DONALDSON COAL ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

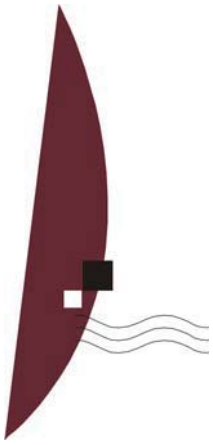
As prescribed by Donaldson Coal Development Consent (114 –116) and the Mining Act 1992.

DONALDSON COAL MINE

Reporting Period:

1st November 2002 to 31st October 2003

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



DONALDSON COAL MINE

Annual Environmental Management Report (AEMR) 2002-2003

Prepared by:

Phillip Brown - Environmental Officer
Donaldson Coal Pty Ltd

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

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i PURPOSE OF THE REPORT

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

This report has also been completed to fulfill the annual reporting requirements of the Department of Mineral Resources (DMR) and as such has been 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;

In addition, this report provides the environmental monitoring results recorded during the reporting period. The results are required as part of the Six (6) Monthly Environmental Monitoring Report as required by the Director General of the Department of Planning, Infrastructure and Natural Resources (DIPNR) in accordance with condition 13(1) of the development consent that specifically requires detailed reporting on all aspects of environmental monitoring required by the consent.

Notwithstanding this, copies of all environmental data recorded during this reporting period can be made available upon request.

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 3,504,000 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

The following table 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	• A copy of the mining lease is available for review at the Donaldson Coal office.
Mining Operations Plan	1/06/02	1/06/06	• Amended MOP as approved by the DMR.
Development Consent	14/10/99	March 2011	• 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	• Licence will be reviewed in September 2003. As of the 31st October 2003 the review has not been completed and the existing licence remains in force. • Latest Annual Return submitted to the EPA on the 7th November 2003.
Water Works Licence (No. 20SL060534)	19/02/01		• 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		• Issued to cover groundwater extraction as a result of the active mining area.
Bore Licence (No. 20BL168124)	12/11/02		• 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.

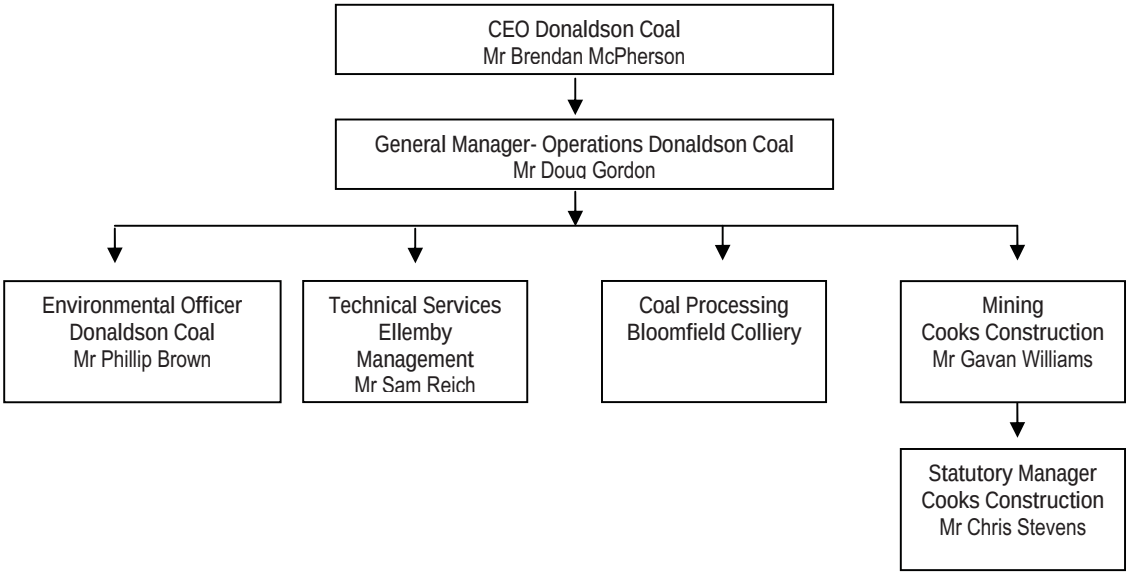
An amended MOP and associated plans were submitted to the DMR to cover the period January 2002 through to June 2006 (which represents about half way through the mine life). It is also the point that the Hunter Water Board pipelines will require re-location across the backfill. This AEMR reporting period 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 18th March 2003. 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 below 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 MARCH 2003 ANNUAL INSPECTION.

Action Required	Where Dealt with in this AEMR
Construction of a 290Ml mine water dam was not been completed as per the MOP. A smaller dam had been constructed and a new water management report for the site will determine if the 290Ml dam is still required. DMR have asked to review the report to determine the suitability of the current water storage system.	Page 10
A review of the number and source of complaints is required to ensure the upward trend in complaints does not continue.	Page 54
Drainage line reinforcement is required to prevent soil erosion in the area of the Northern Sediment dam.	Page 10
A section of sediment fence requires repair in the NE corner of the mine and a system of regular inspections of sediment control structures needs to be established.	Page 22
Sediment controls are required on the access roads to the south east of the mine.	Page 23
The water management and sediment dam in the workshop area requires completion	Page 10
Maintenance is required in areas of instability around the Four Mile Creek crossing of the haul road.	Page 22

The inspection report found general compliance with the relevant statutory approval instruments administered by the DMR.

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 2002 – 31st October 2003.

2.1 EXPLORATION

An exploration program was undertaken during the AEMR reporting period. It included the drilling of thirteen (13) part cored holes, four (4) open holes and lox line drilling in advance of the operation. The data from these holes were used in refining the mine geological model and confirming coal quality. During the program the mine geologist collected information in order to characterize the overburden material (including field tests for potential AMD issues). These results were assessed by URS consultant Dr Alan Robertson and have been provided to the DMR as a separate report.

The following 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 18th March 2003.

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

No additional construction activities were undertaken at the mine during the reporting period. Some additional water storage and sediment control structures were installed and are addressed in section 2.8 of this report. The crib hut and toilet facilities for the mining workforce was relocated further to the south of mining operations during the reporting period.

2.4 MINING

The planned mine capacity is based upon the removal of 7.0Mbcm of waste and 2.5Mtonnes of ROM coal each year, on a current roster of 2 x 8 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).

The following table 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

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. Loads are limited to a maximum of 50t. 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 loadout 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

The following table 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 2002	Dec 2002	Jan 2003	Feb 2003	Mar 2003	Apr 2003
Plant Feed	184,865	99,254	117,328	147,150	186,165	109,810
Washed Coal	124,021	88,227	96,629	108,384	141,793	72,064
Sizing	19,235	17,327	12,748	23,656	12,100	12,797

(tonnes)	May 2003	June 2003	July 2003	Aug 2003	Sep 2003	Oct 203
Plant Feed	151,888	181,347	161,274	201,000	220,315	207,339
Washed Coal	120,524	135,121	118,268	151,374	166,327	156,371
Sizing	24,249	6,784	20,351	13,039	2,457	25,858

Totals for the reporting period were:

(tonnes)	TOTAL
Plant Feed	1,967,735
Washed Coal	1,479,103
Sizing	190,601

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

The following table 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. The following table 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	20,000	40,000

Donaldson has established two (2) primary ROM coal stockpiles on the Donaldson mine site itself. These stockpiles are used during wet weather or when the 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 large 290ML mine water dam is now planned for construction during the first half of 2004. The engineering design work has been revised. In the interim an 80ML water storage structure has been constructed during 2003. Where additional capacity is required beyond this to ensure the nil discharge condition is met, water will be contained within the active mine void.

2.8.2 Sediment Control Structures

The walls of the Industrial Dam were raised and the construction of the dam was completed during the reporting period. Work will be undertaken in the next reporting period to refine the drainage of the hard stand area to the industrial 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.

The 20ML sediment dam that was constructed downstream, east of the current active mine area was mined through the reporting period.

A 17ML sediment control structure to receive run-off waters from the recently regraded landform was constructed in February 2003. Water from this dam will spill through a decant pipe system into Scotch Dairy Creek to the north of the mine. The water storage dams were mined out during the reporting period. Minor works including rock placed in the inlet was undertaken to this dam following the DMR inspection.

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 table shows the water consumption for the Donaldson Mine. All water for this monitoring period was obtained from site supplies.

TABLE 7: WATER CONSUMPTION FROM EACH OF THE WATER SOURCES.

Water Consumption (ML)	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Tot.
19ML Dam	-	-	-	-	-	-	-	-	-	-	-	-	-
40ML Dam	9.724	5.168	8.018	6.156	5.776	2.508	2.223	8.556	4.445	6.235	8.956	4.458	72.2
Imported Bloomfields	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 8 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 salinity trading scheme.

TABLE 8: STORED WATER

	Volumes held (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	Storage Capacity
Clean water	0	0	0
Dirty water	7	10	35
Controlled discharge water (salinity trading schemes)	N/A	N/A	N/A
Contaminated water	50	45	76*

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.

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 the next 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

UEE Explosives has been contracted to provide blasting services to the mine. They 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 and overview of the environmental management and 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 exceedences. 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 is ongoing, with the bulk of the documentation for the revised EMS completed in 2003. The final document will be finished and issued in 2004.

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 has been 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.

The following table lists the principal environmental aspects identified during this process, including an Internal Risk rating score assigned as part of a Frequency, Probability and Severity Analysis (FPSA). This table has been included in the AEMR in accordance with the requirements of the DMR guidelines (Edg03). Control strategies and detail on the environmental performance in all areas encompassing these aspects is included in section 3.2 below.

TABLE 9: 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 planned to be completed by the end of 2004. Results will be reported in the next AEMR.

3.2 ENVIRONMENTAL MANAGEMENT CONTROLS

Notwithstanding the detail included above in the Donaldson Coal Environmental Risk Table, the following 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 has not been included in order to limit the size of the report, however electronic versions of the data are available on request.

3.2.1 Meteorological Monitoring

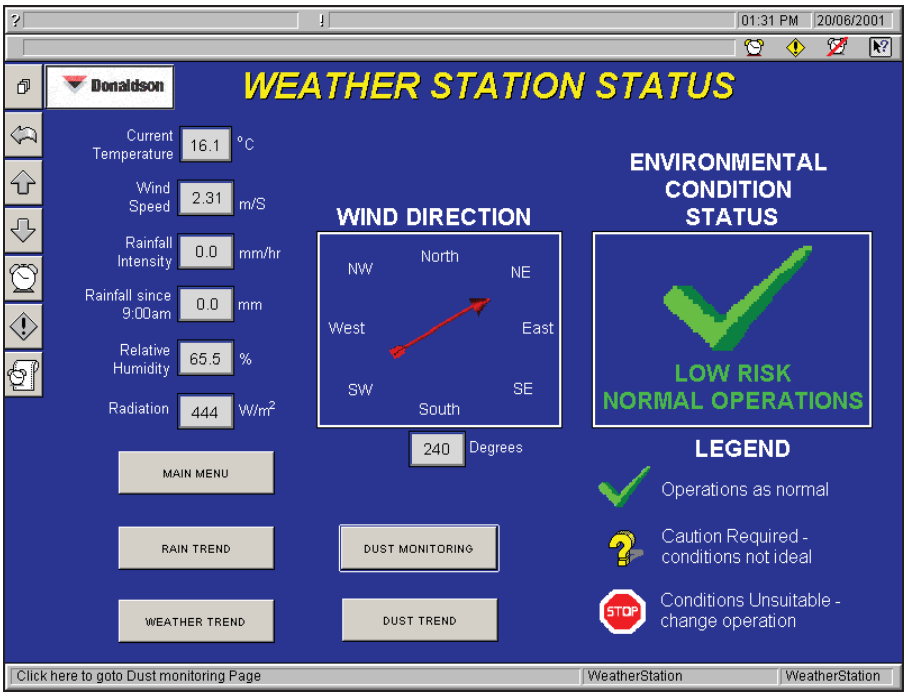
An automatic weather station has been in operation at the site since 3rd December 1999. The station is supplied and serviced by Holmes Air Sciences. The station is a Unidata system with instrumentation installed to measure the following parameters.

- Solar Radiation (W/m^2);
- Temperature (^0C);
- Wind Speed (m/s);
- Wind Direction; and
- Rainfall.

Data from the instruments is 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 informed decisions about the influence of meteorological conditions. The following is a typical screen that is displayed both in the Environmental Officer office and the shift foremen office.

FIGURE 1: WEATHER STATION SCREEN – REAL TIME MONITORING.



Rainfall

The following table shows the rainfall for the AEMR reporting period. A total of 702.8 mm were recorded during the AEMR reporting period. December 2003 was the wettest month with 184 mm, while September 2003 was the driest, recording 0 mm for the month.

The following table also shows a comparison with 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.

TABLE 10: COMPARISON OF RAINFALL STATISTICS (EAST MAITLAND) & DONALDSON FOR THE REPORTING PERIOD AND PREVIOUS YEARS.

