



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 2008 to 31st October 2009

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



DONALDSON COAL MINE

Annual Environmental Management Report (AEMR) 2008-2009

Prepared by:

Phillip Brown - Environmental Manager
Donaldson Coal Pty Ltd

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

CONTENTS

I	PURPOSE OF THE REPORT	1
II	DONALDSON COAL ENVIRONMENTAL POLICY	1
1	<u>INTRODUCTION AND GENERAL INFORMATION</u>	2
1.1	DEVELOPMENT – OVERVIEW	2
1.2	CONSENTS, LEASE AND LICENCES.....	2
1.2.1	<i>Amendments to the Mining Operations Plan (MOP)</i>	3
1.3	MINE CONTACTS.....	4
1.4	ACTIONS REQUIRED AT PREVIOUS AEMR REVIEW	4
2	<u>OPERATIONS DURING THE REPORTING PERIOD</u>	5
2.1	EXPLORATION.....	5
2.2	LAND PREPARATION.....	5
2.3	CONSTRUCTION	6
2.4	MINING.....	6
2.5	MINERAL PROCESSING.....	6
2.5.1	<i>Plant Throughput and Saleable Production</i>	7
2.6	WASTE MANAGEMENT.....	7
2.6.1	<i>Tailings and Rejects</i>	7
2.6.2	<i>Sewerage Treatment/Disposal</i>	7
2.6.3	<i>Fuel Containment</i>	7
2.6.4	<i>Oil and Grease Containment and Disposal</i>	8
2.6.5	<i>Rubbish Disposal</i>	8
2.6.6	<i>Additional Waste Streams</i>	8
2.7	PRODUCT STOCKPILES	8
2.8	WATER MANAGEMENT	9
2.8.1	<i>Water Storage Structures</i>	9
2.8.2	<i>Sediment Control Structures</i>	9
2.8.3	<i>Water Consumption/Balance</i>	9
2.9	HAZARDOUS MATERIAL MANAGEMENT.....	10
2.9.1	<i>Explosives</i>	10
2.9.2	<i>Bulk Fuel Storage</i>	10
2.9.3	<i>Chemicals</i>	10
3	<u>ENVIRONMENTAL MANAGEMENT AND PERFORMANCE</u>	11
3.1	ENVIRONMENTAL MANAGEMENT STRATEGY (EMS).....	11
3.1.1	<i>Environmental Risk Assessment</i>	11
3.2	ENVIRONMENTAL MANAGEMENT CONTROLS	13
3.2.1	<i>Meteorological Monitoring</i>	13
	<i>Rainfall</i>	14
	<i>Wind Speed and Direction</i>	15
3.2.2	<i>Air Pollution</i>	15
	<i>Depositional Dust Gauges</i>	16
	<i>High Volume Air Samplers</i>	16
	<i>PM₁₀</i>	16
	<i>Total Suspended Particulates</i>	17
	<i>DustTrak Monitors</i>	18
	<i>PM_{2.5} Air Quality Monitoring</i>	21
3.2.3	<i>Erosion and Sediment Control</i>	24
3.2.4	<i>Surface Water</i>	25
	<i>Chemical & Physical Monitoring</i>	26
	<i>Biological Monitoring</i>	27

