extended periods of time. Data averaging and validity was determined by Holmes Air Sciences.

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 ₁₀	Annual average PM ₁₀	Lowest 24-hour average PM ₁₀
Weakleys Drive	Continuous	99.1	75.4	116	22.8	0
Bartter Enterprise	Continuous	88.8	53.4	178	21.2	0

Note : Data in this table is for the EPA monitoring period 13 September 2003 to 12 September 2004 as reported by Holmes Air Sciences.

PM_{2.5} Air Quality Monitoring

PM_{2.5} dust monitoring was undertaken by a GRIMM monitor for two campaign events during this reporting period at the Bartter site. Monitoring was conducted continuously over the period 1 November to 8 November 2003 and 25 October 2004 to 3 November 2004. 10 minute averages were obtained and are provided in **Figures 3 and 4**.

Data collected during the October/November 2004 sampling run showed that PM₁₀ measured at the site consisted of approximately 27% PM_{2.5} particles. 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 PM_{2.5} chart for the period 1 November 2003 to 8 November 2003

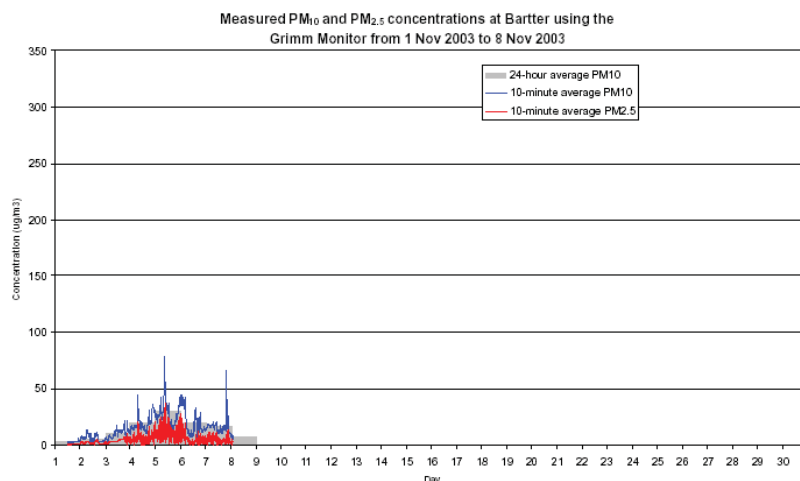
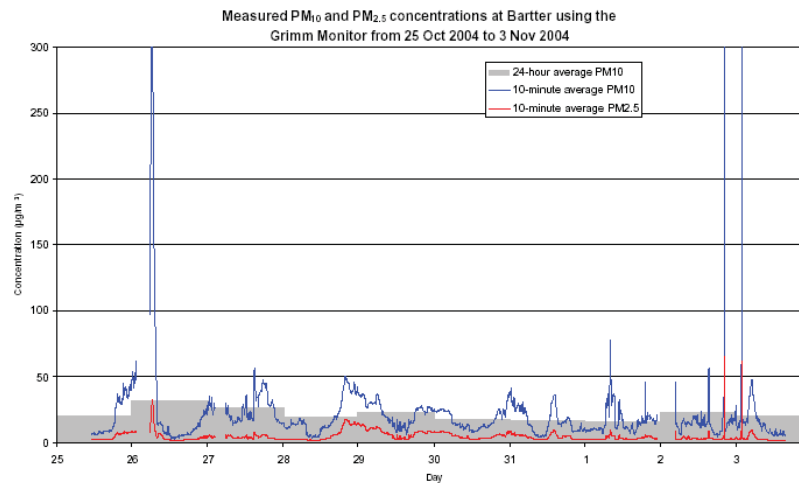


Figure 4 : PM10 and PM2.5 chart for the period 25 October 2004 to 3 November 2004

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.

- 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;
- Sediment fencing has been erected at various points along the ridge road south of the mine to minimise erosion;
- 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
- Areas of disturbance around the table drains near the culverts on the mine entrance road were repaired and in future, additional care will be taken to minimise the area of disturbance around such repairs.

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 can not 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 2004 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 (eg. 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 monitoring has been ongoing since June 2000. A plan showing the location of the water monitoring sites appears in **Appendix 2**. Ecowise Environmental (EE) have been 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 (SO₄), on a monthly basis. A full suite analysis is also carried out on a quarterly basis and includes analysis for EC, pH, TDS, SS, SO₄, 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 CaCO₃, 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.

The out of pit sediment dam is sampled on a monthly basis to monitor any possible Acid Mine Drainage from the Out of Pit Dump. In this monitoring period it was sampled on 12 occasions.

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.

Two monitoring episodes were completed during the reporting period in April 2004 (autumn) and October 2004 (spring).

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 be discharged in the Industrial Area dam.

Environmental Performance:

There were no water-related complaints received during the 2004 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 EPA 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 comparable to the pre-mining pH levels, and are generally lower by around 0.5. 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. Although the average pH values of the Scotch Dairy Creek Upstream and Downstream locations are just outside this range, so are the pre-mining baseline pH averages for these locations. As such, it appears that the activities of Donaldson Coal in this reporting period have not affected the pH of the surrounding stream environments.

The corresponding mean EC values in **Table 16** are also comparable to the pre-mining values, except in two cases. Scotch Dairy Creek Upstream and Downstream as well as Weakleys Flat Creek Upstream and Downstream 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, both upstream and downstream results are high along both watercourses suggesting that Donaldson is not having any significant impact on EC levels.

The annual mean TSS values at all monitoring locations were higher than the respective pre-mining levels. Importantly, these results were generally higher upstream and not downstream of Donaldson. The exception was a slight increase in TSS at Weakleys Flat Creek Downstream compared with Upstream. These results suggest that water quality was being affected in the catchment above the mine by other processes. The TSS in the out of Pit Sediment dam was generally low with a mean of 13mg/L.

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	10	7.10	430	240	6.00	80	6	6.61	212	69
Pre-mining	---	---	7.44	522	90	6.7	265	180	7.06	276	32
Four Mile Ck Downstream	12	12	7.40	280	104	5.80	125	3	6.97	171	25
Pre-mining	---	---	7.73	265	32	6.4	120	2	7.15	175	8
Scotch Dairy Creek Upstream	12	11	6.40	1190	214	4.20	40	10	5.96	451	107
Pre-mining	---	---	6.81	200	47	5.90	71	9	6.33	210	22
Scotch Dairy Creek Downstream	12	11	6.40	1800	4220	5.00	70	8	5.94	449	433
Pre-mining	---	---	6.8	270	1283	5.8	145	12	6.43	180	271
Weakleys Flat Ck Upstream	12	12	7.70	3200	1484	5.50	160	3	6.78	1145	179
Pre-mining	---	---	7.49	310	3	6.6	200	1	7.15	249	2
Weakleys Flat Ck Downstream	12	10	7.80	1680	85	5.70	515	4	6.68	1206	31

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 1 April and the 6 October 2004. Six sites are targeted on the three major tributaries traversing the mine site. **Table 17** includes the results for the last six (6) 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 a fair water quality in the streams. The majority of AUSRIVAS scores for the sites included in this report are reasonable, refer to **Table 17**. The Spring 2004 Scotch Dairy Ck upstream score was below average. However, this is most probably due to rainfall events close to the time of sampling (Tuft and Associates, 2004b).

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, 2004a and 2004b). Individual site conclusions are provided by Tuft and Associates (2004a and 2004b) and these reports may be supplied upon request.

Table 17: MACROINVERTEBRATE MONITORING (SPRING/AUTUMN 2001-2004) RESULTS COMPARED WITH BASELINE.

	Four Mile Upstream	Four Mile Downstream	Scotch Dairy Upstream	Scotch Dairy Downstream	Weakleys Flat Downstream	Weakleys Flat Upstream
DIVERSITY						
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
BASELINE	30	36	39	32	39	44
SIGNAL INDEX						
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
BASELINE	6.0	5.7	5.7	5.6	5.5	5.4
AUSRIVAS						
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
BASELINE	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 eight surveys as well as the baseline survey.

TABLE 18: RCE RANKING FOR ALL MONITORING SITES.

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
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
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
Scotch Dairy Ck D/S	26/09/00	20	Excellent	5	Poor	39	Good
	19/03/01	17	Excellent	7	Fair	39	Good
	11/10/01	16	Fair	11	Excellent	42	Good
	15/04/02	15	Fair	8	Fair	40	Good
	9/10/02	16	Fair	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
Weakleys Flat Ck D/S	26/09/00	21	Excellent	7	Fair	41	Good
	19/03/01	18	Excellent	6	Fair	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
Weakleys Flat 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	Fair	8	Fair	39	Good
	17/04/03	15	Fair	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

3.2.5 Ground Water

The Water Management Plan (Perrens, 2000) details the measures employed by Donaldson 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 during the reporting period by the DEC(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**. Ecowise Environmental is engaged by Donaldson to undertake the routine sampling and analysis of the monitoring sites.