	COMPARISON OF RAINFALL AGAINST ANNUAL AVERAGE											
(millimetres)	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Actual												
Historical Average	89.0	94.1	96.5	87.4	70.3	84.2	58.1	52.2	54.8	65.5	61.6	81.3
2000	61	32	279	146	45	24	27	31	33	47	106	32
2001	46	169	193	114	244	3.4	63	22	12	31	90.6	37.4
2002	48	281	184	66.4	62.1	30	30	21	8.4	18.8	56.2	149.2
2003	6.4	90.0	42.2	77.0	135.0	13.2	43.0	27.4	0.0*	63.2*	-	-

* gauge was found to be blocked – possible low result.

Wind Speed and Direction

Wind speed and direction data has been collected from the meteorological station at Donaldson Coal Mine since December 1999. Wind rose charts diagrammatically representing the data for each month during the period 1st November 2002 to 31st October 2003 as well as the total for the period is contained in Appendix 5 of this report.

The winds display a high degree of seasonality, with winds typically from the south eastern quadrants during February and March changing to be predominantly from the west through April until August when the shift is back to the south east. Appendix 5 also contains a wind rose for the period overlaying and aerial photograph of the area around the mine. The wind rose diagrams for this reporting period are typical of the lower Hunter Valley.

3.2.2 Air Pollution

Air pollution principally occurs by way of two (2) sources at the Donaldson Coal Mine. The first is airborne crustal dust that comes from the mining activities (measured as PM_{10}, Total Suspended Particulates (TSP) and Depositional Dust). The second form is from the combustion of diesel fuel, which is measured as $PM_{2.5}$ particles.

Donaldson has three (3) High Volume Samplers (measuring TSP and PM_{10}) two (2) 24 hour continuous monitors and eleven (11) depositional dust gauges located around the mine (see attached monitoring location plan –Appendix 2). These measurements will include all background sources relevant to the that individual location including any contribution which may occur from the Donaldson Mine.

Control Strategy:

The Air Quality Management Plan (Holmes, 2000) details the range of measures employed by the mine to control airborne dust. The following is a list of those controls:

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

Environmental Performance:

There were no dust related complaints received by the mine throughout the entire reporting period. In addition, a review of the dust monitoring data for the period suggests that there has been no detectable change in the regional dust levels as a result of mining activities. Seasonal variations are evident (ie. summer versus winter) and in some cases high readings have been recorded on the 24 hour continuous Dustraks 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 moving.

A summary of the monitoring data for the reporting period is included below for reference:

<u>*Depositional Dust Gauges*</u>

Results have been recorded for 128 monthly samples at eleven (11) dust gauges out of a possible total of 132. One result was deleted due to excessive contamination from bird droppings as determined by the analytical laboratory and three results were not obtained due to vandalism of the gauge. The summary below shows the periods where data was not collected.

TABLE 11: DEPOSITIONAL DUST GAUGES WHERE DATA WAS NOT COLLECTED.

Location	Date	Reason for no data
DG1	29/09/03-30/10/03	Excessive bird droppings.
DG2	26/11/02-27/12/02	Funnel removed by vandals.
DG9	27/02/03-28/03/03	Vandals destroyed the gauge
	28/03/03-28/04/03	Vandals destroyed the gauge

TABLE 12: CONCENTRATION MONITORING - DEPOSITIONAL DUST GAUGES (Insoluble Solids g/m^2.month)

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value	Lowest Sample value	Mean Sample Value
DG1	12	11	2.8	0.3	1.05
DG2	12	11	1.8	0.2	0.80
DG3	12	12	3.7	0.4	1.46
DG4	12	12	1.6	0.2	1.01
DG5	12	12	3.0	0.1	0.77
DG6	12	12	2.1	0.5	1.30
DG7	12	12	2.2	0.6	1.31
DG8	12	12	8.0	0.5	2.66
DG9	12	10	2.5	0.5	1.30
DG10	12	12	3.6	0.5	1.33
DG11	12	12	9.5	0.7	1.97

All gauges are in compliance and are well below the air quality goal of an annual average of 4g/m^2.month as prescribed in the Air Quality Management Plan for the mine. While there are no short term goals for dust deposition gauges a monthly value in excess of 8g/m^2.month is considered high by Donaldson Coal and requiring further investigation.

There was one (1) occasion where a dust gauge returned a high monthly result in excess of 8g/m^2.month. DG11 returned a result of 9.5g/m^2.month in March 2003. DG11 is located at Avalon estate, north east of mining operations. Winds in March 2003 were principally east south east which would have blown any mine generated dust away from this site. The dust is more likely to have originated from a non-mining activity east south east of the site. It is unlikely that mine generated dust produced the high result.

High Volume Samplers

The following section relates to the High Volume samplers located at the Bartter Chicken Farms and the Beresfield Golf Course.

PM10

TABLE 13: CONCENTRATION MONITORING (PM_{10} HIGH VOLUME SAMPLERS).

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value	Lowest Sample value	Mean Sample Value
Beresfield Golf Course	61	60	130	5	33.6
Bartter Enterprise	61	55	100	1	22.3

There was an increase in the number of individual PM_{10} measurements taken through out the reporting period above the 24-hour NEPM goal of 50 ug/m^3. On ten (10) occasions at the Beresfield site, PM_{10} was recorded over 50 ug/m^3 to a maximum of 130 ug/m^3 on the 29th October 2003. Four (4) occasions at the Bartter site PM_{10} was recorded over 50 ug/m^3 to a maximum of 100 ug/m^3 on the 27th November 2002. Most of the high results were a result of localised bushfires, road works and a dust storm that originated in western New South Wales. The average for the period was below the goal with 33.6 ug/m^3 at Beresfield and 22.3 ug/m^3 at the Bartter Enterprise. Individual high results and possible explanations for the high levels are presented in table 11.

The results recorded during this reporting period are generally higher than the results recorded at the same monitoring locations prior to the commencement of mining in 2001. The results for this reporting period are heavily influenced by the prevailing drought conditions, bushfires and dust storms across the state and not primarily as a result of mining activities.

TABLE 14: 24 Hr PM_{10} results above 50 ug/m^3

Location	Date	Result (ug/m^3)	Possible Explanation
Bartter	03/11/02	65	Localised Bushfire smoke
	09/11/02	69	Localised Bushfire smoke
	27/11/02	100	Localised Bushfire smoke
	29/10/03	90	Dust Storm from central NSW
Beresfield	03/11/02	81	Localised Bushfire smoke
	09/11/02	87	Localised Bushfire smoke
	27/11/02	110	Localised Bushfire smoke
	03/12/02	54	Unknown –Possible bushfire smoke
	09/12/02	98	Smoke haze over the area
	20/01/03	52	Unknown- unlikely Donaldson as winds were ESE
	21/02/03	60	Unknown- unlikely Donaldson as winds were ESE
	05/09/03	63	Road works on John Renshaw Drive
	23/09/03	63	Road works on John Renshaw Drive
	29/10/03	130	Dust Storm from central NSW

TOTAL SUSPENDED PARTICULATES

TABLE 15: CONCENTRATION MONITORING (TSP HIGH VOLUME SAMPLERS).

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value	Lowest Sample value	Mean Sample Value
Bartter Enterprise	61	53	215	7	46.8

Almost all TSP measurements taken through out the period were below the annual average goal of 90 ug/m^3, with the average for the period being 46.8 ug/m^3 at the Bartter Enterprise. On five (5) occasions at the Bartter site, the TSP was recorded over 90 ug/m^3 to a maximum of 215 ug/m^3 on the 29th October 2003. The higher results were attributable to a dust storm that originated in western New South Wales and also localised bushfires. While there are no specified criteria for a 24-hr TSP maximum in the Donaldson Coal consent or EPA licence, all TSP results were below the US EPA short term good air quality goal of 260 ug/m^3.

The results recorded during this reporting period are generally lower than the results recorded at the same monitoring location prior to the commencement of mining in 2001. Even considering this, the TSP results for the reporting period are heavily influenced by bushfires and state-wide dust storms and not primarily as a result of mining activities.

Table 16 displays the data capture rate for the three (3) HVAS units during the period.

TABLE 16: MONITORING LOG, HIGH VOLUME SAMPLERS (HVS).

Monitoring Location	Data Capture Rate (%)
Bartter (PM_{10})	90.2
Bartter (TSP)	86.9
Beresfield, Golf Course (PM_{10})	98.4

Six (6) PM10 and TSP periods were missed at the Bartter monitoring site as a result of power failures. Electrical work was undertaken by the monitoring consultant to address the power supply issues and substantial improvement in data capture has been seen in the second half of 2003 with no sample loss from power supply faults. An additional two (2) TSP periods were missed at the Bartter site due to incorrect timer settings as advised by the monitoring consultant. One (1) sampling event was missed at the Beresfield site due to vandalism. The damage was repaired before the next sampling event.

DustTrak Monitors

Two (2) continuous Dustrak Air Quality Monitors are located near the mine site. One (1) has been permanently located at a site on the 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). Both units are interrogated remotely from the mine by way of mobile phone telemetry. The results are logged and stored on the mine site Environmental Monitoring computer system.

Ongoing power supply problems and instrument problems have resulted in only a limited amount of valid dust data (30%) being collected from the Bartter monitoring site however, the performance of the monitor has improved over the last six months. A review of the operation of the DustTrak monitors was conducted with Holmes Air Sciences who operate the equipment and the following actions will be implemented to improve the data capture rate and quality of data obtained from the DustTrak monitors.

1. Interrogate the DustTraks remotely via the CiTech system. This would allow Holmes Air Sciences to download data more regularly (at present the DustTrak is downloaded once per month) and to respond to instrument problems more quickly.
2. Investigate the possibility of shielding the DustTrak enclosure. The purpose of this would be to reduce fluctuations in temperature within the enclosure which may affect the monitors performance.
3. Investigate the addition of a secondary power source (larger battery) for the DustTrak to allow the monitor to continue operation for longer periods in the event of mains power failure.

Notwithstanding the problems with the DustTrak data collection, Donaldson Coal is confident that sufficient Air Quality Data from the HVAS PM10 unit has been collected to enable an assessment of any potential impact from the mining operation at this site.

The average 10-minute PM_{10} measurements taken through out the period were below the 24-hour NEPM goal of 50 ug/m^3, with the average for the period being under half at 22 ug/m^3. The value compares well to that obtained from the discrete 6 day sample HVAS PM10 measurements (22.3 ug/m^3).

Note : DDG5 and two (2) HVAS (measuring both TSP and PM_{10}) are also located at the same location as this Dustrak.

The mobile Dustrak has been located on Weakleys Drive (west 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.

The mobile site is powered by a solar panel and other than a short period during winter where some data was lost due to battery related issues, the monitor has been logging successfully for a high percentage (75%) of the reporting period. The table below shows a summary of the 10-minute average data collected at the Dustraks. The new procedures to monitor the DustTrak performance should similarly increase data recovery at the Weakleys drive site.

TABLE 17: DUSTRAK – CONTINUOUS MONITORING (PM_{10})

Sample Site	No Samples Required	No samples collected and analysed	Mean Sample Value
Weakleys Drive	Continuous	Continuous	26 ug/m^3
Bartter Farms	Continuous	Continuous	*22 ug/m^3

* *Ongoing power supply problems have resulted in only a limited amount of valid dust data being collected from the Bartter monitoring site.*

The average 10-minute PM_{10} measurements taken through out the period were below the 24-hour NEPM goal of 50 ug/m^3, with the average for the period being under half at 21.4 ug/m^3.

The table below is a log of the capture rate for the two (2) Dustrak units during the period. Data capture rates from the Bartter site is poor (discussed above), while the rates from the Weakleys Drive site is good.

TABLE 18: MONITORING LOG, DUSTRAK CONTINUOUS MONITORS.

Monitoring Location	Capture Rate (%)*
Bartter	30
Weakleys Drive	75

* valid data

$PM_{2.5}$ Air Quality Monitoring

$PM_{2.5}$ dust monitoring was undertaken by a GRIMM monitor during this reporting period at the Bartter site. Monitoring was conducted continuously over the period 12th February 2003 16:50 to 4th March 2003 15:20 and 10 minute averages were obtained.

TABLE 19: GRIMM – CONTINUOUS MONITORING ($PM_{2.5}$).

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value ug/m^3	Lowest Sample value ug/m^3	Mean Sample Value ug/m^3
Bartter Farms	Continuous	Continuous	33.6	0.8	7.8

Data collected during the February/March sampling run showed that PM_{10} measured at the site consisted of approximately 32% $PM_{2.5}$ 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.

3.2.3 Erosion and Sediment Control

The Erosion and Sediment Control Plan (Global, 2000) details the proposed works 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 have been seeded with grass to minimise scouring and assist in sediment removal;
- Sediment fencing has been erected at various points along the ridge road south of the mine to minimise erosion;
- Repairs have been undertaken to the haul road crossing of Four Mile Creek; and
- 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.