3.2.5	Groundwater	30
3.2.6	Contaminated Land.....	32
3.2.7	Threatened Flora.....	33
3.2.8	Threatened Fauna.....	36
3.2.9	Weeds and Pests.....	38
3.2.10	Blasting	39
3.2.11	Noise.....	41
	Results of Unattended Continuous Surveys	43
	Results of Attended Surveys.....	48
3.2.12	Visual and Stray Lighting	62
3.2.13	Cultural and Natural Heritage Conservation.....	62
3.2.14	Spontaneous Combustion.....	63
3.2.15	Bushfire.....	64
3.2.16	Mine Subsidence.....	64
3.2.17	Public Safety.....	64
3.3	REPORTABLE INCIDENTS	65
4	<u>COMMUNITY RELATIONS</u>	66
4.1	ENVIRONMENTAL COMPLAINTS	66
4.2	COMMUNITY LIAISON.....	66
4.2.1	Community Consultative Committee (CCC).....	66
4.2.2	Site Tours/Inspections.....	66
4.2.3	Community Newsletters	66
4.2.4	Donaldson Coal Internet Site (www.doncoal.com.au).....	66
4.3	SOCIAL/ECONOMICAL CONTRIBUTIONS	67
4.3.1	Employment Status and Demography.....	67
4.3.2	Roll-on Employment Effects.....	67
4.3.3	Value Adding Programs Directly Benefiting the Community	68
5	<u>REHABILITATION</u>	69
5.1	BUILDINGS.....	69
5.2	REHABILITATION OF DISTURBED LAND	69
5.2.1	Management of Potentially Acid Material.....	69
5.3	OTHER INFRASTRUCTURE	69
5.4	REHABILITATION STATUS AT END OF THE REPORTING PERIOD	69
5.5	REHABILITATION TRIALS AND RESEARCH	70
5.6	FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN	70
6.	<u>ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD</u>	71
7.	<u>DEVELOPMENT CONSENT COMPLIANCE REVIEW</u>	71
8.	<u>REFERENCES</u>	72

APPENDICES

- Appendix 1: Donaldson Coal Environmental Policy**
- Appendix 2: Site Locality Plan and Monitoring Locations**
- Appendix 3: Description and Location of Known Aboriginal Sites**
- Appendix 4: List of Complaints Received by the Mine**
- Appendix 5: Wind Speed and Direction (Windrose) Diagrams**
- Appendix 6: Newsletter**
- Appendix 7: Annual Rehabilitation Report**
- Appendix 8: Annual Rehabilitation Plans**
- Appendix 9: Blast Results**

i PURPOSE OF THE REPORT

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

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

This report provides a detailed review of the site environmental management over the annual reporting period 1st November 2008 to 31st October 2009.

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 DPI (2006) *Guidelines to the Mining, Rehabilitation and Environmental Management Process*, EDG03, Version 3 (dated January 2006).

1 INTRODUCTION AND GENERAL INFORMATION.

1.1 DEVELOPMENT – OVERVIEW.

The Donaldson open cut mine is located 23km from the Port of Newcastle, north of John Renshaw Drive and west of 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. Up to 31st October 2009, approximately 9,855,746 tonnes of coal has been railed to both Hunter Valley power stations and international customers, through the Port of Newcastle. Mining was conducted under long term contract with Cooks Construction Pty Ltd (Cooks) until Donaldson coal became the Operator on the 2nd February, 2009. All mining and associated operations are undertaken in accordance with the Development Consent, Environment Protection Licence and other statutory instruments as issued by the various government agencies.

1.2 CONSENTS, LEASE AND LICENCES

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

TABLE 1: LIST OF CURRENT CONSENTS, LEASE AND LICENCES

Instrument	Date of Issue	Date of Expiration	Comments
Mining Lease (No. 1461)	22/12/1999	22/12/2020	<ul style="list-style-type: none"> ♦ A copy of the mining lease is available for review at the Donaldson Coal office.
Mining Operations Plan	1/06/2006	1/06/2012	<ul style="list-style-type: none"> ♦ Amended MOP was approved by MR for the period 1 June 2002 to 1 June 2006. ♦ Current MOP submitted in June 2006 to cover the period to 2012. ♦ Minor amendment requested in August 2007.
Development Consent	14/10/99	March 2011	<ul style="list-style-type: none"> ♦ A copy of the Development Consent is available for review at the Donaldson Coal office. ♦ Valid for 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).	13/09/2000	Valid until cancelled.	<ul style="list-style-type: none"> ♦ Licence was reviewed in June 2004. ♦ Latest Annual Returns submitted to the Department of Environment and Climate Change on the 30th October 2009.
Water Works Licence (No. 20SL060534)	19/02/2001		<ul style="list-style-type: none"> ♦ The licence covers earthworks associated with the construction of clean water diversion around the mining operation and out of pit emplacement.
Bore Licence (No. 20BL168123)	12/11/2001		<ul style="list-style-type: none"> ♦ Issued to cover groundwater extraction as a result of the active mining area.
Bore Licence (No. 20BL168124)	12/11/2002		<ul style="list-style-type: none"> ♦ The licence has been issued to cover the five test bores established to cover groundwater monitoring at the mine. It also incorporates the thirteen bores established as part of the EIS groundwater investigation.