Control Strategy:

The ground water 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 SO₄ 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, SO₄, Ca, Mg, Na, K, Cl, F, As, Al, Ba, Cd, Co, Cu, Cr, Fe, Mn, Pb, Zn and Total Alkalinity as CaCO₃.

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

Environmental Performance:

There were no ground water-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 featured in **Table 19** are marginally lower than the corresponding values in the 2003 AEMR reporting period. This is most likely due to ongoing drought conditions in the region throughout the reporting period.

Average pH values of the locations included in sampling and analysis are comparable to the pre-mining values and have generally not fluctuated substantially from the values recorded in the 2003 AEMR reporting period, refer to **Table 19**. The EC values exhibit similar trends. The piezometers that did not return monitoring results, **DPZ2 and DPZ6** were dry on all sampling events.

Overall, it appears that Donaldson has had little or no impact on water quality of the surrounding off site ground water resources during the 2004 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	-	-	-	-	-	-	-	-	-
<i>Pre-mining</i>	---	---	<i>No pre-mining samples available</i>								
DPZ3	12	12	6.9	14370	13.5	5.7	695	14.23	6.6	9810	13.89
<i>Pre-mining</i>	---	---	6.96	11350	11.51	5.99	10200	12.05	6.59	10860	11.76
DPZ5	12	12	6.7	7100	6.8	5.3	360	7.18	6.0	2990	6.96
<i>Pre-mining</i>	---	---	7.21	8520	5.73	6.72	4280	5.9	7.37	6986	5.81
DPZ6	12	0	-	-	-	-	-	-	-	-	-
<i>Pre-mining</i>	---	---	<i>No pre-mining samples available</i>								
DPZ7@50m	12	12	6.0	2320	23.21	5.1	1930	23.56	5.8	2138	23.36
<i>Pre-mining</i>	---	---	6.14	2390	21.47	5.36	2180	22.00	5.76	2270	21.78
DPZ8	12	12	6.5	2130	24.22	5.0	1730	24.42	5.8	1940	24.28
<i>Pre-mining</i>	---	---	5.66	1820	24.35	5.46	1690	24.35	5.56	1755	24.35
DPZ9	12	12	7.0	2030	17.21	5.7	1680	22.27	6.55	1826	18.49
<i>Pre-mining</i>	---	---	6.32	2940	17.37	5.47	2221	17.65	6.02	2563	17.49
DPZ10	12	12	6.9	4090	13.4	5.7	3400	14.07	6.58	3709	13.73
<i>Pre-mining</i>	---	---	6.93	3760	12.4	6.48	3670	12.4	6.71	3615	12.4
DPZ12	12	12	6.8	16000	14.06	5.7	1820	22.54	6.53	8983	17.70
<i>Pre-mining</i>	---	---	<i>No pre-mining samples taken due to restricted access to private property</i>								
DPZ13	12	12	7.43	15700	6.69	6.2	11780	10.75	6.84	13417	7.4
<i>Pre-mining</i>	---	---	7.22	13750	7.01	6.67	12200	7.25	6.87	12907	7.14

* 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 refuelling 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) has been 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 after 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).

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 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 considered 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 will be 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 40mm 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 drought conditions persisted into early 2004 that has significantly reduced the flowering season, meaning that a count was not considered reliable during this reporting period. A population count is planned for the 2005 season.

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.

Half annual 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. In fact (as reported in the half annual 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.

3.2.9 Weeds and Pests

The area was heavily disturbed by fire, dumping of rubbish, 4WDing 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:

To date weeds and 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 15th November 2001. A total of 87 blasts were undertaken at the mine during the 2004 AEMR reporting period, compared to 117 blasts in the 2003 AEMR reporting period.

Prior to the commencement of blasting, 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 1st 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. Barter 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 (Weakleys 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 (eg. 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.

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 DEC(EPA) licence are not exceeded.

- Establishment of a site specific site law using a ten (10) hole trial blasting program and detailed computer modelling;
- Blast design considerations (burden and spacing, stemming, MIC, etc);
- Considerations of explosive loading, Initiation Hookup 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 any of the sites during the reporting period was 2.324 mm/s, well below the applicable criteria.

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
Weakleys Dr (Chidgey)	87	80	1.199	0.019	0.195
Fairfax Printing	87	81	1.85	0.04	0.157
Avalon Estate	87	81	0.844	0.019	0.244
HWC Pipeline	87	80	2.324	0.064	0.731

A summary of the overpressure monitoring results for blasts undertaken during the period is presented in **Table 21** below. Two or 2.3% of blasts recorded blast overpressure above 115dB(L) within the EPA licence conditions. One blast overpressure result exceeded the EPL criteria of 120dB(L). The overpressure reading was 121.4 dBL at the Weakleys drive monitor on the 28th June 2004. This result was immediately reported to the EPA and an investigation undertaken. The investigation was conducted by Terrock Pty Limited and found that particular timing delays, used in the blast initiation pattern, had led to wavefront reinforcement, increasing the overpressure at the receiver. Corrective action was taken to use alternative timed delays as advised by Terrock. To date, no further exceedances have resulted.

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
Weakleys Dr (Chidgey)	87	80	121.4	88.5	102.6
Fairfax Printing	87	81	113.7	10.0	102.2
Avalon Estate	87	81	113.4	92.3	102.9
HWC Pipeline	87	80	116.2	88.0	102.7

Overall the data capture rate during the reporting period has been good. Table 24 shows the data capture rate for each of the blast monitoring units during the reporting period. Two of the blasts undertaken at Donaldson during the period were too small to trigger the monitors that are some 1100m from the mine. The table below considers the data capture rate (%) with the smaller blasts.

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

Monitoring Location	% Data (including small blasts)
Chidgey (Weakleys Drive)	92.0
Fairfax Regional Printing Press	93.1
McDonnell's (Avalon Estate)	93.1
Hunter Water Pipeline	92.0
OVERALL:	92.6

The main causes for data loss have been either blasts that were not large enough to trigger the near field monitor (some 1100m from the mine) or equipment failure and vandalism. The rate of data capture has not differed significantly from that recorded in the 2003 AEMR reporting period. This 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 units vibration threshold is triggered it transmits the trigger to the outlying units. This should see a further improvement in data capture in the next report.
- 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 and 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 & Associates² have completed four routine quarterly unattended continuous noise surveys for Donaldson during the reporting periods. The dates for the surveys are as follows:

- Wednesday 3rd – Wednesday 10th December 2003;
- Monday 8th – Friday 12th March 2004;
- Monday 24th – Friday 28th May 2004; and
- Monday 23rd – Friday 27th August 2004

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:

- 3rd December 2003;
- 8/11th March 2004;
- 24/26th May 2004; and
- 27th August 2004

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

Richard Heggies & Associates² have performed baseline and preceding quarterly surveys at 11 locations around the Donaldson mine site Richard Heggies & Associates, 2003, 2004a-c). Based on these surveys, the noise monitoring is now concentrated at the four potentially most affected areas. These locations are provided in **Table 23**.

TABLE 23: LIST OF PRESENT NOISE MONITORING SITES

Location	Donaldson Monitoring location
98 Weakleys Dr., Beresfield	Locations A
Bartter Enterprises, Farm No. 6	Location K
3 Lord Howe Dr. Ashtonfield	Location I
Bus Depot – Spotted Gum Dr., Avalon Estate	Location J

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;
- 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

Wednesday 3rd – Wednesday 10th December 2003

Table 24 presents a comparison between the noise statistics collected during the December 2003 unattended continuous survey and the pre-mining baseline statistics.

Ambient LA₉₀ Noise Levels

The ambient LA₉₀ noise levels recorded during the December 2003 unattended survey resemble the pre-mining baselines, and in most cases are marginally higher. Relocation of the noise logger from Kilarney St. to Spotted Gum Rd. (approximately 200 m closer to the New England Highway) is most likely responsible for this fact. Comparison between the December 2003 results with the corresponding quarterly survey in the 2003 AEMR report shows that there has been no significant change in the ambient noise levels at the locations studied.

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

Location	Period	L _{A1}		L _{A10}		L _{Aeq}		L _{A90}	
		Base Line	Dec 03	Base Line	Dec 03	Base Line	Dec 03	Base Line	Dec 03
A Weakleys Drive Beresfield	Daytime	60	61	56	56	54	56	45	48
	Evening	61	60	57	55	57	54	48	47
	ENCM Daytime	---	61	---	57	---	56	---	47
	Night	60	59	54	53	52	52	39	43
I Lord Howe Dr Ashtonfield	Daytime	57	55	50	51	54	56	39	43
	Evening	64	55	53	52	55	52	41	43
	ENCM Daytime	---	55	---	51	---	52	---	43
	Night	55	51	47	49	52	47	33	39
J Avalon Estate Bus Depot	Daytime	56	58	51	56	53	54	44	50
	Evening	53	57	49	54	57	53	42	47
	ENCM Daytime	---	58	---	56	---	54	---	49
	Night	51	55	48	51	47	50	35	41
K Bartter Farm 6 Black Hill	Daytime	57	55	52	51	53	70	41	43
	Evening	54	57	50	51	49	60	40	42
	ENCM Daytime	---	56	---	52	---	70	---	42
	Night	54	55	49	50	48	58	35	36

Ambient LA₁₀ Noise Levels

The LA₁₀ noise levels for the December 2003 survey generally resemble the pre-mining baselines. The one exception are the measurements taken at location J – these levels are higher than the pre-mining baseline levels. However, this is attributed to the fact that the noise logger was moved closer to the New England Highway, as discussed previously. The noise levels for all periods and locations taken during the final 2003 quarterly survey do not differ substantially from the corresponding 2002 survey.