An 17ML sediment control dam was constructed in February 2003 on the northern side of the mine between Scotch Dairy Creek and the rehabilitation works underway at the mine. Graded banks and

waterways will be used to divert all water from the regrade and revegetated areas prior to release from the site.

Control Strategy:
The following control measures are employed at the Donaldson Coal Mine 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 practicable.

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 18 in section 3.2.4 shows TSS data collected during the reporting period. Where necessary flocculates have been used in the past to drop out sediments 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) is undertaken as soon as practicable after the rainfall event.

3.2.4 Surface Water Pollution

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 map showing the location of the monitoring sites is attached as Appendix 2 of this report. Ecowise Environmental (EE)[5] have been engaged by Donaldson to undertake routine sampling and analysis of six (6) permanent surface water 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 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).

[5] Ecowise Environmental (EE), NSW. Ph: (02) 63726735

Samples collected from the six existing sites are analysed for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS) and Sulfates (SO_4), on a monthly basis. A full suite analysis is also carried out on a quarterly basis and includes analysis for EC, pH, TDS, SS, SO_4, Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Fluoride (Fl), Arsenic (As), Aluminium (Al), Barium (Ba), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chromium (Cr), Iron (Fe), Manganese (Mn), Lead (Pb), Zinc (Zn), Total Alkalinity as $CaCO_3$, Nitrates and Phosphates (total).

Surfactants (detergents) and Total Petroleum Hydrocarbons (TPH) are included in the suite of analysis for the industrial area sump or as required.

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

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

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

Two (2) monitoring episodes were completed during the reporting period. The first in April 2003 (autumn) and the second in October 2003 (spring).

Control Strategy:
The following control measures are employed at the Donaldson Coal Mine 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 way on 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 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.

Chemical & Physical Monitoring:
A summary of three (3) key parameters for the reporting period as well as the pre-mining baseline is included below for reference.

TABLE 20: SUMMARY OF KEY WATER QUALITY PARAMETERS COMPARED WITH PRE-MINING DATA.

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value			Lowest Sample value			Mean Sample Value		
			pH	EC	TSS	pH	EC	TSS	pH	EC	TSS
Four Mile Ck Upstream	12	12	7.0	440	72.0	5.9	160	5.0	6.6	276	32.3
Pre-mining	**---**	**---**	***7.44***	***522***	***90***	***6.7***	***265***	***18***	***7.06***	***276***	***32***
Four Mile Ck Downstream	12	12	7.3	205	66.0	6.1	135	<1	6.9	152	10.6
Pre-mining	**---**	**---**	***7.73***	***265***	***32***	***6.4***	***120***	***2***	***7.15***	***175***	***8***
Scotch Dairy Creek U/S	12	12	6.9	995	269.0	5.6	100	9.0	6.1	726	65.2
Pre-mining	**---**	**---**	***6.81***	***200***	***47***	***5.90***	***71***	***9***	***6.33***	***210***	***22***
Scotch Dairy Creek D/S	12	12	6.5	325	209.0	5.3	90	18.0	5.7	178	71.0
Pre-mining	**---**	**---**	***6.8***	***270***	***1283***	***5.8***	***145***	***12***	***6.43***	***180***	***271***
Weakleys Flat Ck D/S	12	10	7.3	2860	82.0	5.6	195	2.0	6.4	902	24.7
Pre-mining	**---**	**---**	***7.28***	***546***	***17***	***6.4***	***230***	***3***	***7.01***	***419***	***8.2***
Weakleys Flat Ck U/S	12	12	7.1	1790	60.0	6.3	160	1	6.8	731	18.6
Pre-mining	**---**	**---**	***7.49***	***310***	***3***	***6.6***	***200***	***1***	***7.15***	***249***	***2***

A review of the data suggests that the water quality recorded during the period is generally consistent with the water quality recorded prior to the commencement of mining. Three (3) exceptions to this are Scotch Dairy Creek Upstream, Weakleys Flat Creek Upstream and Weakleys Flat Creek downstream. The average EC and TSS increased when compared to baseline averages. These results are consistent with the drier weather experienced with the salts accumulating as the water evaporates. Further, Scotch Dairy Creek Upstream and Weakleys Flat Creek Upstream are both upstream and hence non influenced by mining operations. Weakleys Flat Creek Downstream is located downstream of the mine and could potentially be impacted by mining, however, the similar results between the upstream and downstream sites suggests that the water quality is not being affected by mining operations.

Two samples were not collected from Weakley's Flat Creek Downstream as it was dry when sampled by Ecowise.

The average pH of most sites is within the recommended ANZECC Guideline (pH 6.5 – 9.0) for Fresh and Marine Waters for the protection of aquatic ecosystems. The pH of Scotch Dairy Creek Upstream and Downstream, Weakleys Flat Creek Downstream is just outside this range. The pre-mining baseline average pH of Scotch Dairy Creek is also outside this range, suggesting that mining is not the cause for this moderately low pH. The pH of Weakleys Flat Creek Downstream is very similar to the upstream results again suggesting that mining is not the cause of the low pH.

Overall the water monitoring results indicate that Donaldson has had little or no impact on the surrounding surface water environs.

Biological Monitoring:

Macroinvertebrate monitoring was undertaken on the 17th April and the 10th & 21st October 2003. Six (6) sites are targeted on the three (3) major tributaries traversing the mine site. The 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. The following table shows the results for the last six (6) surveys as well as the baseline survey.

Table 21 MACROINVERTEBRATE MONITORING (SPRING 2003) RESULTS COMPARED WITH BASELINE.

	Four Mile Upstream	Four Mile Downstream	Scotch Dairy Upstream	Scotch Dairy Downstream	Weakleys Flat Downstream	Weakleys Flat Upstream
DIVERSITY						
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 RESULT	30	36	39	32	39	44
SIGNAL INDEX						
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 RESULT	6.0	5.7	5.7	5.6	5.5	5.4
AUSRIVAS						
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 RESULT	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

The following table provides a summary of the RCE ranking results for the last six (6) surveys as well as the baseline survey.

TABLE 22: RCE RANKING FOR THE SIX (6) 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 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
Four Mile 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
Scotch Dairy 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
Scotch Dairy 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
Weakleys Flat 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
Weakleys Flat 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

Similar results and conclusions were identified in the Autumn and Spring reports by Robyn Tuft and Associates (2003a and 2003b). It was noted that the aquatic ecosystem consisted of a relatively diverse assemblage of flora and fauns with biota typical of the Hunter Region. Macroinvertebrates included a number of pollutant sensitive families and apart from Scotch Dairy Creek Upstream, the SIGNAL indices results were similar to the baseline (pre-mining) results. The decline in faunal health at Scotch Dairy Creek Upstream could be attributable to the stagnant and highly turbid conditions of the site. Riparian, Catchment and Environment (RCE) Scores were generally good, apart from the upstream sites of Scotch Dairy Creek and Weakleys Flat Creek, which showed a fair overall condition, mainly from characteristics related to bank characteristics. There was no evidence of substantial deterioration downstream of the mining area.

3.2.5 Ground Water Pollution

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

Groundwater monitoring has been ongoing since June 2000. A map showing the location of the monitoring sites is attached as Appendix 2 of this report. Ecowise Environmental (formerly WTS) has been engaged by Donaldson to undertake routine sampling and analysis. They include the following:

- Twenty seven (27) groundwater piezometers (including the 13 established during EIS and an additional 14 established since the commencement of operations), of which 14 were monitored during this reporting period;
- Two (2) groundwater piezometers along the eastern side of Four Mile Creek; and
- One (1) regional groundwater bore (neighbouring property).

Control Strategy:

Currently 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. The piezometers that are not monitored are either damaged by vandals or are dry. The following includes a summary of the status of those piezo not included in the routine monitoring.

- DPZ1 has been destroyed by mining activities. It will be relocated in the backfill in accordance with the development consent once mining activities have moved away from the area;
- DPZ2 has been unable to be accessed since March 2002;
- DPZ6 is no longer monitored as it does not contain any water;
- DPZ7@25 is a 25mm piezos installed along side the 50mm piezos (in the same drill hole). Water is currently only being taken from DPZ@50 for analysis;
- Vandals have destroyed DPZ11. It has not been re-established because it is located only 150m from DPZ13 and replacement is therefore not considered necessary; and
- DPZ14, DPZ15, DPZ16, DPZ17@24, DPZ17@38.05, DPZ18@72, DPZ18@90, DPZ19@56 and DPZ19@73, have been destroyed by mining activities. They will be relocated in the backfill in accordance with the development consent once mining activities have moved away from the area;

A regional site has also been included in the monitoring program. Of the three (3) potential sites identified during the development of the Water Management Plan (DLWC search), one (1) has been filled in and the other is considered to be to far from the project (6km). REGDPZ1 is the only *regional groundwater* site currently being monitored by Donaldson. It is located in Avalon Estate 1.2km to the north of the active mining area.

The analytes EC, pH, TDS, TSS and SO_4 are routinely taken each month at all of the existing piezometer sites. A full suite analysis is taken every six (6) months and includes analysis of EC, pH, TDS, TSS, SO_4, Ca, Mg, Na, K, Cl, Fl, As, Al, Ba, Cd, Co, Cu, Cr, Fe, Mn, Pb, Zn and Total Alkalinity as $CaCO_3$.

The standing water level of each of the monitoring wells is routinely measured each month. The plan attached as Appendix 2 shows the location of the piezometers in relation to the active mine workings.

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 (3) 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 below for reference. It does not include those sites listed above as no longer being monitored.

TABLE 23: 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*
DPZ3	12	12	7.0	13600	12.95	5.8	720	13.61	6.7	9361	13.49
Pre-mining	---	---	***6.96***	***11350***	***11.51***	***5.99***	***10200***	***12.05***	***6.59***	***10860***	***11.76***
DPZ4(25m)	12	12	4.8	2760	11.05	3.6	2460	12.33	4.1	3570	11.52
Pre-mining	---	---	***5.9***	***2930***	***22.45***	***3.2***	***1690***	***23.55***	***4.95***	***2146***	***22.92***
DPZ4(50m)	12	12	6.1	4120	36.39	5.4	26.3	42.04	5.80	2251	39.69
Pre-mining	---	---	***5.9***	***2930***	***22.45***	***3.2***	***1690***	***23.55***	***4.95***	***2146***	***22.92***
DPZ5	12	11	7.0	7900	6.5	5.5	16.3	12	6.3	3406	7.15
Pre-mining	---	---	***7.21***	***8520***	***5.73***	***6.72***	***4280***	***5.9***	***7.37***	***6986***	***5.81***
DPZ7(50m)	12	12	6.1	2400	22.69	5.8	1990	23.89	5.9	2197	23.06
Pre-mining	---	---	***6.14***	***2390***	***21.47***	***5.36***	***2180***	***22.00***	***5.76***	***2270***	***21.78***
DPZ8	12	12	6.3	2030	24.24	5.7	1650	24.40	5.9	1808	24.33
Pre-mining	---	---	***5.66***	***1820***	***24.35***	***5.46***	***1690***	***24.35***	***5.56***	***1755***	***24.35***
DPZ9	12	12	6.9	3030	17.15	5.9	1670	18.25	6.5	1936	17.98
Pre-mining	---	---	***6.32***	***2940***	***17.37***	***5.47***	***2221***	***17.65***	***6.02***	***2563***	***17.49***
DPZ10	12	12	6.8	3600	13.14	6.4	3210	13.61	6.6	3431	13.39
Pre-mining	---	---	***6.93***	***3760***	***12.4***	***6.48***	***3670***	***12.4***	***6.71***	***3615***	***12.4***
DPZ12	12	11	7.0	13865	15.66	6.4	3300	25	6.6	7235	17.32
Pre-mining	---	---	***No pre-mining samples taken due to access private property***								
DPZ13	12	12	7.7	17100	7.32	6.5	10450	7.42	6.9	13259	7.37
Pre-mining	---	---	***7.22***	***13750***	***7.01***	***6.67***	***12200***	***7.25***	***6.87***	***12907***	***7.14***
DPZ17(62m)	12	12	7.2	3400	19.91	6.7	2430	23.61	6.7	2929	22.87
Pre-mining	---	---	***No pre-mining samples taken –established after mining***								
DPZ18(72m)	12	0	***Bore damaged No data available***								
Pre-mining	---	---	***No pre-mining samples taken –established after mining***								
FMCDPZ1	12	12	7.2	9070	7.03	7.1	5100	8.24	7.2	6833	7.88
Pre-mining	---	---	***6.01***	***2110***	***7.79***	***5.67***	***1930***	***19.26***	***5.84***	***2020***	***10.23***
FMCDPZ2	12	12	6.2	2180	16.84	6.0	1860	17.48	6.1	2016	17.14
Pre-mining	---	---	***7.36***	***4230***	***15.43***	***6.86***	***3560***	***16.5***	***7.12***	***3895***	***16.18***
REGDPZ1	12	12	5.7	10390	20.47	5.0	580	21.22	5.4	1847	20.85
Pre-mining	---	---	***6.95***	***1310***	***19.48***	***4.72***	***760***	***19.6***	***5.72***	***1100***	***19.53***

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

Following a review of the data the following can be observed:

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. There are two (2) exceptions to this, which are DPZ3 and DPZ4. DPZ3 has shown a lowering of groundwater in the last AEMR but has remained relatively stable this year. The location of this site relative to the active pit areas suggests that the variation is not related to groundwater draw down. DPZ4 on the other hand has continued to exhibit falling groundwater levels and while the pit is still some distance from the piezo it is possible that localised draw down on the groundwater has caused the standing water level to drop.