1.2.1 Amendments to the Mining Operations Plan (MOP)

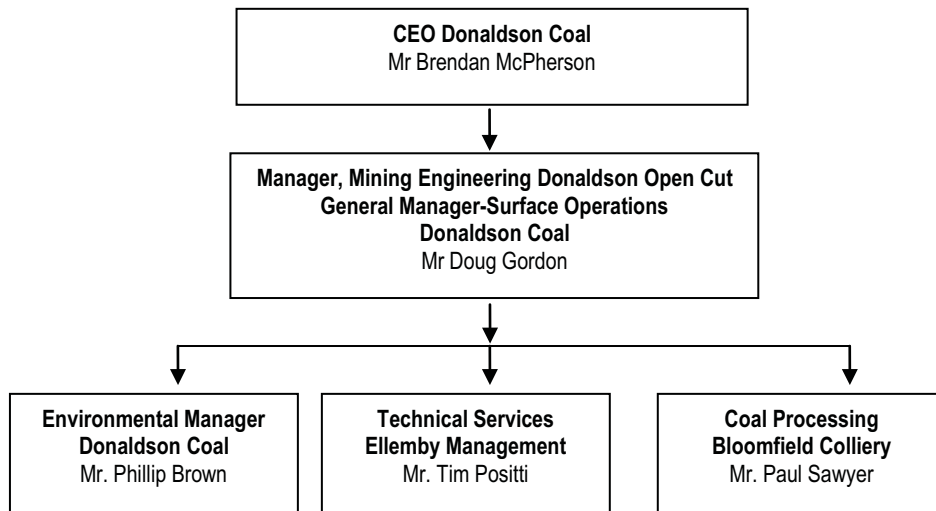
Development Consent and a mining lease have been granted to Donaldson Coal Pty Ltd to mine coal for a period of eleven (11) years. The initial Mining Operations Plan (MOP) covered a period of twelve (12) months of mining activity and was submitted to MR in September 2000 to enable operations to commence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

An amended MOP and associated plans were submitted to MR to cover the period January 2002 through to June 2006. A subsequent MOP was submitted to MR in June 2006 to cover the remaining life of the mine. This MOP also covers the relocation of the Hunter Water Board pipeline. This current MOP was issued on 1 June 2006 and expires on 1 June 2012. A minor amendment to the current MOP was requested in August 2007 and was approved. A further amendment is planned due to changes to the mining and rehabilitation sequencing and will be discussed in more detail with DII/MR in mid 2010.

1.3 MINE CONTACTS

Donaldson Coal Pty Ltd owns the mining operation and is the holder of the current mining lease. Donaldson is also the mining operator. Donaldson Coal is required to make appropriate appointments to fulfil the requirements of all statutory positions.

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



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

Donaldson Coal Mine
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

There was no inspection by the DMR following submission of the AEMR.

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 2008 – 31st October 2009.

2.1 EXPLORATION

Donaldson drilled four (4) cored boreholes to from a depth of 39.08 metres to 42.4 metres during the 2008 AEMR period.

There are approximately 16 cored coal exploration boreholes planned at Donaldson Coal during the next AEMR reporting period.