Monday 8th – Friday 12th March 2004

Table 25 presents a comparison between the noise statistics collected during the March 2004 unattended continuous survey and the pre-mining baseline statistics.

Ambient LA₉₀ Noise Levels

The ambient LA₉₀ noise levels recorded in the continuous unattended survey of March 2004 are generally similar to the pre-mining baseline, except for those levels recorded at location J. However, the fact that location J is in close vicinity to the New England Highway is most likely the cause of these elevated levels.

The LA₉₀ results presented in **Table 25** are generally lower than those of the first quarterly unattended noise survey of the 2003 AEMR reporting period, for all locations and periods.

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

Location	Period	L _{A1}		L _{A10}		L _{Aeq}		L _{A90}	
		Base Line	Mar 04	Base Line	Mar 04	Base Line	Mar 04	Base Line	Mar 04
A Weakleys Drive Beresfield	Daytime	60	58	56	54	54	52	45	44
	Evening	61	57	57	53	57	56	48	44
	ENCM Daytime	---	58	---	54	---	54	---	44
	Night	60	57	54	51	52	51	39	43
I Lord Howe Dr Ashtonfield	Daytime	57	54	50	47	54	54	39	38
	Evening	64	53	53	48	55	47	41	42
	ENCM Daytime	---	53	---	47	---	48	---	39
	Night	55	52	47	45	52	45	33	39
J Avalon Estate Bus Depot	Daytime	56	58	51	56	53	54	44	50
	Evening	53	57	49	55	57	53	42	48
	ENCM Daytime	---	58	---	56	---	54	---	49
	Night	51	56	48	53	47	52	35	41
K Bartter Farm 6 Black Hill	Daytime	57	54	52	49	53	52	41	45
	Evening	54	56	50	51	49	52	40	43
	ENCM Daytime	---	59	---	49	---	52	---	41
	Night	54	59	49	56	48	56	35	41

Ambient LA₁₀ Noise Levels

The ambient LA₁₀ noise levels recorded during the unattended continuous March 2004 survey are lower than the pre-mining baseline levels for all periods at locations A, I and K. The ambient LA₁₀ levels recorded at location J are higher than the pre-mining baseline, but this is attributed to the fact that location J is now closer to the New England Highway.

The ambient LA₁₀ noise levels presented in **Table 25** are generally lower than the corresponding measurements reported in the 2003 AEMR. This is the case for locations A, I and K, which exhibit lower LA₁₀ values for all periods studied. The LA₁₀ values for location J reported here however do not differ significantly from those reported in 2003.

Monday 24th – Friday 28th May 2004

Table 26 presents a comparison between the noise statistics collected during the May 2004 unattended continuous survey and the pre-mining baseline statistics.

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

Location	Period	L _{A1}		L _{A10}		L _{Aeq}		L _{A90}	
		Base Line	May 04	Base Line	May 04	Base Line	May 04	Base Line	May 04
A Weakleys Drive Beresfield	Daytime	60	68	56	62	54	60	45	48
	Evening	61	67	57	50	57	57	48	46
	ENCM Daytime	---	68	---	62	---	59	---	46
	Night	60	67	54	45	52	55	39	36
I Lord Howe Dr Ashtonfield	Daytime	57	54	50	48	54	49	39	38
	Evening	64	50	53	46	55	45	41	39
	ENCM Daytime	---	53	---	48	---	48	---	38
	Night	55	48	47	44	52	43	33	36
J Avalon Estate Bus Depot	Daytime	56	59	51	57	53	56	44	51
	Evening	53	56	49	55	57	53	42	47
	ENCM Daytime	---	58	---	56	---	55	---	49
	Night	51	52	48	52	47	51	35	38
K Barter Farm 6 Black Hill	Daytime	57	54	52	52	53	54	41	44
	Evening	54	53	50	49	49	48	40	42
	ENCM Daytime	---	54	---	1	---	53	---	40
	Night	54	53	49	49	48	47	35	39

Ambient LA₉₀ Noise Levels

The results presented in **Table 26** show that ambient daytime LA₉₀ noise levels recorded to the May quarter of 2004 were generally similar to the pre-mining baseline. The exception here was location J, where the relocation of the noise logger to within 200 m of the New England Highway is expected to be the cause of the higher LA₉₀ levels presented here.

Night time and evening LA₉₀ levels at all other locations were generally lower than the pre-mining baseline. Night time roadworks along John Renshaw Dr. is considered to have caused the raised noise levels at location K.

A comparison of this monitoring period with the same monitoring period of 2003 indicates that LA₉₀ noise levels recorded during all periods were generally similar or slightly lower for all locations, excepting location I. The evening and night time LA₉₀ noise levels recorded at location I were significantly lower than the June 2003 measurements. This is due to the absence of constant frog noise that was present during the June 2003 quarterly survey.

Ambient LA₁₀ Noise Levels

Ambient daytime LA₁₀ noise levels recorded for the June 2004 quarter were generally similar to levels measured for the baseline monitoring process for all locations except at Location J (Avalon Estate) and Location A (Weakleys Drive). The relocation of the noise logger (for Location J) from Kilarney Street to Spotted Gum Road, approximately 200 metres closer to the New England Highway is likely to be responsible for the elevated LA₁₀ noise levels for all periods. Ambient daytime LA₁₀ noise levels at

Location A (Weakleys Drive) were 6dB higher than baseline LA₁₀ noise levels. This increase is likely to be attributable to road traffic along Weakleys Drive.

Night time and evening LA₁₀ levels at all other locations were generally lower than baseline noise levels.

A comparison of night-time LA₁₀ noise levels with the same period in 2003 indicates that the LA₁₀ noise levels were generally lower.

Monday 23rd – Friday 27th August 2004

Table 27 presents a comparison between the noise statistics collected during the August 2004 unattended continuous survey and the pre-mining baseline statistics.

TABLE 27: Unattended Continuous Monitoring Ambient Noise Levels, MAY MONITORING PERIOD.

Location	Period	L _{A1}		L _{A10}		L _{Aeq}		L _{A90}	
		Base Line	Aug 04	Base Line	Aug 04	Base Line	Aug 04	Base Line	Aug 04
A Weakleys Drive Beresfield	Daytime	60	60	56	56	54	59	45	46
	Evening	61	60	57	56	57	54	48	50
	ENCM Daytime	---	60	---	56	---	56	---	46
	Night	60	60	54	56	52	54	39	44
I Lord Howe Dr Ashtonfield	Daytime	57	54	50	48	54	48	39	38
	Evening	64	53	53	51	55	49	41	44
	ENCM Daytime	---	54	---	49	---	47	---	38
	Night	55	52	47	48	52	46	33	35
J Avalon Estate Bus Depot	Daytime	56	60	51	58	53	56	44	51
	Evening	53	60	49	58	57	56	42	52
	ENCM Daytime	---	60	---	58	---	56	---	51
	Night	51	59	48	56	47	54	35	41
K Barter Farm 6 Black Hill	Daytime	57	54	52	51	53	50	41	42
	Evening	54	57	50	53	49	50	40	43
	ENCM Daytime	---	55	---	52	---	50	---	41
	Night	54	57	49	51	48	49	35	34

Ambient LA₉₀ Noise Levels

Table 27 shows that ambient daytime LA₉₀ noise levels recorded for the quarter ending September 2004 were generally similar to levels measured for the baseline monitoring process for all locations except at Location J (Avalon Estate) where the relocation of the noise logger from Killarney Street to Spotted Gum Road, approximately 200 metres closer to the New England Highway is likely to be responsible for the elevated LA₉₀ noise levels for all periods.

Night time and evening LA₉₀ levels at all other locations were generally similar or slightly higher than baseline noise levels.

A comparison of this monitoring period with the same monitoring period in 2003 indicates that LA₉₀ noise levels recorded during all periods were generally similar or slightly lower for all locations.

Ambient LA₁₀ Noise Levels

Ambient daytime LA₁₀ noise levels recorded for the September 2004 quarter were generally similar to levels measured for the baseline monitoring process for all locations except at Location J (Avalon Estate). The relocation of the noise logger (for Location J) from Kilarney Street to Spotted Gum Road, approximately 200 metres closer to the New England Highway is likely to be responsible for the elevated LA₁₀ noise levels for all periods.