DPZ14, DPZ15, DPZ16 & DPZ19 have all been destroyed by mining activities. Prior to these sites being mined through, there was a very obvious trend of lowering standing water level attributed to groundwater draw down. These trends were identified in the EIS and were expected. Piezos will be re-established in these locations once the mining has been completed and backfilled so that water ingress back into the mined out area can be monitored.

A review of the water quality data suggests that the water quality recorded during the period is consistent the water quality recorded prior to the commencement of mining apart from bore FMCDPZ1, which has shown signs of increasing pH and EC. This bore is located at some distance, approximately 2 km, west of mining activities and the changes at this bore are unlikely to be a result of mining activities. The average pH and EC for other groundwater bores has remained relatively similar or has improved when compared to average pre-mining baseline averages. This indicates that Donaldson Coal has had little or no impact on water quality of the surrounding off site ground water resources.

3.2.6 Contaminated Polluted 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 paced 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 work shop 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; and

- 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.

- A landfarm 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)) has not been recorded in routine environmental monitoring of the Industrial Area Dam. Ongoing monitoring and routine inspections will continue to observe the occurrence of spills (accidental or otherwise).

3.2.6 Threatened Flora

There was one (1) 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 (400) 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 supports both financially and technically, an honours student completing studies in Environmental Management at the University of Newcastle. The project commenced in January 2002 and is considering the ecology and growth of *Tetratheca juncea*. It is expected to be completed in late 2003.

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 (100) 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, however an extended dry period has meant that the flowering period has been significantly reduced or non-existent, meaning that a count was not possible during the reporting period. A population count is planned for the 2003 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 Mytotis; 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.

An annual report is produced compiling the work undertaken throughout the year, along with detailed annual data interpretation and comparison with the baseline study.

In addition Donaldson Coal supports both financially and technically, an honors student completing studies in Environmental Management at the University of Newcastle. The project commenced in July 2002 and is considering 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. The project is expected to be completed in late 2003.

Environmental Performance:
The monitoring undertaken to date suggests that there is no evidence of any significant impact on the local fauna

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 one hundred and seventeen (117) blasts were undertaken at the mine during the 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 (5) permanent blast monitoring stations (measuring peak particle velocity - ppv (mm/s) and Airblast (dB Linear) were installed and commissioned at the five (5) locations described below. A map showing their location has been attached as Appendix 2 of this report. The following is a list of the sites:

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

The nearest unit to the mine (Weakleys Drive) was established as a trigger unit. When it records a blast at the mine it dials 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.

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 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 24. The maximum vibration (peak particle velocity) recorded at any of the sites during the reporting period was 1.502mm/s, which is well below the 5mm/s limit prescribed by the Development Consent and the EPA licence.

TABLE 24: SUMMARY OF PEAK PARTICLE VELOCITY (ppv) MONITORING RESULTS.

Sample Site (mm/s)	No Samples Required	No samples collected and analysed	Highest Sample Value	Lowest Sample value	Mean Sample Value
Weakleys Dr (Chidgey)	117	110	1.502	0.026	0.188
Fairfax Printing	117	108	0.653	0.026	0.112
Avalon Estate	117	105	0.555	0.026	0.140
Bartter Farms	117	108	1.450	0.019	0.235
HWC Pipeline	117	110	1.439	0.025	0.180

A summary of the overpressure monitoring results for blasts undertaken during the period is presented in Table 25 below. All recorded blast overpressures were below 115dB(L). The maximum overpressure recorded was 113.4 dBL at the Bartter Farms monitor on the 25th September 2003.

TABLE 25: SUMMARY OF OVERPREASURE (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)	117	110	109.3	88.6	98.8
Fairfax Printing	117	108	113.1	87.2	99.1
Avalon Estate	117	105	113.3	84.2	99.8
Bartter Farms	117	108	113.4	88.8	100.1
HWC Pipeline	117	110	110.6	85.3	96.4

Overall the data capture rate during the reporting period has been good. Table 26 shows the data capture rate for each of the blast monitoring units during the reporting period. Five (5) 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 (%) both with and without the smaller blasts.

TABLE 26: SUMMARY OF DATA CAPTURE RATES – BLAST MONITORING UNITS

Monitoring Location:	% Data Capture (including small blasts)	% Data Capture (excluding small blasts)
Chidgey (Weakleys Drive)	94.0	98.2
Fairfax Regional Printing Press	92.3	96.4
McDonnell's (Avalon Estate)	89.7	93.8
Bartter Enterprises	92.3	96.4
Hunter Water Pipeline	94.0	98.2
OVERALL:	92.5	96.6

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. At Avalon Estate, Five (5) of the blasts were not monitored during the period as the property owner requested that the monitor be removed. The monitor was re-installed following this short period.

Data capture rates have improved since the last reporting period and will continue to improve. This has and will be 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 & Associates[2] have completed four (4) routine quarterly noise surveys for Donaldson during the reporting periods. The dates for the surveys are as follows:

- Friday 1st November 2002 through to Wednesday 6th November 2002;
- Tuesday 18th February 2003 through until Tuesday 25th February 2003;
- Friday 23rd May through until Thursday 29th May 2003; and
- Friday 12th September through until Thursday 18th September 2003.

Four (4) continuous environmental noise loggers were deployed. In order to focus monitoring in the areas most likely to be effected by noise from the mine, loggers were deployed at the following locations.

- Ashtonfield;
- Avalon Estate (Thornton);
- Weakleys Drive (Beresfield); and
- Bartter Poultry Farms (Black Hill).

Operator attended surveys were also conducted at each of the four (4) locations to verify the unattended logging results and to determine the character and contribution of noise sources to the total ambient noise.

The following table shows the location of the monitoring sites in comparison to the requirements of the development consent.

TABLE 27: LIST OF MONITORING SITES REQUIRED UNDER THE CONSENT.

Location as described in Condition (15)	Donaldson Monitoring location
Beresfield Area (residential)	Locations A, B
Bartter (formerly Steggles) Chicken Farms	Location K
Ashtonfield Area	Location I
Thornton Area	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;

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

- 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 Survey

(Friday 1st November 2002 through to Wednesday 6th November 2002).
The summary of results below describes the noise statistics during the monitoring period compared with the baseline statistics collected prior to the commencement of mining.

TABLE 28: UNATTENDED CONTINUOUS MONITORING AMBIENT NOISE LEVELS.

Location	Period	L_{A1}		L_{A10}		L_{Aeq}		L_{A90}	
		B/Line	Nov 02	B/Line	Nov 02	B/Line	Nov 02	B/Line	Nov 02
A Weakleys Drive Beresfield	Daytime	60	57	56	54	54	52	45	44
	Evening	61	58	57	54	57	52	48	45
	ENCM Daytime	---	57	---	54	---	51	---	44
	Night	60	58	54	52	52	50	39	37
I Lord Howe Dr Ashtonfield	Daytime	57	57	50	52	54	50	39	39
	Evening	64	58	53	52	55	50	41	43
	ENCM Daytime	---	58	---	52	---	50	---	38
	Night	55	56	47	50	52	49	33	36
J Kilarney Street Avalon Estate	Daytime	56	59	51	55	53	54	44	49
	Evening	53	56	49	53	57	53	42	48
	ENCM Daytime	---	59	---	55	---	54	---	48
	Night	51	54	48	51	47	50	35	39
K Bartter Farm 6 Black Hill	Daytime	57	56	52	51	53	56	41	41
	Evening	54	54	50	50	49	49	40	42
	ENCM Daytime	---	55	---	51	---	56	---	40
	Night	54	52	49	48	48	54	35	32

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Ambient LA_{90} Noise Levels
The ambient LA_{90} noise levels recorded for all periods are generally lower than the levels measured for the baseline monitoring process for locations K (Bartter Farm 6), A (Weakleys Drive) and I (Lord Howe drive). The ambient LA_{90} noise levels recorded for all periods are generally higher than the levels measured for the baseline monitoring process for location J (Avalon Estate). Relocation of the logger at the Avalon Estate monitoring site closer to the New England Highway is likely to be responsible for the elevated noise levels during the daytime at this location.

A comparison of this monitoring period with the same monitoring period in 2001 indicated that LA_{90} noise levels recorded during all periods were generally lower for all locations and significantly lower at location A (Weakleys Drive). The reductions in noise levels are most likely due to the lack of insects present during this monitoring period compared to the same period in 2001.

Ambient LA_{10} Noise Levels

Daytime and night-time LA_{10} noise levels during this period were similar to the baseline survey at locations A (Weakleys Drive), I (Lord Howe Drive) and K (Bartter Farm 6). Measured noise levels are higher than levels monitored during the baseline survey at location J (Avalon Estate). The higher LA_{10} levels for the Avalon estate location is likely to be a result of moving the site closer to the New England Highway as detailed in the previous report. A comparison of the night-time LA_{10} monitoring data from the same period in 2001 indicates that the LA_{10} noise level has generally decreased at all locations again due to the lack of insect noise.

A comparison with the previous September 2002 monitoring period indicates that the only significant change occurred at location I (Lord Howe drive) where there was an increase of 4dB during the Night-time and evening periods.

(Tuesday 18th February 2003 through to Tuesday 25th February 2003)

The summary of results below describes the noise statistics during the monitoring period compared with the baseline statistics collected prior to the commencement of mining.

TABLE 29: UNATTENDED CONTINUOUS MONITORING AMBIENT NOISE LEVELS.

Location	Period	L_{A1}		L_{A10}		L_{Aeq}		L_{A90}	
		B/Line	Feb 03	B/Line	Feb 03	B/Line	Feb 03	B/Line	Feb 03
A Weakleys Drive Beresfield	Daytime	60	60	56	57	54	56	45	50
	Evening	61	59	57	55	57	54	48	48
	ENCM Daytime	---	60	---	56	---	55	---	49
	Night	60	58	54	55	52	55	39	45
I Lord Howe Dr Ashtonfield	Daytime	57	56	50	51	54	55	39	44
	Evening	64	53	53	48	55	53	41	41
	ENCM Daytime	---	58	---	53	---	55	---	42
	Night	55	48	47	45	52	46	33	36
J Spotted Gum Avalon Estate	Daytime	56	58	51	56	53	54	44	50
	Evening	53	56	49	54	57	55	42	48
	ENCM Daytime	---	58	---	56	---	48	---	51
	Night	51	54	48	51	47	50	35	40
K Bartter Farm 6 Black Hill	Daytime	57	56	52	53	53	50	41	45
	Evening	54	54	50	50	49	49	40	43
	ENCM Daytime	---	55	---	52	---	50	---	44
	Night	54	54	49	51	48	55	35	41

Ambient LA_{90} Noise Levels

The ambient LA_{90} noise levels recorded during all periods are generally higher than the levels measured for the baseline monitoring process for all locations. Relocation of the logger at location K(Avalon Estate), closer to the highway and road works at site A(Weakleys drive) is likely to be responsible for the elevated noise levels at these sites. A comparison with the same monitoring period in 2002 indicates that noise levels are generally similar or lower in LA_{90} noise levels at all monitoring locations. A significant reduction at location K)barter farm 6) may be due to a reduction in insect noise at this site. A comparison to the December 2002 quarter indicates

that LA_{90} noise levels have not varied significantly at any of the locations apart from the higher levels at Weakleys drive attributed to the road works.

Ambient LA_{10} Noise Levels

Daytime and night-time LA_{10} noise levels during this period were similar to the baseline survey at locations A (Weakleys Drive), I (Lord Howe Drive) and K (Bartter Farm 6). Measured noise levels are higher than levels monitored during the baseline survey at location J (Avalon Estate). The higher LA_{10} levels for the Avalon estate location is likely to be a result of moving the site closer to the New England Highway as detailed in the previous report. A comparison of the night-time LA_{10} monitoring data from the same period in 2001 indicates that the LA_{10} noise level has generally decreased at all locations.

A comparison with the previous December 2002 monitoring period indicates that the only significant change occurred at location A (Weakleys Drive) where there was an increase of 3dB during the Night-time and daytime periods. This increase was due to road works on Weakleys drive and was confirmed by the attended survey. Refer to the next section for further discussion.

(Friday 23rd May through until Thursday 29th May 2003)

The summary of results below describes the noise statistics during the monitoring period compared with the baseline statistics collected prior to the commencement of mining.

TABLE 30: UNATTENDED CONTINUOUS MONITORING AMBIENT NOISE LEVELS.