2.2 LAND PREPARATION

The Donaldson mine site is characterised by native woodland and forest communities. A detailed description is included in the Flora and Fauna Management Plan (Gunninah, 2000; pp6). Although previously disturbed by activities such as logging, deliberate bushfires and recreational pursuits (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 MOP. 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 waste timber has not been considered an economical option and therefore any timber not salvaged as part of the timber recovery operations is windrowed and buried in the pit as required.;
- Seed collection (where appropriate);

All topsoil ahead of the operation has been stripped and either taken to stockpile or direct spread over reshaped areas. Wherever possible, stockpiles are managed in accordance with the Erosion and Sediment Control Plan (Global Soils, 2000). There have been some occasions where stockpile heights have exceeded the maximum height of three (3) metres due to space limitations and not wanting to clear additional areas outside of the mining footprint. Where this has occurred, these topsoil stockpiles will be the first to be used once areas become available for direct spreading.

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

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

2.3 CONSTRUCTION

There were no buildings constructed during the reporting period.

2.4 MINING

The planned mine capacity is based upon the removal of 7.0Mbcm of waste and 2.5Mtonnes of ROM coal each year, on a current roster of 2 x 8 hour shifts per day, five days per week plus the option of one (1) shift on Saturdays and Sundays. 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 12:30pm even though 24 hour operations are permitted under the consent.

The mining method employed is a “terrace mining” approach; with 75 m s trips oriented both perpendicular to, and along the strike. This arrangement provides the following advantages:

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

The thin nature of the seams and interburdens provides opportunities for efficient mining techniques including dozer push (to final position). **Table 2** shows the production and waste summary for this AEMR reporting period.

TABLE 2: PRODUCTION & WASTE SUMMARY

	Cumulative Production (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	End of next reporting (estimated)
Topsoil stripped	320,848	320,848	320,848
Topsoil used/spread	44,500	67,100	67,100
Waste Rock	27,353,614	30,446,930	31,703,134
Coal (ROM)	8,939,946	10,448,304	11,967,702
Processing Waste	2,436,735	3,013,410	3,655,118
Product Coal (tonnes)	6,503,211	7,432,459	8,239,934

The total amount of waste rock moved in the 2009 AEMR period was 3,093,316 cubic meters.

2.5 MINERAL PROCESSING

Bloomfield Colliery is currently contracted to wash, stockpile and load all coal mined at the Donaldson Mine. All coal is transported from Donaldson in road registered coal haulage trucks. Loads are limited to a maximum of 40t. Once passed through the Bloomfield Coal Handling and Preparation Plant (CHPP), the coal is transported to the dump hopper at the conveyor head by one of two methods:

- Loader and Trucks;
- By direct reclaim.

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

2.5.1 Plant Throughput and Saleable Production

Table 3 shows the monthly treatment plant throughput and the saleable production for each month during the reporting period.

TABLE 3: PLANT THROUGHPUT AND SALEABLE PRODUCT.

(tonnes)	Nov 2008	Dec 2008	Jan 2009	Feb 2009	Mar 2009	Apr 2009
Plant Feed	226,457	111,874	72,062	75,002	133,298	42,925
Washed Coal	152,224	66,420	45,725	59,701	88,599	17,882
Sizing	0	0	0	0	0	0

(tonnes)	May 2009	June 2009	July 2009	Aug 2009	Sep 2009	Oct 2009
Plant Feed	96,183	105,247	164,683	166,931	124,733	140,394
Washed Coal	64,100	72,406	98,241	103,573	76,386	83,991
Sizing	0	0	0	0	0	0

Totals for the reporting period were:

(tonnes)	TOTAL
Plant Feed	1,459,789
Washed Coal	929,248
Sizing	0

2.6 WASTE MANAGEMENT

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

2.6.1 Tailings and Rejects

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

2.6.2 Sewerage Treatment/Disposal

Currently there are two (2) locations where sewerage is collected and managed. This includes the following areas:

- Open Cut administration and bathhouse
- Donaldson administration facility.

Individual Bio-cycle units service 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. Donaldson Coal is responsible for the management of the Fuel Farm facility.

2.6.4 Oil and Grease Containment and Disposal

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

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

2.6.5 Rubbish Disposal

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

2.6.6 Additional Waste Streams

Table 4 shows the other minor waste streams identified at the Donaldson Mine including the current mode of disposal and treatment as required.