Night time and evening LA₁₀ levels at all other locations were generally similar to baseline noise levels. A comparison of night-time LA₁₀ noise levels with the same period in 2003 indicates that the LA₁₀ noise levels were generally slightly higher.

Results of Attended Surveys

3rd December 2003

Operator attended noise measurements were conducted during the daytime period on Wednesday 3 December 2003. Operator attended noise measurements for night time and evening periods were conducted on Tuesday 9 December 2003. The results of this survey are presented in **Tables 28-31**.

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 Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} - dBA
		L _{Amax} x	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
3/12/03 0945 Day W= Calm Temp=21°C	Ambient	65	58	54	46	51	Insects 48-56 Near Traffic 51-55 Trucks 55-58
9/12/03 2100 Evening W= Calm Temp=21°C	Ambient	54	53	52	49	51	Insects 49-52 Near Traffic 45-47 Donaldson mine inaudible
9/12/03 2300 Night W= Calm Temp=19°C	Ambient	81	75	63	49	61	Insects 49-52 Near Traffic 49-50 Truck 67, 67, 74 Donaldson mine inaudible

TABLE 29: ATTENDED SURVEY RESULTS – (LOCATION I) 3 LORD HOWE DRIVE, ASHTONFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
3/12/03 1100 Day W= Calm Temp=22°C	Ambient	60	54	53	50	52	Insects 47-50 Machinery nearby 50-51
9/1203 2145 Evening W= Calm Temp=21°C	Ambient	64	61	54	45	50	Insects 45-47 Far traffic 45-47 Car 64 Donaldson mine inaudible
9/12/03 2200 Night W= Calm Temp=19°C	Ambient	56	53	50	46	48	Far traffic 45-47 Insects 46-50 Donaldson mine inaudible

TABLE 30: ATTENDED SURVEY RESULTS – (LOCATION J) 27 SPOTTED GUM ROAD, AVALON ESTATE.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
3/12/03 1045 Day W= Calm Temp=21°C	Ambient	60	54	53	50	52	Insects 48-50 Highway Traffic 52-54
9/1203 2115 Evening W= Calm Temp=21°C	Ambient	52	50	49	45	47	Insects 44-46 Highway Traffic 43-44 Cat 52 Donaldson mine inaudible
9/12/03 2300 Night W= Calm Temp=19°C	Ambient	65	53	52	47	50	Insects 46-50 Highway Traffic 48-50 Donaldson mine inaudible

TABLE 31: ATTENDED SURVEY RESULTS – (LOCATION K) BARRTER ENTERPRISES FARM 6, BLACK HILL.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
3/12/03 1130 Day W= Calm Temp=22°C	Ambient	63	54	49	43	47	Roadwork 45 to 50 Far Traffic 45-47 Insects 42-45 Birds 44-50
9/1203 2030 Evening W= Calm Temp=21°C	Ambient	59	56	53	47	51	Cars 50-55, Truck 58 Insects 46-50 Donaldson mine inaudible
9/12/03 2300 Night W= Calm Temp=19°C	Ambient	62	56	55	48	51	Cars 54-56, Truck 62 Insects 44-46 Donaldson mine inaudible

Traffic noise generated by local and distant traffic was observed as a significant contributor to noise levels at most receiver locations.

From observations at Location K (Bartter Enterprises), it was noted that there were significant road works being conducted opposite the monitoring location on John Renshaw Drive. Donaldson Mine operations were observed to be inaudible during all other survey periods.

8/11th March 2004

Operator attended noise measurements were conducted during the daytime period on the 8 March 2004. Operator attended noise measurements for night time and evening periods were conducted on the 11 March 2004.

The results of the operator attended noise measurements are given in **Tables 32-35**. 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.

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

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
8/3/04 1425 Day W= 2.5m/s Temp=32°C	Ambient	68	61	58	54	57	Insects 54-58 Near Traffic 51-55 Trucks 55-58 Dog Barking 55 Donaldson mine inaudible
11/3/04 2110 Evening W= Calm Temp=25°C	Ambient	70	62	54	46	52	Insects 45-48 Near Traffic 45-53 Donaldson mine inaudible
11/3/04 2232 Night W= Calm Temp=25°C	Ambient	60	59	56	45	52	Insects 45-49 Near Traffic 50-56 Truck 55-60 Donaldson mine inaudible

TABLE 33: ATTENDED SURVEY RESULTS – (LOCATION i) 3 LORD HOWE DRIVE, ASHTONFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
8/3/04 1535 Day W= 2.5m/s Temp=32°C	Ambient	58	46	43	40	42	Insects 35-45 Air conditioner <35 Birds to 40 Donaldson mine inaudible
11/3/04 2145 Evening W= Calm Temp=25°C	Ambient	71	63	51	43	51	Insects 44-50 Trains 47-51 Frog 45-48 to 65 Donaldson mine inaudible
11/3/04 2200 Night W= Calm Temp=25°C	Ambient	66	64	58	42	53	Far traffic 43-46,52 Insects to 43 Frog 45-54 to 62 Donaldson mine inaudible

TABLE 34: ATTENDED SURVEY RESULTS – (LOCATION J) 27 SPOTTED GUM ROAD, AVALON ESTATE.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
8/3/04 1500 Day W= 2.5m/s Temp=32°C	Ambient	65	55	53	49	51	Insects to 50 Highway Traffic to 53 Birds 47-48 Donaldson mine inaudible
11/3/04 2130 Evening W= Calm Temp=25°C	Ambient	53	49	48	45	47	Insects 44-46 Highway Traffic 45-48 Donaldson mine inaudible
11/3/04 2215 Night W= Calm Temp=25°C	Ambient	55	53	49	45	47	Insects 44 Highway Traffic 47-50 to 53 Donaldson mine inaudible

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

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
8/3/04 1620 Day W= 2.5m/s Temp=32°C	Ambient	64	55	51	45	48	Far Traffic to 51 Trucks to 55 Birds to 47 Donaldson mine inaudible
11/3/04 2030 Evening W= Calm Temp=25°C	Ambient	68	65	58	45	55	Cars 50-54, Truck 67 Insects 43-48 Donaldson mine inaudible
11/3/04 2250 Night W= Calm Temp=25°C	Ambient	57	51	48	42	45	Near traffic 48-51 Far Traffic 43-45 Insects 44 Donaldson mine trucks 42 (10 sec duration) Mine Contribution < 40

Traffic noise generated by local and distant traffic was observed as a significant contributor to noise levels at most receiver locations.

Donaldson Mine operations were observed to be barely audible at Location K (Bartter Enterprises) at night and inaudible during all other survey periods.

24/26th May 2004

Operator attended noise measurements were conducted during the daytime period on Monday 24 May 2004. Operator attended noise measurements for night time and evening periods were conducted on the Wednesday 26 May 2004.

The results of the operator attended noise measurements are given in **Tables 36 to 39**. 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.

Traffic noise generated by local and distant traffic was observed as a significant contributor to noise levels at most receiver locations.

Donaldson Mine operations were observed to be barely audible at Location A (Weakleys Drive) during the evening period and was inaudible during all other survey periods and at all other locations.

TABLE 36: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
24/5/04 1425 Day W= 2.5m/s Temp=32°C	Ambient	77	74	58	44	59	Birds 40-43 Near Traffic 54-56 Trucks 55-58 to 75 Chickens 52-53 Donaldson mine inaudible
26/5/04 2110 Evening W= Calm Temp=25°C	Ambient	75	68	58	47	56	Trucks to 60 Near Traffic 53-55 Donaldson mine truck just audible Contribution <42
26/5/04 2232 Night W= Calm Temp=25°C	Ambient	70	62	54	46	52	Trucks to 60 Near Traffic 53-55 Donaldson mine truck just audible Contribution <42

TABLE 37: ATTENDED SURVEY RESULTS – LOCATION I - LORD HOWE DRIVE ASHTONFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
24/5/04 1535 Day W= 2.5m/s Temp=32°C	Ambient	55	53	43	37	42	Birds 38-45 Car 49 Plane to 43 Donaldson mine inaudible
26/5/04 2145 Evening W= Calm Temp=25°C	Ambient	51	44	42	40	41	Far traffic 40 Frogs / Crickets 40-42 Donaldson mine inaudible
26/5/04 2205 Night W= Calm Temp=25°C	Ambient	50	44	42	39	41	Far traffic 38-39 Frogs / Crickets 40-42 Donaldson mine inaudible

TABLE 38: ATTENDED SURVEY RESULTS - LOCATION J - AVALON ESTATE

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
24/5/04 1500 Day W= 2.5m/s Temp=32°C	Ambient	67	64	59	52	56	Highway Traffic 54-56 Donaldson mine inaudible
26/5/04 2130 Evening W= Calm Temp=25°C	Ambient	54	54	50	45	47	Frogs /Crickets 44-45 Highway Traffic 46-49 Donaldson mine inaudible
26/5/04 2215 Night W= Calm Temp=25°C	Ambient	53	49	47	43	45	Frogs /Crickets 44-46 Highway Traffic 45-47 Donaldson mine inaudible

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

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
24/5/04 1620 Day W= 2.5m/s Temp=32°C	Ambient	55	53	48	41	45	Traffic to 46 - 51 Donaldson mine inaudible
26/5/04 2030 Evening W= Calm Temp=25°C	Ambient	66	54	51	42	49	Cars 50-54, Truck 65 Roadworks Equip – 43-45 Donaldson mine inaudible
26/5/04 2250 Night W= Calm Temp=25°C	Ambient	57	51	48	42	45	Cars 50-54, Truck 67 Roadworks Equip – 43-45 Donaldson mine inaudible

25/27th August 2004

Operator attended noise measurements were conducted during the daytime period on Friday 27 August 2004. Operator attended noise measurements for night time and evening periods were conducted on Wednesday 25 August 2004.