Location	Period	L_{A1}		L_{A10}		L_{Aeq}		L_{A90}	
		B/Line	May 03	B/Line	May 03	B/Line	May 03	B/Line	May 03
A Weakleys Drive Beresfield	Daytime	60	60	56	57	54	58	45	47
	Evening	61	58	57	54	57	52	48	44
	ENCM Daytime	---	59	---	55	---	57	---	42
	Night	60	58	54	53	52	51	39	38
I Lord Howe Dr Ashtonfield	Daytime	57	55	50	50	54	51	39	40
	Evening	64	54	53	52	55	51	41	43
	ENCM Daytime	---	57	---	54	---	53	---	38
	Night	55	51	47	47	52	49	33	43
J Spotted Gum Avalon Estate	Daytime	56	59	51	58	53	56	44	52
	Evening	53	58	49	56	57	54	42	48
	ENCM Daytime	---	60	---	58	---	55	---	48
	Night	51	56	48	53	47	51	35	39
K Bartter Farm 6 Black Hill	Daytime	57	58	52	54	53	53	41	46
	Evening	54	56	50	52	49	51	40	45
	ENCM Daytime	---	58	---	54	---	52	---	44
	Night	54	55	49	51	48	49	35	41

Ambient LA90 Noise Levels

The summary of results in Table 26 shows that ambient LA90 noise levels recorded during all periods were generally higher than levels measured for the baseline monitoring process for all locations. Relocation of the logger at Location J (Avalon Estate), closer to the highway is likely to be responsible for the elevated LA90 noise levels. Night-time LA90 levels at Location I (Lord Howe Drive) were 10 dBA higher than baseline levels. Such a significant increase in background levels is explained by the high occurrence of frogs in the area due to consistently high levels of rain over the previous two months.

A comparison of this monitoring period with the same monitoring period in 2002 indicates that noise levels recorded during all periods were generally similar or lower for all locations, with the

exception of night time LA90 levels at Location I (Lord Howe Drive) were 6 dBA higher than for the same period in 2002. Again, this is explained by the presence of the aforementioned frogs.

A comparison of this monitoring period with the March 2003 quarterly survey also indicates that LA90 noise levels have not varied significantly at any of the locations, except at Location A (Weakleys Drive), where the LA90 levels were 3 dBA, 4 dBA and 7 dBA lower during day, evening and night time periods respectively. Such a reduction is explained by the completion of roadworks adjacent to the monitoring site as referred to in RHA Report 30-1053-R9 and the general decrease in thee presence of insects in the area. Night-time LA90 levels at Location I (Lord Howe Drive) were 7 dBA higher than the previous quarter's levels, and can only be explained by the presence of frogs already mentioned.

Ambient LA10 Noise Levels

Daytime and night-time LA10 noise levels during the June 2003 quarterly monitoring period are similar to the baseline monitoring period at all locations. Measured LA10 noise levels are higher than levels monitored during the baseline study at Location J (Avalon Estate). This change is likely to have resulted from the relocation of the noise logger from Killarney Street to Spotted Gum Road, approximately 200 metres closer to the New England Highway.

A comparison of night-time LA10 noise levels with the same period in 2002 indicates that the LA10 noise levels are generally the same at all locations.

A comparison of this monitoring period with the March 2003 quarterly survey indicates no significant changes in LA10 levels occurred for all Locations.

(Friday 12th September through until Thursday 18th September 2003)

The summary of results below describes the noise statistics during the monitoring period compared with the baseline statistics collected prior to the commencement of mining.

TABLE 31: UNATTENDED CONTINUOUS MONITORING AMBIENT NOISE LEVELS.

Location	Period	L_{A1}		L_{A10}		L		L_{A90}	
		B/Line	Sep 03	B/Line	Sep 03	B/Line	Sep 03	B/Line	Sep 03
A Weakleys Drive Beresfield	Daytime	60	60	56	57	54	55	45	50
	Evening	61	58	57	53	57	52	48	46
	ENCM Daytime	---	60	---	56	---	54	---	46
	Night	60	57	54	52	52	50	39	38
I Lord Howe Dr Ashtonfield	Daytime	57	62	50	56	54	56	39	42
	Evening	64	53	53	48	55	50	41	38
	ENCM Daytime	---	60	---	54	---	54	---	39
	Night	55	49	47	45	52	45	33	35
J Spotted Gum Avalon Estate	Daytime	56	62	51	60	53	58	44	55
	Evening	53	58	49	56	57	54	42	50
	ENCM Daytime	---	61	---	60	---	57	---	50
	Night	51	56	48	53	47	52	35	40
K Bartter Farm 6 Black Hill	Daytime	57	60	52	56	53	54	41	48
	Evening	54	56	50	52	49	51	40	45
	ENCM Daytime	---	58	---	53	---	54	---	46
	Night	54	55	49	50	48	49	35	36

Ambient LA90 Noise Levels

The summary of results in Table 27 shows that ambient daytime LA90 noise levels recorded for the September 2003 quarter were generally higher than levels measured for the baseline monitoring process for all locations. Daytime LA90 noise levels at Location K (Bartter

Enterprises) were higher due to roadworks on John Renshaw Drive. Relocation of the noise logger from Kilarney 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 to baseline noise levels.

A comparison of this monitoring period with the same monitoring period in 2002 indicates that noise levels recorded during all periods were generally similar or lower for Location A (Weakleys Drive) and Location I (Lord Howe Dr). Correspondingly, noise levels recorded during all periods at Location J (Avalon Estate) and Location K (Bartter Enterprises) were generally similar or higher.

A comparison of this monitoring period with the June 2003 quarterly survey also indicates that LA90 noise levels have not varied significantly at any of the locations, except at Location I (Lord Howe Dr), where the LA90 levels are 5 dBA and 8 dBA lower during the evening and night time periods respectively. Such a reduction could only be explained by the absence of frogs present during the previous monitoring period as referred in RHA Report 30-1053-R11.

Ambient LA10 Noise Levels

Daytime and night-time LA10 noise levels during the September 2003 quarterly monitoring period are similar to the baseline monitoring period at all locations except at Location J (Avalon Estate). Measured LA10 noise levels are higher than levels monitored during the baseline study at Location J (Avalon Estate). This change is likely to have resulted from the relocation of the noise logger closer to the New England Highway.

A comparison of night-time LA10 noise levels with the same period in 2002 indicates that the LA10 noise levels are generally the same at all locations.

A comparison of this monitoring period with the June 2003 quarterly survey indicates no significant changes in LA10 levels for all monitoring locations.

Results of Attended Survey

(Friday 1st November 2002 Daytime and Tuesday 5th November 2002 evening and night time).

The summary of results below details the noise statistics recorded by the consultant (including comments) during the monitoring period.

Traffic noise generated by local and distant traffic was observed as the most significant contributor to noise levels at most of the receiver sites.

Mine operations were audible during the daytime surveys at Weakleys Drive however the LA_{10} contribution was not able to be measured above the background noise level.

Despite being audible on some occasions, the LA_{10} noise emission was less than the limits outlined within the development consent during all operator attended surveys.

TABLE 32: ATTENDED SURVEY – (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}	
01/11/02 1130hrs Day Wind = 1.5-2.m/s NE Temp = 31°C	Ambient	64	60	57	49	54	Near Traffic to 60 Birds/Insects to 54 Donaldson Mine inaudible
05/11/02 2100hrs Evening Wind = Still Temp=21 °C	Ambient	60	58	54	49	52	Crickets to 54 Near Traffic to 52 Truck to 58 Donaldson Mine inaudible
05/11/02 2245hrs Night Wind = still Temp = 17°C	Ambient	67	53	52	47	50	Far traffic ~ 52 Truck to 55 Crickets 49 Donaldson Mine trucks audible for a short time but was not contributing to L10.

TABLE 33: ATTENDED SURVEY – (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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
01/11/02 1210hrs Day Wind = 1-1.5m/s NE Temp = 25 °C	Ambient	58	52	50	45	48	Birds to 48 Water pump at residence ~40 Far traffic to 47 Wind in trees to 50 Donaldson Mine inaudible
05/11/02 2145hrs Evening Wind = Still Temp = 19°C	Ambient	63	54	51	45	49	Far traffic to 40-42 Near traffic 55-57 Donaldson Mine inaudible
05/11/02 2200hrs Night Wind = still Temp = 19°C	Ambient	59	51	49	44	47	Far traffic 40-46 Near traffic 55-57 Donaldson Mine inaudible

TABLE 34: ATTENDED SURVEY – (LOCATION J) 27 SPOTTED GUM RD, 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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
01/11/02 1130hrs Day Wind = 0.5-1.5m/s Temp = 25°C	Ambient	65	58	55	51	54	Birds to 65 Traffic to 55 Donaldson Mine inaudible
05/11/02 2120hrs Evening Wind= still Temp = 20 °C	Ambient	65	54	51	45	59	Crickets to 52 Traffic to 50 Donaldson Mine inaudible
05/11/02 2220hrs Night Wind = still Temp = 18°C	Ambient	55	53	50	42	45	Crickets 49-51 Nearby car passby 54 Donaldson Mine inaudible

TABLE 35: ATTENDED SURVEY – (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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
01/11/02 1300hrs Day Wind = 2.5-3m/s E Temp = 31°C	Ambient	69	56	53	48	51	Near Traffic to 52 Donaldson Mine inaudible
05/11/02 2040hrs Evening Wind = Still Temp = 21°C	Ambient	86	81	69	49	67	Near Traffic to 79 Non Donaldson Trucks to 85 Donaldson Mine inaudible
05/11/02 2300hrs Night Wind = Still Temp = 17°C	Ambient	80	77	69	48	65	Near traffic to 79 Donaldson Mine inaudible

(Tuesday 18th February 2003 evening and night time and Tuesday 25th February 2003 daytime)

The summary of results below details the noise statistics recorded by the consultant (including comments) during the monitoring period.

Traffic noise generated by local and distant traffic was observed as the most significant contributor to noise levels at most of the receiver sites.

Mine operations were audible during the night time surveys at locations J(Avalon estate) and K(Bartter Farm), however the LA_{10} contribution not able to be measured above the background noise levels. Mine noise was described as being short duration and would not have contributed to L10 levels.

Donaldson Mine operations were observed to be inaudible during all other attended survey periods. This indicates that the noise recorded around the mine was largely dominated from distant traffic and other natural sources rather than the mine.

TABLE 36: ATTENDED SURVEY – (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}	
25/02/03 1220hrs Day Wind = 1.5-2m/s N Temp = 28°C	Ambient	64	63	61	57	59	Near traffic to 58 Insects constant 58 Non Donaldson truck 64 Donaldson Mine inaudible
18/02/03 2055hrs Evening W = Still Temp = 24 °C	Ambient	61	59	55	50	53	Far traffic - 46 Near Traffic to 52-53 Non Donaldson truck to 60 Insects 48-49 Donaldson Mine inaudible
18/02/03 2245hrs Night W = Still Temp = 24 °C	Ambient	61	59	55	47	52	Crickets 46-49 Far traffic - 45 Non Donaldson Trucks to 60 Near traffic 50 Donaldson Mine inaudible

TABLE 37: ATTENDED SURVEY – (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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
25/02/03 1320hrs Day Wind = 1.5m/s N Temp = 27°C	Ambient	57	53	50	46	48	Far traffic 43 Near traffic 52 Birds to 48 Resident 47-49 Water pump at residence ~40 Donaldson Mine inaudible
18/02/03 2140hrs Evening W = Still Temp = 24 °C	Ambient	56	52	51	48	50	Far traffic 40 – 42 Insects 47 Donaldson Mine inaudible
18/02/03 2220hrs Night W = Still Temp = 24°C	Ambient	61	52	51	48	50	Far traffic 41 Insects 47 Near traffic 59 Donaldson Mine inaudible

TABLE 38: ATTENDED SURVEY – (LOCATION J) 27 SPOTTED GUM RD, 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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
25/02/03 1250hrs Day Wind = 1.5m/s N Temp = 29°C	Ambient	62	57	55	51	53	Traffic to 52 Nearby non Donaldson excavator 62 Birds and Insects 50-54 Donaldson Mine inaudible
18/02/03 2115hrs Evening W = Still Temp = 24°C	Ambient	54	52	49	46	49	Insects 44 – 49 Far traffic 43 Donaldson Mine inaudible
18/02/03 2225hrs Night W = Still Temp = 24°C	Ambient	53	51	49	44	47	Insects 43-48 Far traffic 40-42 Mine truck audible 38-40, not contributing to L10 Donaldson Mine audible

TABLE 39: ATTENDED SURVEY – (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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
25/02/03 1200hrs Day Wind = 1.5m/s N Temp = 31°C	Ambient	63	54	51	45	49	Traffic to 46-49 Non Donaldson trucks 54-57 Donaldson Mine inaudible
18/02/03 2030hrs Evening W = Still Temp = 25°C	Ambient	82	78	71	43	66	Near traffic to 82 Insects 43-44 Donaldson Mine inaudible
18/02/03 2310hrs Night W = Still Temp = 23°C	Ambient	87	81	66	40	67	Near traffic to 74 Non Donaldson trucks to 85 Mine trucks audible during lulls Donaldson Mine audible Estimated contribution L_{A10} = 32-35dBA

(Friday 23rd May through until Thursday 29th May 2003)

The summary of results below details the noise statistics recorded by the consultant (including comments) during the monitoring period.