TABLE 4: 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, labeled 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 Maxxhire 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 Bloomfield's CHPP and as such are specifically managed by Bloomfield. Table 5 shows the washed and sizing stockpile capacities allocate to Donaldson Coal at Bloomfield.

TABLE 5: 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 Bloomfield ROM stockpiles are full. The first is located part the way along the coal haul road adjacent to the Maxxhire Construction

workshop (1.2km from pit), while the second is located on the out of pit dump (1.6km from pit). On some occasions in-pit ROM coal stockpiles are established in order to allow sequential mining to proceed when there are delays due to weather or insufficient stockpiling room at Bloomfield.

2.8 WATER MANAGEMENT

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

2.8.1 Water Storage Structures

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

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

2.8.2 Sediment Control Structures

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

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

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

2.8.3 Water Consumption/Balance.

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

FIGURE 1: WATER CONSUMPTION AND SITE RAINFALL

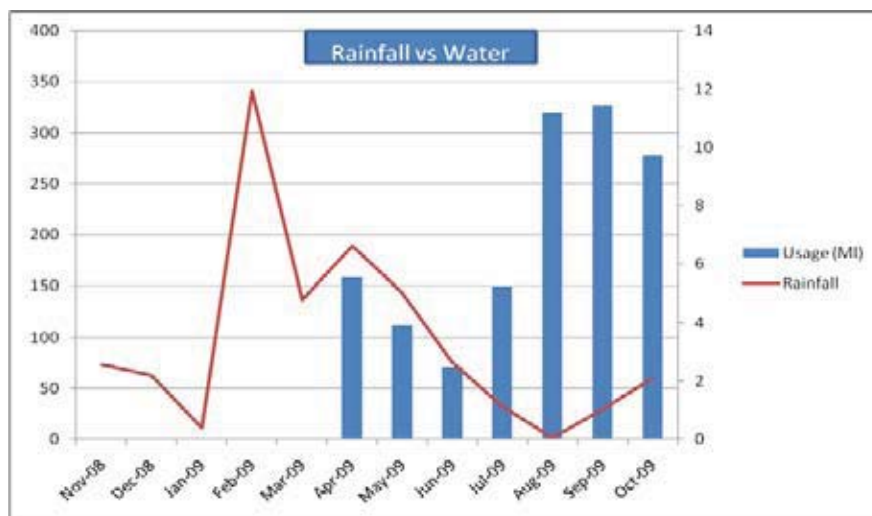


Table 6 shows the volume of water stored on site at the start and end of the reporting period. It also includes reference to the available storage capacity.

Note: Donaldson does not participate in the Hunter River Salinity Trading Scheme.

TABLE 6: STORED WATER

	Volumes held (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	Storage Capacity
Dirty water	6	11	22
Contaminated water*	150	248	441
Controlled discharge water** (salinity trading schemes)	NA	N/A	N/A

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

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

2.9 HAZARDOUS MATERIAL MANAGEMENT

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

2.9.1 Explosives

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

2.9.2 Bulk Fuel Storage

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

A diesel fuel farm facility capable of storing up to 100,000L of diesel fuel is located onsite. The fuel farm facility has been approved as a bulk storage facility for hazardous materials.

2.9.3 Chemicals

Donaldson Coal keeps 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 in 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 site chemical register.

3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

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

3.1 ENVIRONMENTAL MANAGEMENT STRATEGY (EMS)

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

Ongoing workforce training and continuous improvement programs will be undertaken following the development of the revised EMS documentation. Donaldson will manage copies of the documentation however;

The Flora and Fauna Management Plan, Blast Management Plan, Air Quality Management Plan and Noise Management Plan were all revised in accordance with the Development Consent during the 2008 AEMR period and approved by the Department of Planning.