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.

Traffic noise generated by local and distant traffic was observed as a significant contributor to noise levels at most receiver locations. Donaldson Mine operations were observed to be audible at Location A (Weakleys Drive) and Location K (Bartter) during the day, evening and night time and was inaudible during all other survey periods and at all other locations.

Attended noise monitoring indicated that contributed noise levels from Donaldson Mine operations do not exceed noise emission goals.

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

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
27/8/04 1230 Day W= 0.8 m/s NW Temp=25°C	Ambient	58	57	54	49	52	Near traffic, cars to 53 trucks to 58 Birds 47-48 Mine occasionally audible ~ 45 Mine L_{A10} contribution <45
25/8/04 2110 Evening W= Calm Temp=15°C	Ambient	59	56	52	46	50	Far traffic 45-47 Near traffic ,cars to 49 trucks to 59 Train horn audible Mine just audible at times Mine L_{A10} contribution <40
25/8/04 2232 Night W= Calm Temp=13°C	Ambient	63	58	52	45	50	Far traffic 42-44 Trucks to 63 Frogs to 46 occasionally Reversing alarms audible Mine just audible at times Mine L_{A10} contribution <40

TABLE 41: ATTENDED SURVEY RESULTS – LOCATION I - LORD HOWE DRIVE ASHTONFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
27/8/04 1330 Day W= 1 m/s NW Temp=25°C	Ambient	68	63	49	39	49	Far traffic 42-46 Near traffic to 54 Birds 40-41 Cockatoo 68 Donaldson mine inaudible
25/8/04 2145 Evening W= Calm Temp=15°C	Ambient	58	54	51	43	48	Far traffic 46-50 Near traffic to 52 Insects audible < 44 Train horn audible to 48 Donaldson mine inaudible
25/8/04 2205 Night W= Calm Temp=14°C	Ambient	60	54	51	43	48	Far traffic to 57 Near traffic to 54 Operator 60 Donaldson mine inaudible

TABLE 42: ATTENDED SURVEY RESULTS – LOCATION J – AVALON ESTATE

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
27/8/04 1250 Day W= Calm Temp=25°C	Ambient	56	54	53	51	52	Highway Traffic 50-54 Truck in nursery 50 Donaldson mine inaudible
25/8/04 2130 Evening W= Calm Temp=15°C	Ambient	54	51	49	43	46	Highway Traffic 48-50 Fast Train to 50 Donaldson mine inaudible
25/8/04 2215 Night W= Calm Temp=15°C	Ambient	57	51	49	45	47	Highway Traffic to 47 Trucks to 52 Birds to 57 Donaldson mine inaudible

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

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 uPa)					Description of Noise Emission and Typical Maximum Levels L_{Amax} - dBA
		L_{Amax} x	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
27/8/04 1200 Day W= 1 m/s NW Temp=25°C	Ambient	60	59	56	46	53	Near traffic to 50-54, cars 47-50, trucks to 58 Mine trucks audible to 45 Mine L_{A10} contribution <45
25/8/04 2045 Evening W= Calm Temp=12°C	Ambient	78	72	61	41	59	Near traffic to 76, cars 69-72 Reversing alarms to 42 Mine trucks audible to 44 Mine L_{A10} contribution ~40
25/8/04 2250 Night W= Calm Temp=14°C	Ambient	80	74	61	40	61	Near Traffic to 80 Mine trucks to 49 exiting pit Occasional horn from mine ~35 Mine truck ~ 40 Mine L_{A10} contribution <40

Complaints Based Noise Monitoring**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 has 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 will commence as soon as possible to ensure that the visibility of the dumps are reduced.

To this end, the out of pit dump has deliberately been constructed at an appropriate RL to ensure that it can not be seen from Black Hill area. Revegetation of a portion of the dump was planned to be completed by June 2004.

Environmental Performance:

Visual impact and stray lighting is not considered an issue for the project 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. Seven of these sites are in areas that were impacted on by mining during the reporting period. In accordance with s.90 of the National Parks and Wildlife Act (1974), consent to destroy was granted for those sites being impacted on by the mine (three sites). A number of applications are currently being prepared and will be forwarded to the NPWS once completed.

Three additional sites (ISF4, ISF5 and ISF6) were identified ahead of mining activities. The field inspections were undertaken and the applications for consent to destroy have been approved by the Mindaribba Local Aboriginal Land Council (MLC) and the NPWS.

Archaeological Studies

Donaldson 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 4 has been prepared in consultation with the Mindaribba Local Aboriginal Land Council 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.

The MLC is actively involved in the management of Aboriginal Sites at Donaldson;

Representatives of the Lands Council are invited on site to monitor clearing and topsoil stripping activities; and

In addition they are invited to participate in six monthly monitoring surveys at seven permanent locations located adjacent to the mining project.

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. After receipt of the RFS comments, the plan will be finalised and implemented in the 2005 AEMR period. 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.

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.

No hazard burn reduction was undertaken during the period of this report but an area was identified adjacent to houses at the Avalon Estate to the north of mining operations where a 25m strip was cleared for an APZ (Asset Protection Zone). Rural Fire Service locks were fitted to Donaldson Coal gates accessing this area. Hazard reduction will be further implemented 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.

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 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.

3.3 REPORTABLE INCIDENTS

There was one externally reportable incident recorded at the mine during the reporting period. This was the blast overpressure exceedance as previously detailed in section 3.2.10. Notwithstanding this, there were six internal environmental incidents reported as a requirement of the Environmental Management Strategy. **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	5
Water leak from split pipe	1

In all cases, 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 Officer is working with the mining contractor to address area(s) of repeat incidents.

The number of reportable environmental incidents at Donaldson Coal during the 2004 AEMR reporting period is a substantial improvement over the previous reporting period. In the 2003 AEMR reporting period, 16 internally reportable incidents were recorded at Donaldson Coal.

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 have been six complaints received by Donaldson on the 1800 111 271 community hotline during the reporting period, compared to one in the 2003 AEMR reporting period and thirty three in the 2002 AEMR reporting period. Three complaints were from noise impacts and three were from blast impacts. Three individuals were responsible for the complaints. Information for each complaint and the actions taken are provided in **Appendix 4**. All complaints were followed up and remedial or additional monitoring was 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 were four CCC meetings held during the reporting period, three of which were site based meetings. Included in **Table 45** are the details of each CCC meeting held during the 2004 AEMR reporting period.

TABLE 45: CCC MEETING DETAILS

Date	Location	No. of attendees
4 th December 2003	Hunter Valley Training Centre	7
10 th April 2004	Donaldson Coal	6
5 th August 2004	Donaldson Coal	7
28 th October 2004	Donaldson Coal	10

4.2.2 Site Tours/Inspections

The CCC was invited to visit the mine on three occasions during the period of this report. 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

A community newsletter was produced and distributed to approximately 1200 homes during January 2004. The newsletter contains information on activities at the mine as well as a list of contact phone numbers, e-mails and the address to the Donaldson Coal Internet site. Copies of the newsletter is also placed in the Beresfield and Thornton libraries and replaced as required. A copy of the Community Newsletter is attached as **Appendix 6** to this report.

A copy of the "new employee" environmental induction booklet has also been made available to the community in both the Thornton and Beresfield public libraries. The booklets contains information on the environmental management of the mine as well as detail on the project and contact details for the mine.

4.2.4 Donaldson Coal Internet Site (www.doncoal.com.au)

The Donaldson Coal Internet site was launched in August 2000. It has since been reviewed and improved, with additional information added to the site. The site has been developed to provide information to the wider community. It contains up to date copies of the CCC meeting minutes, copies of the newsletters, 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 ten 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	7	Maitland (71%), Other (29%)

Cooks Construction Pty Ltd currently directly employs seventy three full-time employees mainly 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	13	Maitland (38%), Other (62%)
Maintenance/Production	60	Maitland (37%) Other (63%)

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 9 hectares were rehabilitated including the provision of drainage controls to provide a stable landform in line with MOP requirements.

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

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 the DMR and the final recommendations are implemented in rehabilitation practices.