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

Recent rain has resulted in increased insect noise, especially at Location I (Lord Howe Drive), and Location A (Weakleys Drive).

Mine operations were occasionally audible during the evening surveys at Location I (Lord Howe Drive), however, the contribution was not able to be measured above the background noise level. The duration of these noise events were for a few seconds, and would not have contributed to the overall LA10 level.

Donaldson Mine operations were observed to be inaudible during all other survey periods.

TABLE 40: **ATTENDED SURVEY** – 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}	
29/05/03 1050 Day W = calm Temp=19°C	Ambient	70	60	56	47	53	Near traffic to 56-60 Birds 46-48 Donaldson Mine inaudible
28/05/03 2105 Evening W = still Temp=14°C	Ambient	60	55	53	48	51	Frogs 50-52 Trucks to 60 Donaldson mine inaudible

TABLE 41: **ATTENDED** SURVEY – 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}	
29/05/03 1130 Day W = calm Temp=19°C	Ambient	57	49	46	39	43	Birds 40, Frog/Cricket 44-46 Water pump at residence ~40 Far Traffic 39 Donaldson Mine inaudible
28/05/03 2150 Evening W = still Temp = 13°C	Ambient	67	64	61	44	56	Frogs 44 to 67 Dog barking to 50 Constant frogs and far traffic ~42 Donaldson Mine inaudible
28/05/03 2205 Night W = still Temp = 13°C	Ambient	67	64	56	44	54	Frogs 44 to 67 Dog barking to 63 Occasional traffic audible along mine access road <35, not measurable above frogs Occasional reversing alarms audible at 1KHz – to ~5

TABLE 42: **ATTENDED SURVEY** 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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
29/05/03 1110 Day W = calm Temp = 19°C	Ambient	59	58	57	52	55	Traffic 52 Trucks to 58 Donaldson mine inaudible Reverse beeper from landscape supplies 53
28/05/03 2125 Evening W = still Temp = 14°C	Ambient	71	53	50	45	48	Far traffic 45-46 Occasional trucks to 53 Donaldson mine inaudible

TABLE 43: ATTENDED SURVEY – 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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
29/05/03 1015 Day W = calm Temp = 19°C	Ambient	61	57	52	45	50	Birds 40-42 Near traffic 47-50 Far traffic 40 Donaldson mine inaudible
28/05/03 2040 Evening W = still Temp = 14°C	Ambient	82	80	74	48	69	Near traffic 70 to 82 Mine trucks occasionally audible during quieter periods - maximum levels below 40

(Friday 12th September through until Thursday 18th September 2003)

The summary of results below details the noise statistics recorded by the consultant (including comments) during the monitoring period.

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 roadworks being conducted opposite the monitoring location on John Renshaw Drive.
Mine operations were occasionally audible during the daytime surveys at Location J (Avalon Estate), however, the contribution was not able to be measured above the background noise level. The duration of these noise events were for a few seconds, and would not have contributed to the overall LA10 level.

Donaldson Mine operations were observed to be inaudible during all other survey periods.

TABLE 44: **ATTENDED SURVEY** – 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}	
12/09/03 0915 Day W= Calm Temp=19°C	Ambient	62	59	56	49	53	Birds 50-52 Near Traffic 53-54 Far Traffic 47 Trucks 55-58 Truck body rattle 61 Donaldson mine inaudible
30/09/03 2050 Evening W= 1 m/s E Temp=13°C	Ambient	61	57	54	48	51	Near Traffic 51-53 Far Traffic 45 Trucks 54-58 Donaldson mine inaudible
30/09/03 2300 Night W= Calm Temp=11°C	Ambient	60	55	52	45	49	Far traffic, 45-49 Truck to 56 Donaldson mine inaudible

TABLE 45: **ATTENDED** SURVEY – 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}	
12/09/03 1015 Day W= Calm Temp=19°C	Ambient	57	50	45	42	44	Birds 45-50 Reverse Beeper 44 Far Traffic 41
30/09/03 2115 Evening W= 1m/s E Temp=13 °C	Ambient	56	51	47	42	45	Far traffic 41-43 Donaldson mine inaudible
30/09/03 2220 Night W=0-1m/s NE Temp=11 °C	Ambient	53	49	46	41	43	Far traffic 40-42 Near traffic to 53 Donaldson mine inaudible

TABLE 46: **ATTENDED SURVEY** 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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
12/09/03 940 Day W= Calm Temp=19°C	Ambient	60	62	58	53	56	Birds 52-55 Reverse Beeper (mine) 52 Near Traffic 52-55 Trucks 55-58
30/09/03 2140 Evening W= Calm Temp=13°C	Ambient	62	59	56	52	54	Traffic 45-54 Loud truck to 57 Donaldson mine inaudible
30/09/03 2200 Night W= Calm Temp=12°C	Ambient	59	57	55	51	53	Truck to 54 Traffic 50-51 Donaldson mine inaudible

TABLE 47: ATTENDED SURVEY – 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}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	
12/09/03 1045 Day W= 1.5m/s NW Temp=19°C	Ambient	59	56	54	49	52	Roadworks - John Renshaw Drive Road Sweeper 50-52 Reverse Alarms 49 Near Traffic 53-55 Birds 46-50
30/09/03 2030 Evening W= 1.5 m/s NE Temp=14°C	Ambient	60	54	51	46	49	Near traffic to 55 Far traffic to 45 Donaldson mine inaudible
30/09/03 2240 Night W= Calm Temp=11°C	Ambient	58	54	51	43	48	Near traffic to 45 Far traffic 42-43 Donaldson mine inaudible

Complaints Based Noise Monitoring

No additional monitoring was required in this reporting period.

3.2.12 Visual and Stray Lighting

Impacts on visual amenity were identified as one (1) 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 is 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 (31) sites of Aboriginal Cultural Heritage have been identified on property owned by Donaldson Coal. Seven (7) 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.

A summary table showing the known Aboriginal Cultural heritage sites is attached as Appendix 3 of this report.

Three (3) additional sites (ISF4, ISF5 and ISF6) have been identified ahead of mining activities proposed for the next AEMR period. The field inspections have been undertaken and the applications for consent to destroy are currently being compiled in consultation with the Mindaribba Local Aboriginal Lands Council (MLC) prior to being submitted to the NPWS.

Archaeological Studies
Donaldson has been the subject of four (4) 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 3 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 (6) monthly monitoring surveys at seven (7) 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 regime will be prepared 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 regime will be progressively developed for the Donaldson site and will take 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. A bushfire management review is currently being undertaken and a formal Bushfire Management Plan will be completed in 2004.

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 reduction was undertaken during the period of this report. Hazard reduction will be implemented in the next AEMR reporting period as determined by the Bushfire management Plan and the advice of the local fire brigade. This 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 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 were no externally reportable incidents recorded at the mine during the reporting period. Notwithstanding this, there were sixteen (16) internal environmental incidents reported as a requirement of the Environmental Management Strategy. The following table shows the nature of those incidents.

TABLE 48: LIST OF INTERNAL ENVIRONMENTAL INCIDENTS REPORTED.

Nature of the Incident	Number Recorded
Oil spill to ground during Service & Maintenance	7
Diesel spill overflow when filling tanks	2
Topsoil lost during overburden stripping	1
Water leak from split pipe	3
Blasting (overpressure at power pole)	1
Ineffective water sediment controls	2

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.

4 COMMUNITY RELATIONS

The following 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 has only been one (1) complaint received by Donaldson on the 1800 111 271 community hotline during the reporting period, compared to thirty three (33) received last reporting period.

The following table is a summary of the complaints, including a brief description of the issue and the actions/ outcomes of the complaint. The Donaldson Coal Environmental Officer investigated the complaint and currently there are no complaints unresolved.

TABLE 49: SUMMARY OF COMPLAINTS RECEIVED BY DONALDSON COAL

Location	Date of Complaint	Time	Description	Actions/ Outcomes
Avalon Estate	23/01/03	9.45am	Excessive noise heard at 8.30pm and then again at 2.30am on Tuesday.	No further action required. Complainant will notify the mine when noise is excessive so that measurements can be taken at the time of the incident.

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 (4) CCC meetings held during the reporting period, two (2) of which included a facility inspection and site based meeting. The following table shows the dates of the meetings, where they were held and how many CCC members attended each meeting:

TABLE 50: COMMUNITY CONSULTATIVE COMMITTEE (CCC).

Date	Location	No. of attendees
4th November 2002	Hunter Valley Training Centre	7
24th February 2003	Hunter Valley Training Centre	8
12th May 2003	Donaldson Coal	8
15th September 2003	Donaldson Coal	10

4.2.2 Site Tours/Inspections

The CCC was invited to visit the mine on two (2) 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 has been produced and distributed to approximately 1200 homes on two (2) occasions during the reporting period, September/October 2002 and June 2003. 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. Copies of the Community Newsletters are 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 Six Monthly Environmental Monitoring Report, pictures of the mine and general information. It also contains a list of contact should anyone wish to contact the mine directly either by telephone or e-mail.

4.3 SOCIAL/ECONOMICAL CONTRIBUTIONS

The following 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 (10) staff mainly within a technical services and management/supervision role. The following table shows the breakdown of numbers for key functional areas as well as the percentage living in the Maitland Area.

TABLE 51: 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 five (75) full-time employees mainly in the production, maintenance and management areas. The following table shows the breakdown of numbers for key functional areas as well as the percentage living in the Maitland Area.

TABLE 52: SUMMARY OF COOKS CONSTRUCTION EMPLOYEE STATISTICS

Functional Area:	No.	Place of Residence
Management/Supervisor	11	Maitland (55%), Other (45%)
Maintenance/Production	64	Maitland (45%) Other (55%)

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 enables a number of skilled workers an opportunity that may have otherwise not been available.

In addition there has been the roll on effect. The Environmental Impact Statement (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 Programmes 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(5) individuals from the local Mindaribba Aboriginal Lands Council; and
- Donaldson provided additional large logs to the joint project run by the DLWC and the Macquarie University which re-established logs in a tributary of the Wollimbi Creek. The project aim to provide creek bank stability as well as habitat for native fish and other aquatic fauna. Logs were also provided to a similar project on the Gloucester River.

5 REHABILITATION

The following section of the report 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 28 hectares were rehabilitated including the provision of drainage controls to provide a stable landform in line with MOP requirements.

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.

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

Prior to this report, there had been limited rehabilitation as disturbed areas were part of current mining operations or involved in acid material investigation research. However, in 2003, areas were available due to the progression of mining operations. Approximately 28 hectares of rehabilitation were completed in the period of this report. The latest rehabilitation plan is provided in Appendix 8. The MOP target to date was 45.97 Ha (of which 33.5 Ha has been completed). The remaining balance was not completed pending the finalization of the AMD investigations by URS. The area is shaped and ready for rehabilitation and will be completed in accordance with the schedule for 2004 which has a target of 69.79 Ha.

In 2004, 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.

The acid material investigation works has delayed some of the rehabilitation programs on the out of pit overburden dumps. A program of amelioration, in accordance with the report prepared by URS Australia Pty Limited, has now been commenced and involves spreading lime over the overburden material prior to topsoiling.

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 has 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). This Management Plan has yet to be finalised to take into account the recommendations in the URS final report.

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

6. ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD

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

- A complete review of site environmental aspects and their associated risks;
- Finalisation of the Site Environmental Management System in conjunction with Cooks Constructions; and
- Finalisation of the Rehabilitation Management Plan now that the final recommendations from URS Australia Pty Limited have been received.

7. DEVELOPMENT CONSENT COMPLIANCE REVIEW

Condition 117 of the Ministers Conditions of Approval (MCoA) requires an environmental audit of Donaldson Coal. The audit is required at two yearly intervals after the commencement of mining by an independent environmental auditor. The first audit required under condition 117 was conducted in February 2003 by Trevor Brown and Associates.

There was substantial compliance with the development consent with most conditions considered to be in compliance. The following summary of the reports findings are provided, they detail areas where further work is required. Of the 126 conditions, 2 were found to be in non compliance and a further 3 were demonstrating substantial compliance. The remaining 121 were found to be in compliance or not yet activated by the mining operation. The 5 conditions requiring further actions are discussed below.