3.1.1 Environmental Risk Assessment

Donaldson Coal previously undertook a detailed Environmental Risk Assessment as part of the recent EMS review. The aim was to identify which activities at the mine present the greatest risk to the environment. **Table 7** lists the principal environmental aspects identified during this process. An internal risk rating score has been assigned to each identified risk as part of a frequency, probability and severity analysis (FPSA). **Table 7** is in accordance with the requirements of the DPI guidelines (EDG03). Control strategies and detail on the environmental performance in all areas encompassing these aspects are included in **section 3.2**.

TABLE 7: 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 powerlines	MODERATE
overburden hauling & emplacement	Dust	MODERATE
blasting overburden	noise (overpressure)	MODERATE
vegetation clearing	disturb or destroy endangered flora & fauna	MODERATE
hazardous Goods Storage	hydrocarbon, oil spill	MODERATE
excavation O/B & coal	Dust	MODERATE
maintaining conservation areas	land disturbance – unauthorised	MODERATE
coal haulage & stockpiling	Dust	MODERATE
Mobile fuel truck	Hydrocarbon spill from vehicle incident	MODERATE
stripping topsoil	disturb or destroy cultural heritage sites	MODERATE
blasting overburden	Vibration	MODERATE
excavation O/B & coal	Noise	MODERATE
water distribution/pumping	broken pipeline causing leakage/siphoning	MODERATE
coal processing & loader	Noise	MODERATE
timber recovery	disturb or destroy cultural heritage sites	MODERATE
blasting overburden	Dust	MODERATE
timber recovery	disturb or destroy endangered flora & fauna	MODERATE
stripping topsoil	Dust	MODERATE
excavation O/B & coal	hydrocarbon spill (burst hose)	MODERATE
overburden hauling & emplacement	hydrocarbon spill (burst hose)	MODERATE
H/W water storage's (above ground)	failure of dam wall (10 ML) resulting in rapid release	MODERATE
H/W water storage's (below ground)	seepage or overflow	MODERATE
servicing & Maintenance	hydrocarbon, oil spill	MODERATE
coal haulage & stockpiling	Noise	MODERATE
rejects & tailings emplacement	off-site water contamination	MODERATE
stripping topsoil	Noise	MODERATE
vegetation clearing	disturb or destroy cultural heritage sites	MODERATE
landform & vegetation rehabilitation	erosion of landform and release of sediment	MODERATE
waste Management	hydrocarbon, oil or chemical spill. Consumables etc	MODERATE
maintaining conservation areas	land contamination by rubbish	MODERATE
overburden hauling & emplacement	exhaust emissions	MODERATE
using water-cart for dust suppression	repeated application to road surfaces	MODERATE
involving water importing from Bloomfield	pipe burst and leakage of very saline water	MODERATE
active waste emplacement	Visual	MODERATE
exploration drilling	disturb or destroy cultural heritage sites	MODERATE
excavation O/B & coal	loss of topsoil	MODERATE
stripping topsoil	hydrocarbon spill from burst hose or re-fuelling	MODERATE
vegetation clearing	hydrocarbon spill from burst hose or re-fuelling	MODERATE
active waste emplacement	Dust	MODERATE
coal haulage & stockpiling	hydro-carbon spill from vehicle roll-over	MODERATE
coal processing & loader	Dust	MODERATE
coal processing & loader	washery water spill/leak. Impact on water quality	MODERATE
stripping topsoil	loss of topsoil (quantity)	MINOR
stripping topsoil	erosion and sediment discharge	MINOR

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

3.2 ENVIRONMENTAL MANAGEMENT CONTROLS

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

3.2.1 Meteorological Monitoring

An automatic meteorological station has been in operation at the site since 3rd December 1999. In May 2001 the monitoring data was integrated with a Citect operating system to provide real time and meteorological data and trending functions. This feature has allowed operational staff the ability to make up-to-date decisions about the influence of meteorological conditions on mining operations. The Meteorological station was upgraded with new monitoring equipment in the 2008/9 AEMR reporting period. The station is a Davis Vantage Pro 2 system with instrumentation installed to measure solar radiation (W/m^2), 2m and 10m temperature ($^{\circ}C$), wind speed (m/s), wind direction and rainfall (mm). Data from the station is recorded continuously and reported as ten-minute averages. **Figure 2** shows a typical screenshot that is displayed both in the Donaldson Coal Communication's office and the Shift Foreman office.