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, substantial rehabilitation of 28Ha was undertaken in the last AEMR reporting period when areas were available. Less area was available in this AEMR reporting period due to the Top Dump not reaching final landform.

Approximately 9Ha of rehabilitation was completed in this AEMR period in the top dump area with a substantial rehabilitation area of 42.8Ha planned for 2004 –2005. The area targeted for 2004-05 is achievable as sections of the final landform in the Top Dump and Out of Pit Emplacement are now planned for completion. The rehabilitation report for 2004 is provided in **Appendix 7**. The latest rehabilitation plan, October 2004, and the forecast plan for October 2005 are provided in **Appendix 8**. The MOP target rehabilitated area to date was 45.97 Ha, of which 36.7 Ha was completed.

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 2005, 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 acid material investigation works has resulted in a program of AMD preventative action which includes the incorporation of lime into the overburden material prior to topsoiling. The site Rehabilitation Plan is a document updated annually to manage the rehabilitation activities. The Rehabilitation Plan was updated in 2004 including guidelines for the management of AMD issues.

5.5 REHABILITATION TRIALS AND RESEARCH

To date there has been no rehabilitation based vegetation research or trials established at the Donaldson Coal Mine apart from a study on the threatened species *Tetratheca juncea*. The research was conducted as part of an honours project at the University of Newcastle looking at *Tetratheca juncea*: and entitled "*Tetratheca juncea*: defining the Niche".

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 (e. 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.

A field inspection of direct tree seeding at Donaldson Coal was conducted in 2004 by the Hunter Coal Environment Group.

6. ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD

The following initiatives by Donaldson Coal are proposed to be undertaken in the next twelve months.

- A quick fill water station is planned to be constructed by Cooks Constructions in 2005 to enable faster turnaround for water tankers increasing road watering rates.
- The site environmental aspects are continually being reviewed and will continue to be evaluated under the continuous improvement policy in the next reporting period;
- The Site Environmental Management System has substantially been completed and will be improved in the next reporting period in conjunction with Cooks Constructions; and
- The final recommendations from the URS Australia Pty Limited report on AMD are being acted upon and the main aspects will be incorporated into the Site Rehabilitation Management Plan in the next reporting period.
- A minor modification to the mining plan involving an increase to the mine area by 7.2 ha is planned for the next reporting period. A Statement of Environmental Effects will be prepared and submitted to DIPNR for determination. Community Consultation will be implemented through the CCC and newspaper advertisements.

7. DEVELOPMENT CONSENT COMPLIANCE REVIEW

A development consent review was not required in this reporting period and is next due in 2006. Details of the findings from this review will be included in the 2006 AEMR.

8. REFERENCES

- Ecobiological (a division of Barker and Hayle Pty Ltd) **2004 Half Yearly Fauna Monitoring Report**, Unpublished report for Donaldson Coal Pty Ltd
- Global Soil Systems (May 2000a) **Erosion & Sediment Control Plan**, Unpublished report for Donaldson Coal Pty Ltd.
- Holmes Air Sciences (November 2000) **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 (2004a) **Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey: Autumn 2004**, Unpublished report for Donaldson Coal Pty Ltd.
- Robyn Tuft & Associates (2004b) **Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey: Spring 2004**, Unpublished report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000a) **Donaldson Open-cut Coal Mine, Beresfield, Flora and Fauna Management Plan**. Unpublished Report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000b) **Donaldson Open-cut Coal Mine, Tetratheca juncea Management Plan**. Unpublished Report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000c) **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 (2003) **Noise Monitoring Survey, Fourth Quarter 2003, Donaldson Mine**, Unpublished reported completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2004a) **Noise Monitoring Survey, First Quarter 2004, Donaldson Mine**, Unpublished reported completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2004b) **Noise Monitoring Survey, Second Quarter 2004, Donaldson Mine**, Unpublished reported completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2004c) **Noise Monitoring Survey, Third Quarter 2004, Donaldson Mine**, Unpublished reported completed by Donaldson Coal

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

APPENDIX 3:

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

Aboriginal Sites Within the Donaldson Mine Lease Area

Site Name	Recorder	Location	Description	Comments
Bushland Conservation Area				
FMC3	Effenberger (1997)	368300E 6368900N Bank of Four Mile Creek	Artefact scatter (5 artefacts), one axe grinding groove	
FMC4	Effenberger (1997)	368250E 6368650N Lower slope above Four Mile Creek	Artefact scatter (2 artefacts)	
FMC5	Effenberger (1997)	368500E 6368700N Lower slope above Four Mile Creek	Artefact scatter (2 artefacts)	
FMC6	Effenberger (1997)	368400E 6366100N Upper slope above Four Mile Creek	Artefact scatter (4 artefacts)	
FMC7	Effenberger (1997)	367600E 6366500N Crest between Four Mile Creek and a major tributary	Artefact scatter (3 artefacts)	
FMC8	Effenberger (1997)	367600E 6366850N Upper slope above tributary of Four Mile Creek	Scarred tree	
WFC1	Effenberger (1997)	371200E 6369200N Lower slope above Weakleys Flat Creek	Artefact scatter (3 artefacts)	
ISF3	Umwelt (1998)	368750E 6367650N Lower slope above Four Mile Creek	Isolated find	
ISF4	Umwelt (2001)	370550E 6368625N Mid slope above Weakleys Flat Creek	Isolated find	
Four Mile Creek 1 (38-4-139)	Brayshaw (1985)	368130E 6367020N Bank of Four Mile Creek	Artefact scatter (19 artefacts)	
Four Mile Creek 2	Brayshaw (1985)	367820E	Artefact scatter (10	

(38-4-140)		6366880N Terrace of Four Mile Creek	artefacts)	
CA1	Umwelt (2001)	370658E 6368051N Mid slope, south of Weakleys Flat Creek	Isolated find	
CA2	Umwelt (2001)	371132E 6369039N Lower slope, north west of Weakleys Flat Creek	Artefact scatter (2 artefacts)	
CA3	Umwelt (2001)	370985E 6370511N Lower slope above a tributary of Scotch Dairy Creek	Isolated find	
CA4	Umwelt (2001)	369568E 6370040N Mid slope above Scotch Dairy Creek	Isolated find	
CA5	Umwelt (2001)	368391E 6366747N Mid slope, east of Four Mile Creek	Isolated find	
CA6	Umwelt (2001)	368229E 6366592N Lower slope above a tributary of Four Mile Creek	Isolated find	
CA7	Umwelt (2001)	367617E 6366456N Mid slope above Four Mile Creek	Isolated find	
CA8	Umwelt (2001)	370746E 6369747N Lower slope, south of Scotch Dairy Creek	Isolated find	
DMS2	Umwelt (2002)	370966E 6368184N Mid slope, south of Weakleys Flat Creek	Artefact scatter (2 artefacts)	
DMS4	Umwelt (2002)	368649E 6368181N Mid slope, east of Four Mile Creek	Isolated find	
DMS5	Umwelt (2002)	370665E 6368177N Mid slope, south of Weakleys Flat	Isolated find	

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

APPENDIX 4:

**List of Complaints
Received by the Mine**

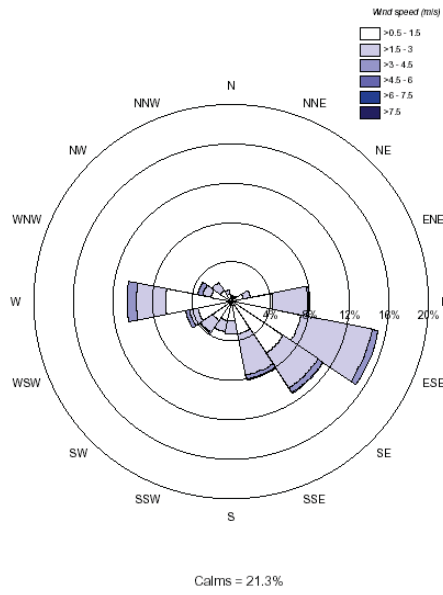
SUMMARY OF COMPLAINTS RECEIVED BY DONALDSON COAL(in the AEMR reporting period)

Number	Location	Date of Complaint	Time	Description	Actions/ Outcomes
1	Beresfield	28/06/2004	4.13pm	Blasting	An investigation was undertaken by Terock Pty Ltd who concluded : <i>The high airblast level was due to wavefront reinforcement resulting from the combination of control row delay, hoe spacing and initiation direction.</i> Recommendations by Terock were implemented with subsequent blast measured at the complainant's address with no issues.
2	Avalon Estate	22/07/2004	7.49am	Noise	Noise monitoring was undertaken at the Complainant's residence by Noise Consultant. The excavator that was causing the issue was taken out of service until repairs were undertaken to address the issue. The complainant was advised.
3	Avalon Estate	30/07/2004	7.50am	Noise	The noise complaint resulted from dumping in the high dump before 8.00 am. Dumping program was changed with the top dump not being used before 8.00 am. The complainant was advised of the change in practice.
4	Weakleys Drive	28/07/2004	4.05pm	Blasting	Noise complaint was due to pushing in material on the top dump. The works was halted until the following day to complete the task. Complainant was notified. No further action required.
5	Avalon Estate	10/08/2004	10.05pm	Noise	The complaint was concerned with vibrations experienced at the complainant's address. The result at the residence closer to the pit was a vibration of 0.309 mm/s and an overpressure of 110.1dB. Subsequent blasts were monitored at the complainant's address with no issues raised.
6	Avalon Estate	11/08/2004	1.04pm	Blasting	The complaint was concerned with vibrations experienced at the complainant's address. The complainant was advised of the results at the nearest monitor (0.026 mm/s and 98.6 dB) and that the blast was the furthest away from his property to date. No further action required.