Table 53

Summary of Consent Condition Non-Compliance — Donaldson Mine, February 2003			
Consent Condition		Status – Non compliance	Action by Donaldson Coal
25	(2) The Applicant shall not blast within 500 metres of private lands unless there is a written agreement between the Applicant and the landowner/occupier(s) to the satisfaction of the Director-General which guarantees the safety of persons who might use those lands,	(2) No Written Agreement(s) with land owners had been developed in relation to blasting at the time of the environmental audit. The only private land that would be within 500 metres of the blast areas at the mine is a small area to the east of the Donaldson property boundary. The land is bush land (within Lot 115 DP240782) with no residential or other development. The closest residential development is currently >l000m from the mining area.	A written agreement with the landowner will be obtained to guarantee the safety of persons who might use the lands. Verbal agreement made – documentation to follow.
97	(ii) submit an annual report on fire management activities to the local Bush Fire Management Committee;	(ii) No report on fire management activities yet submitted to the Bush Fire Management Committee. Consultation has commenced with the Bush Fire Management Committee in relation to the content of the report.	Consultation with the local Fire Brigade and consultation with the Bush Fire Management Committee progressed for provision of an Annual Report on bush fire management activities on the mine site. The plan will be finalised during 2004.

Table 54

Summary of Consent Condition Demonstrating Substantial Compliance — Donaldson Mine, February 2003			
Consent Condition		Status – Substantial compliance	Action by Donaldson Coal
69	The Applicant shall prepare a Management Plan for the Tetratheca juncea Conservation Area in consultation with NPWS and to the satisfaction of the Director-General, prior to commencement of construction. The Plan shall be consistent with the Flora and Fauna Management Plan (Conditions 76-79); and include measures for fire management. The Applicant shall clearly mark the boundary of the Conservation Area and make provision for signage which specify that no dumping, clearing or other works are permitted in the Conservation Area. Such signage shall be replaced as required. The Applicant shall make copies of the Tetratheca juncea Management Plan available to NPWS, Councils and the Community Consultative Committee within 14 days of approval by the Director-General.	NPWS provided correspondence advising they were satisfied that the Tetratheca juncea Management Plan adequately provides management of the T. juncea locations. The boundary of the Conservation Area is pegged but not fenced or signed. The presence of a fence or signage would highlight the location of the T. juncea and result in unwanted attention and possibly vandalism to the area. The current status of the Conservation Area indicates that there is no intrusion of work areas or other disturbance to the T. juncea locations. Weekly surveillance of the Conservation Area is conducted by the Environment Officer and weekly inspection and maintenance of the fence along John Renshaw Drive occurs. A biologist monitors the T juncea areas at least twice a month to keep records of the status of growth and flowering.	Donaldson Mine will continue the regular surveillance of the area and keep records of the status of the Conservation Area for reporting in the AEMR.
104	Upon commencement of coal extraction, the Applicant shall initially make use of the coal preparation plant (CPP) at the adjoining Bloomfield coal mine for up to two years from commencement of mining or such other period as approved by the Director-General. This will allow the Applicant to: (i) trial the washing of Donaldson coal to assist in the determination of its washing characteristics; and (ii) commence the earliest possible coal extraction at Donaldson, and hence hasten project completion.	Donaldson Mine adv DUAP of the use of the Bloomfield Coal Preparation Plant and the amended agreement that extended the use of the plant from 2 to 5 years. All Donaldson coal is being processed through the Bloomfield coal preparation plant.	Written aprovavl received from to the Director-General for the extension to the use of the Bloomfield Coal Preparation Plant on 22/07/03.
106	The Applicant shall notify the Director-General within eighteen months of the commencement of mining as to the results of the Bloomfield washery trials.	See comment on MCoA 104. Written notification to the Director- General of the extension to the use of the Bloomfield Coal Preparation Plant should be provided as noted in the Minutes of the meeting held with DUAP on 21 Nov 2001.	Written aprovavl received from to the Director-General for the extension to the use of the Bloomfield Coal Preparation Plant on 22/07/03.

8. REFERENCES

The following references have been listed throughout the AEMR:

- 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 (2003a) *Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey*: Autumn *2003,* Unpublished report for Donaldson Coal Pty Ltd.
- Robyn Tuft & Associates (2003b) *Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey*: *Spring 2003*, 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.

APPENDIX 1:

Donaldson Coal Environmental Policy

Donaldson

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:

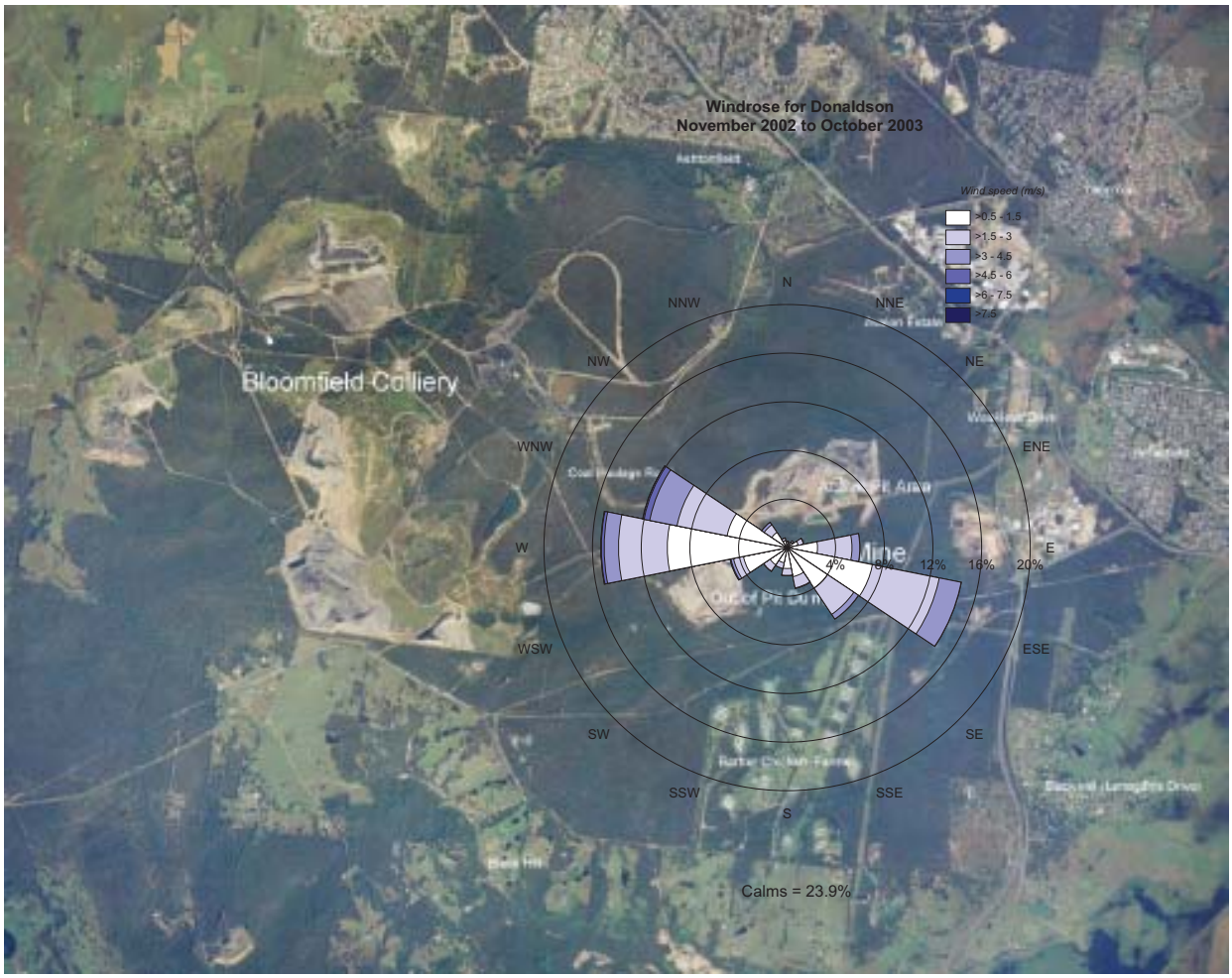
- Compliance with all laws, regulations, consent conditions and standards applicable to the operation.
- Adopting a consultative approach and communicating openly with all stakeholders on the environmental issues;
- Ensuring that all employees, contractors and suppliers of goods and services are fully 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.

BRENDAN McPHERSON
Chief Executive Officer – Donaldson Project.

SEPTEMBER 2000.

APPENDIX 2:

Site Locality Plan and Monitoring Locations


Windrose for Donaldson
November 2002 to October 2003
Wind speed (m/s)
>0.5 - 1.5
>1.5 - 3
>3 - 4.5
>4.5 - 6
>6 - 7.5
>7.5
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
4%
8%
12%
16%
20%
Bloomfield Colliery
Calms = 23.9%

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 (38-4-140)	Brayshaw (1985)	367820E 6366880N Terrace of Four Mile Creek	Artefact scatter (10 artefacts)	
CA1	Umwelt (2001)	370658E 6368051N Mid slope, south of Weakleys Flat Creek	Isolated find	
CA2	Umwelt (2001)	371132E 6369039N	Artefact scatter (2 artefacts)	

		Lower slope, north west of Weakleys Flat Creek		
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 Creek	Isolated find	
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	Isolated find	Consent to Destroy granted (2002)

		Flat Creek		
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

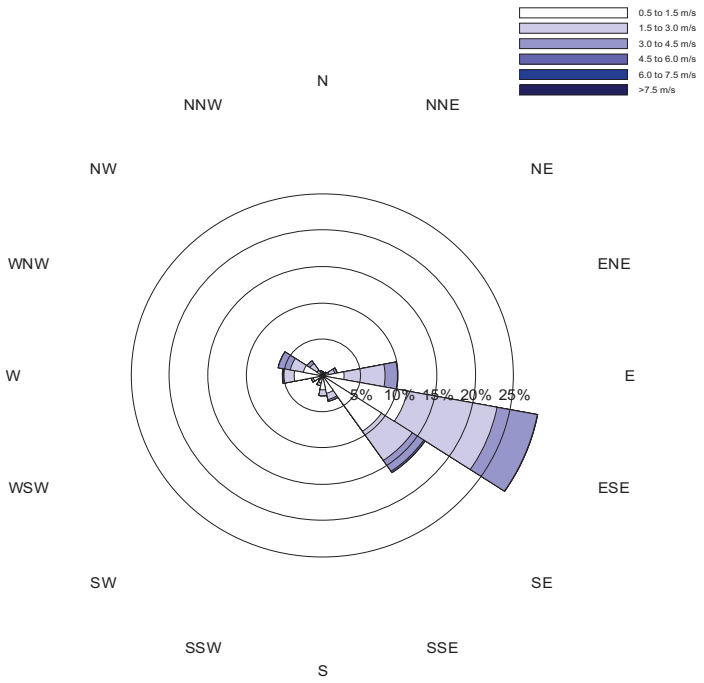
SUMMARY OF COMPLAINTS RECEIVED BY DONALDSON COAL

Number	Location	Date of Complaint	Time	Description	Actions/ Outcomes
1	Avalon Estate	23/01/03	9.45am	Excessive noise heard at 8.30pm and then again at 2.30am on Tuesday.	No further action required. Complainant will notify the mine when noise is excessive so that measurements can be taken at the time of the incident. Scheduled noise studies have demonstrated compliance.

APPENDIX 5:

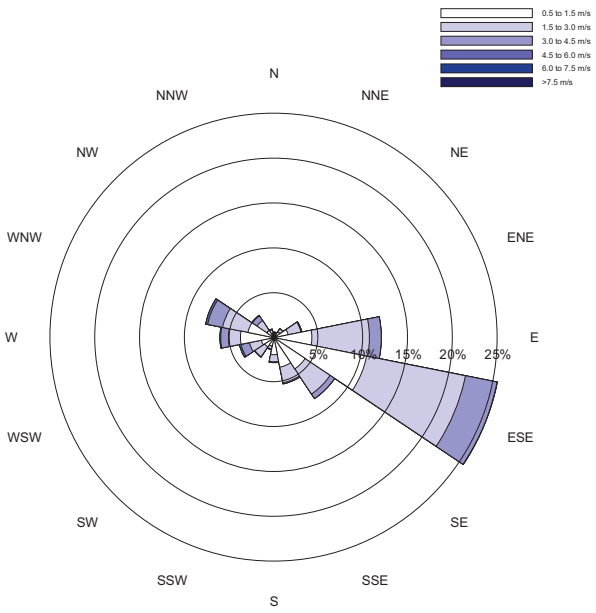
Wind Speed & Direction (Windrose) Diagrams for the reporting period.