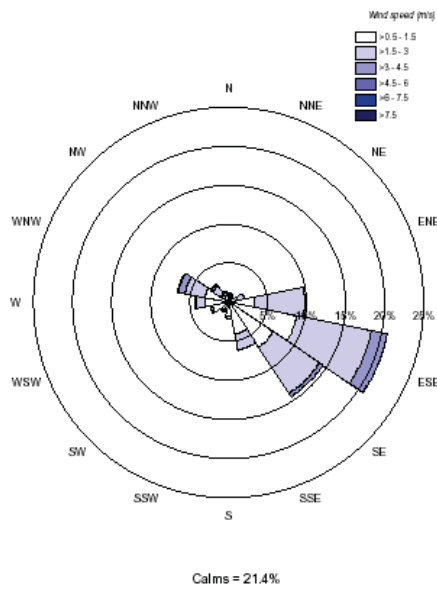
Note : 3 individual residents made the 6 complaints – one resident at each location.

APPENDIX 5:

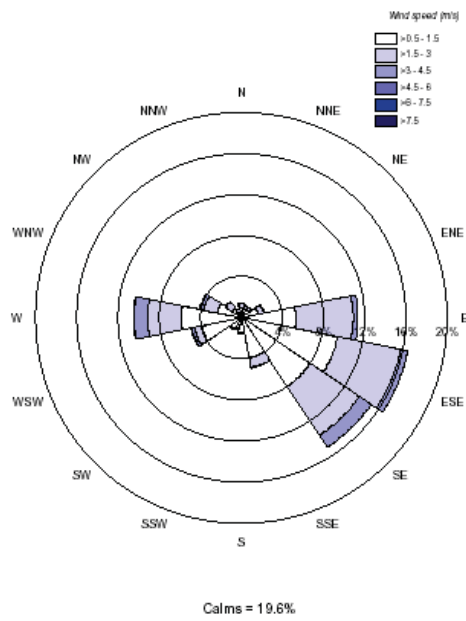
Wind Speed & Direction (Windrose) Diagrams for the reporting period.



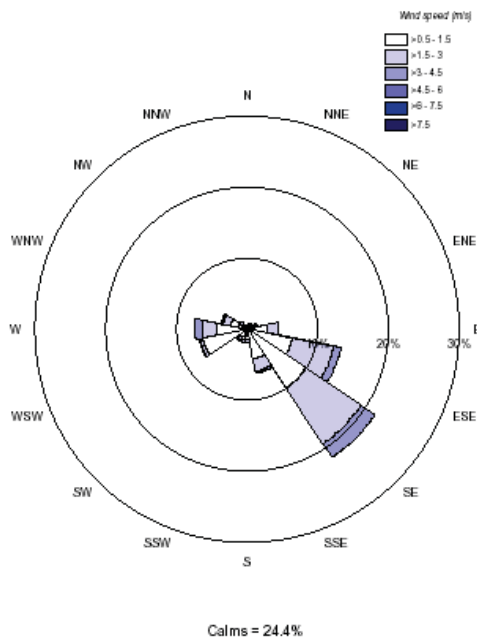
Windrose for Donaldson, November 2003



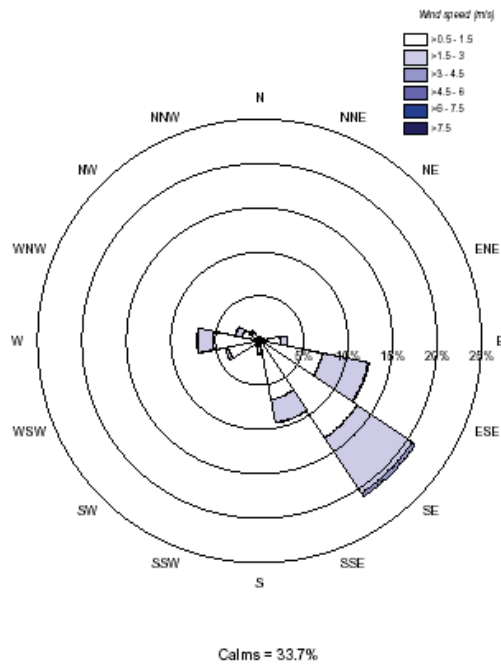
Windrose for Donaldson, December 2003



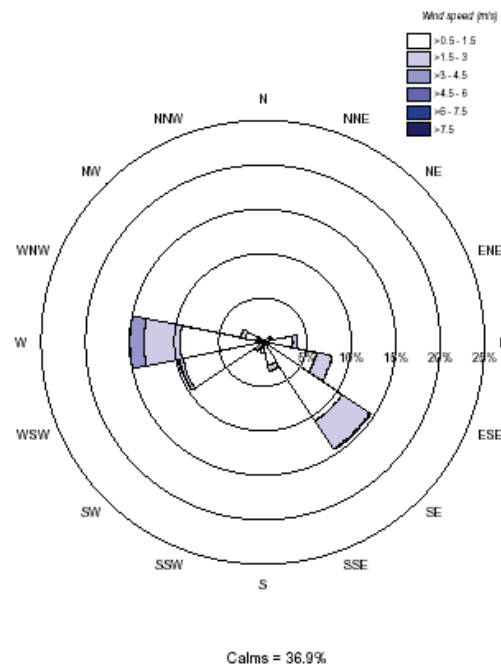
Windrose for Donaldson, January 2004



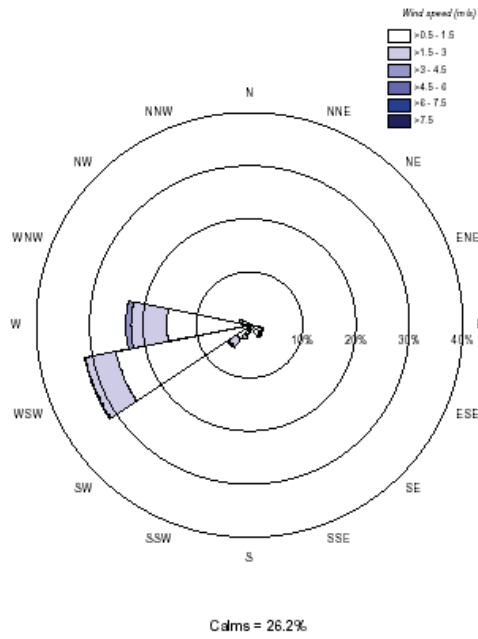
Windrose for Donaldson, February 2004



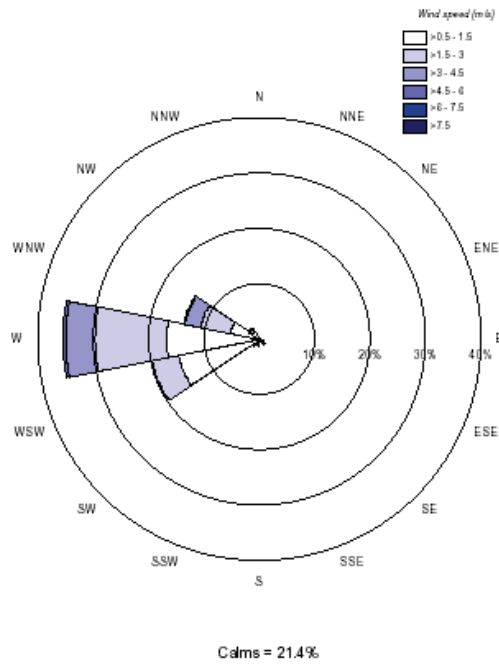
Windrose for Donaldson, March 2004



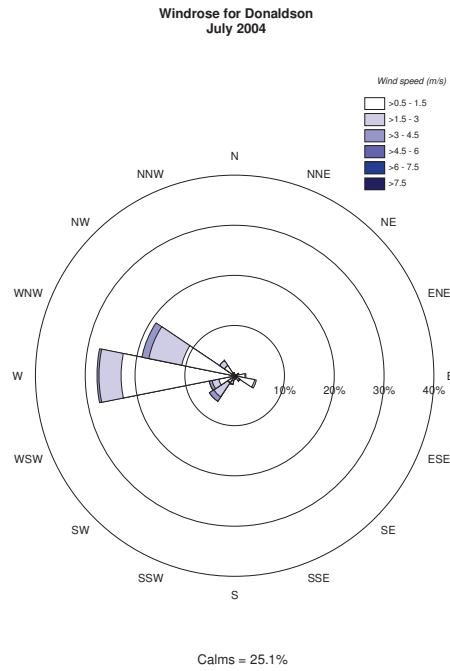
Windrose for Donaldson, April 2004



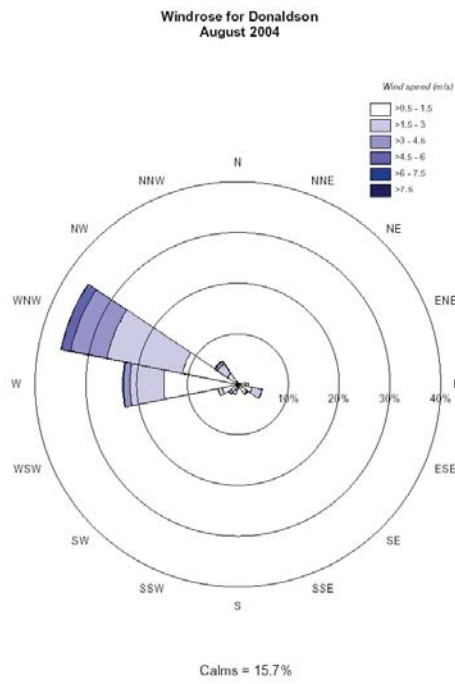
Windrose for Donaldson, May 2004



Windrose for Donaldson, June 2004

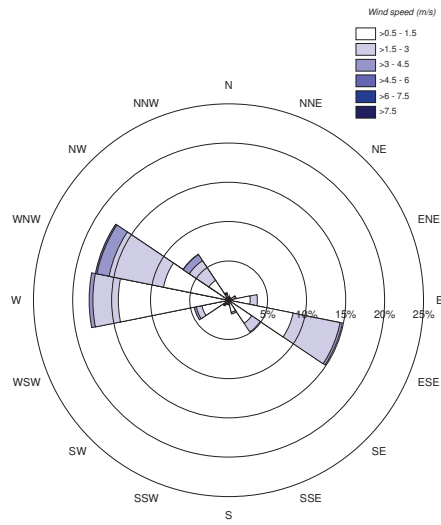


Windrose for Donaldson, July 2004



Windrose for Donaldson, August 2004

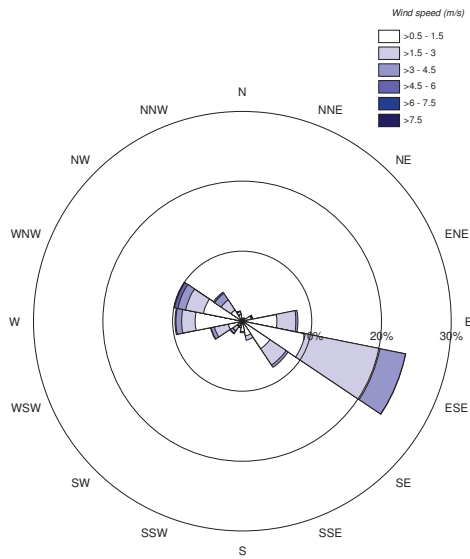
Windrose for Donaldson
September 2004



Calms = 22.9%

Windrose for Donaldson, September 2004

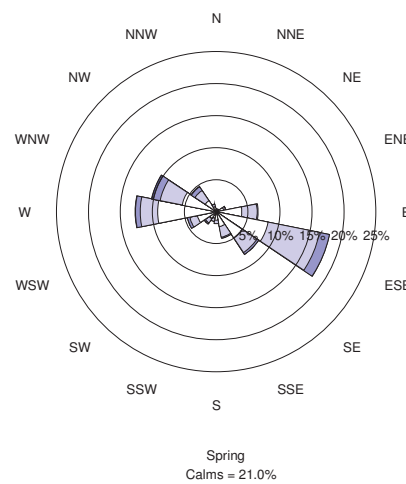
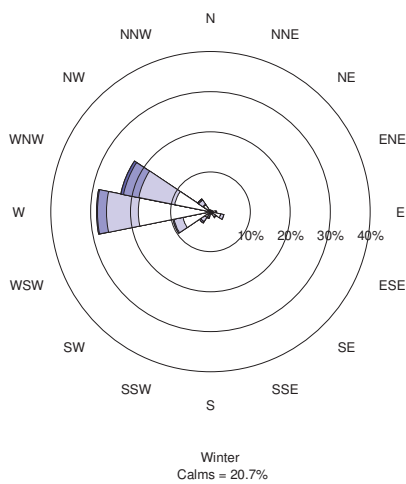
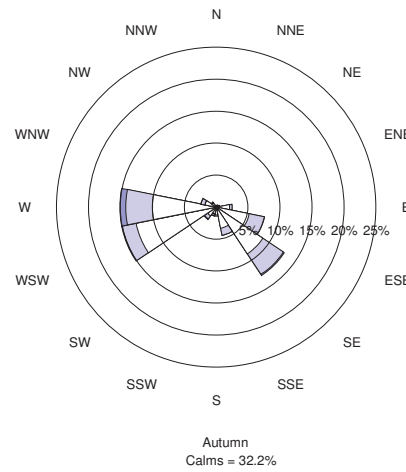
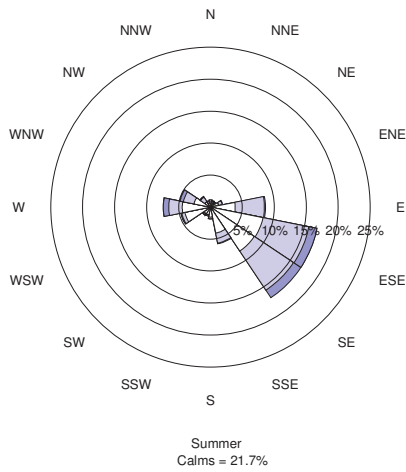
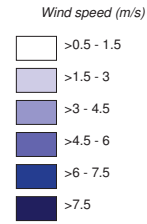
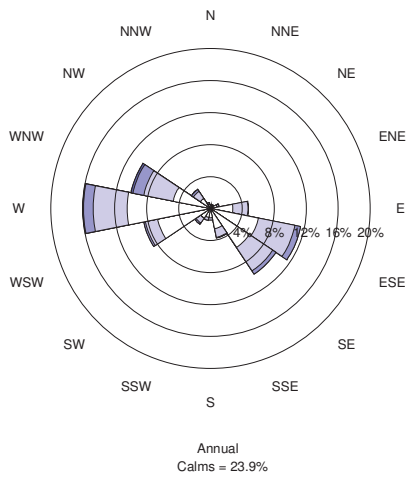
Windrose for Donaldson
October 2004



Calms = 19.0%

Windrose for Donaldson, October 2004

Annual and Seasonal Windroses for Donaldson mine site (Nov 03 to Oct 04)



APPENDIX 6:

Newsletter

APPENDIX 7:

**Annual Rehabilitation
Report**

TABLE: REHABILITATION SUMMARY

	Cumulative Area Affected (hectares)		
	To date	Last report	Next Report (estimated)
A: MINE LEASE AREA			
A1 Mine Lease(s) Area	532.8		
B: DISTURBED AREAS			
B1 Infrastructure area (other disturbed areas to be rehabilitated at closure including facilities, roads)	38.93	47.3	37.58
B2: Active Mining Area (excluding items B3 – B5 below)	29.59	19.4	27.62
B3 Waste emplacements, (active/unshaped/in or out-of-pit)	42.71	61.7	14.28
B4 Tailings emplacements, (active/unshaped/uncapped)	0	0	0
B5 Shaped waste emplacement (awaits final vegetation)	32.50	0	37.01
ALL DISTURBED AREAS	143.73	128.4	116.49
C REHABILITATION PROGRESS			
C1 Total Rehabilitated area (except for maintenance)	45.54	8.7	88.25
D: REHABILITATION ON SLOPES			
D1 10 to 18 degrees	0	0	0
D2 Greater than 18 degrees	0	0	0
E: SURFACE OF REHABILITATED LAND			
E1 Pasture and grasses	0	0	5
E2 Native forest/ecosystems	45.4	8.7	88.25
E3 Plantations and crops	0	0	0
E4 Other (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/ treatment detail
	Report period	Next period	
Additional erosion control works (drains re-contouring, rock protection)	0	0	
Re-covering (detail - further topsoil, subsoil sealing etc)	0	0	
Soil treatment (detail - fertiliser, lime, gypsum etc)	0	0	
Treatment/Management (detail – grazing, cropping, slashing etc)	0	0	
Re-seeding/Replanting (detail – species density, season etc)	0	0	
Adversely Affected by Weeds (detail - type and treatment)	0	0	
Feral animal control (detail – additional fencing, trapping, baiting etc)	0	0	

APPENDIX 8:

Rehabilitation Plans