Windrose for November 2002



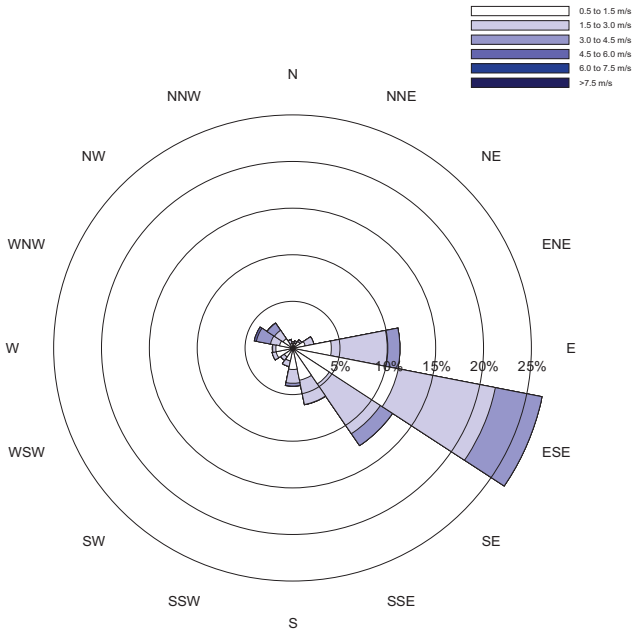
Calms : 18%

Windrose for Donaldson
December 2002



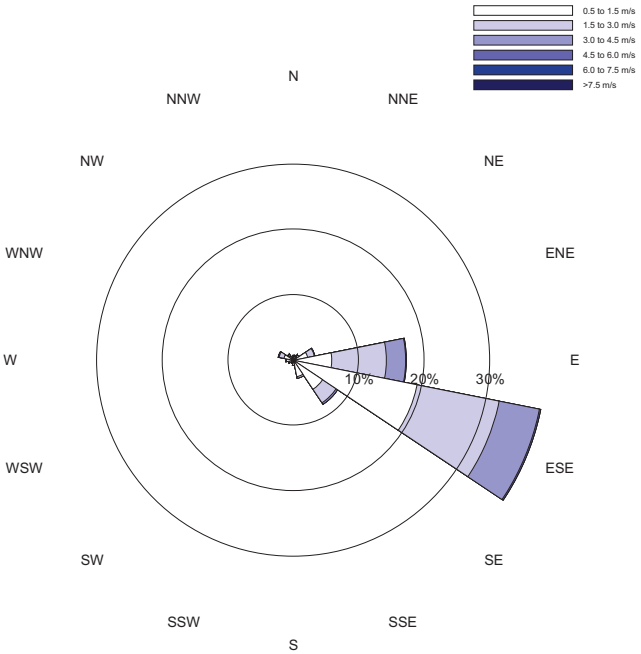
Calms : 15.3%

Windrose for Donaldson
January 2003



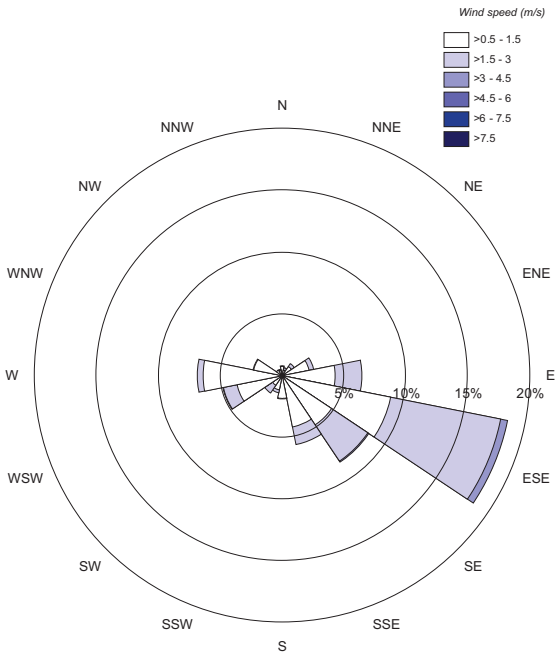
Calms : 18.5%

Windrose for Donaldson
February 2003



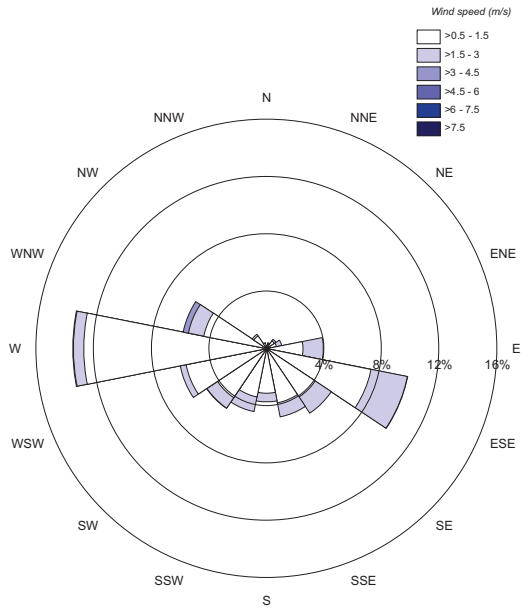
Calms : 20.1%

Windrose for Donaldson
March 2003



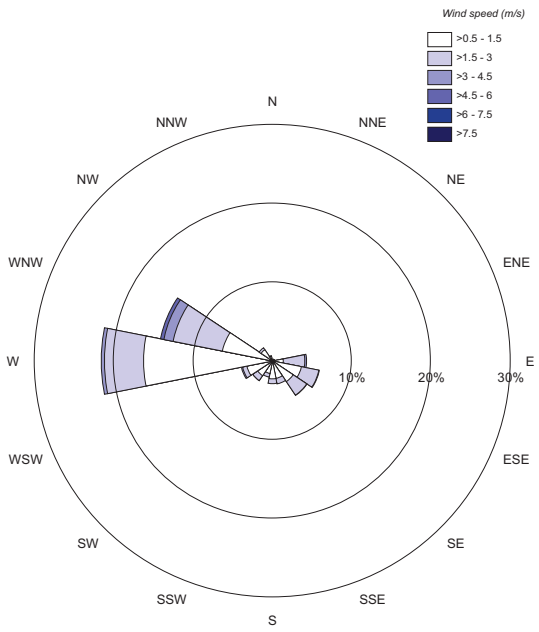
Calms = 35.6%

Windrose for Donalson
April 2003



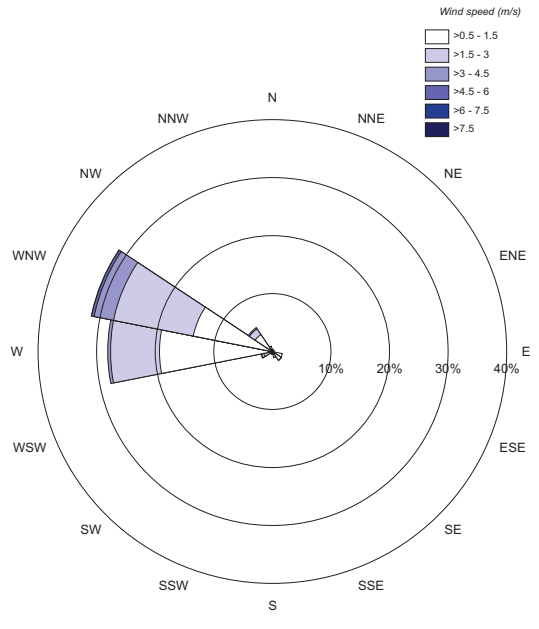
Calms = 33.1%

Windrose for Donaldson
May 2003



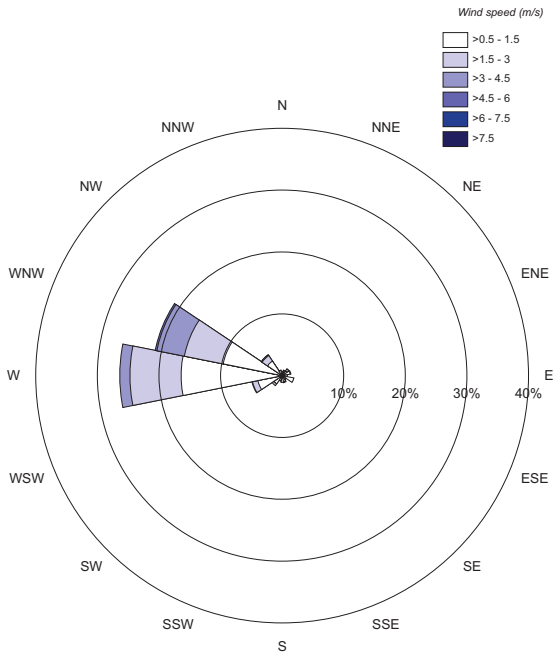
Calms = 30.2%

Windrose for Donaldson
June 2003



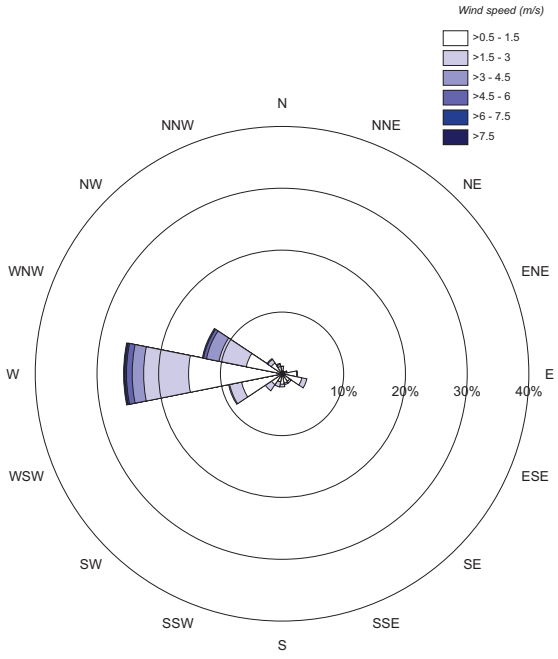
Calms = 25.2%

Windrose for Donaldson
July 2003



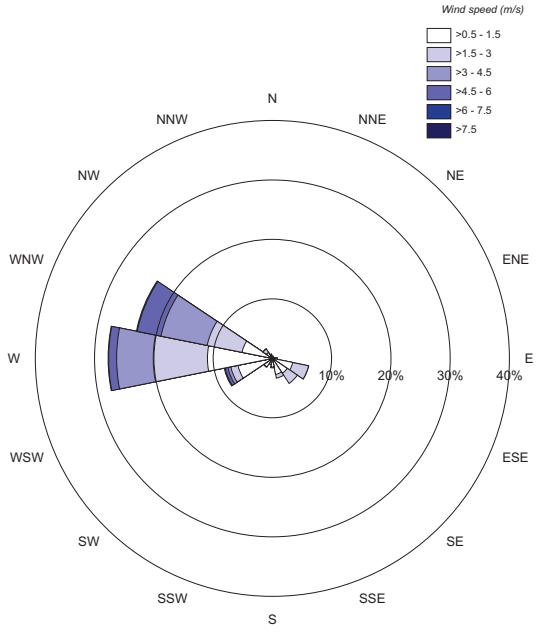
Calms = 29.8%

Windrose for Donaldson
August 2003



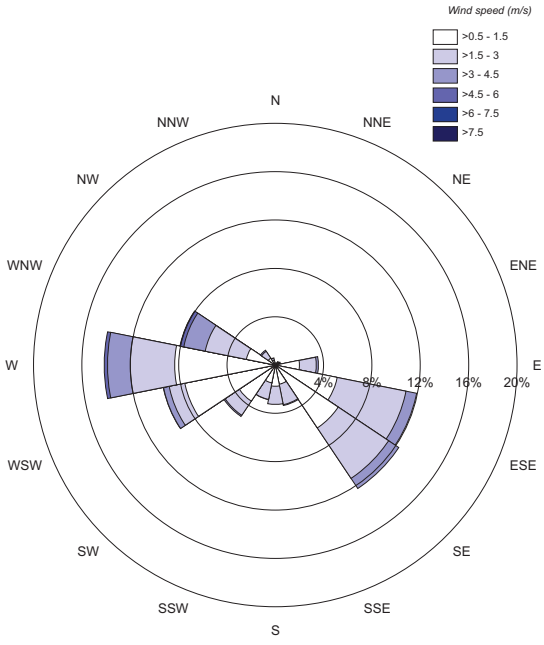
Calms = 27.0%

Windrose for Donaldson
September 2003



Calms = 16.9%

Windrose for Donaldson
October 2003



Calms = 22.8%

APPENDIX 6:

Copies of Newsletters

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)	40.15	47.3	52.17	
B2:	**Active Mining Area** (excluding items B3 – B5 below)	17.00	19.4	23.09	
B3	**Waste emplacements**, (active/unshaped/in or out-of-pit)	40.27	61.7	15.88	
B4	**Tailings emplacements,** (active/unshaped/uncapped)	0	0	0	
B5	**Shaped waste emplacement** (awaits final vegetation)	23.24	0	21.75	
ALL DISTURBED AREAS		**120.66**	**128.4**	**112.89**	F1
C	**REHABILITATION PROGRESS**				
C1	**Total Rehabilitated area** (except for maintenance)	33.50	8.7	69.79	F2
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**	33.50	8.7	69.79	
E3	**Plantations and crops**	0	0	0	
E4	**Other** (include nonvegetative outcomes)	0	0	0	

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	11	• The addition of lime will continue to be a "short term" strategy to control isolated "hot spots" as required (as per URS recommendations).
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 Plan