Rainfall

Table 8 details the rainfall for the 2009 AEMR reporting period. A total of 862.9 mm was recorded during the 2009 AEMR reporting period, less than the corresponding 2008 AEMR period (1,245.7 mm) and lower than the historical average (894mm). **Table 8** also includes a comparison between the historical monthly average rainfall from the Bureau of Meteorology site at East Maitland (site 061034 – operating from 1902 to 1 Mar 1994) and the rainfall recorded at the Donaldson Weather Station since January 2000.

FIGURE 2: WEATHER STATION SCREEN.

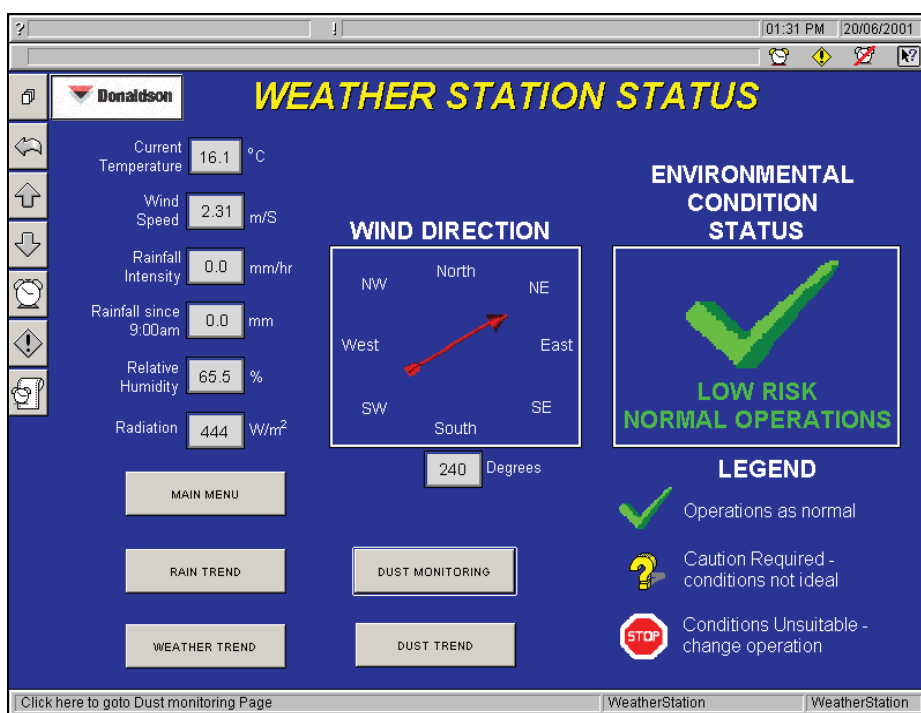


TABLE 8: COMPARISON BETWEEN MONTHLY RAINFALL DURING THE 2008/9 AEMR REPORTING PERIOD, PREVIOUS REPORTING PERIODS AND HISTORICAL AVERAGE.

Period	Average Monthly Rainfall (mm)												
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Historical Average (East Maitland)	89	94	97	87	70	84	58	52	55	66	62	81	894
2000	61	32	279	146	45	24	27	31	33	47	106	32	863
2001	46	169	193	114	244	3.4	63	22	12	31	91	38	1026.4
2002	48	281	184	66.4	62.1	30	30	21	17.4	18.8	56.2	149.2	964.1
2003	6	90	22.2	77	135	13.2	43	27.4	0	63.2	137.6	39	653.6
2004	86	176.6	80	33.6	17.4	9.4	15.4	43.1	61.2	136	77.4	69.8	805.9
2005	64.4	95.8	127.8	57.4	61.8*	56.8	7.2	0.8	37.0	84.0	22.8	9.6	625.4
2006	29.8	47.4	63.6	4.6	7.8	43.8	42.6	49.2	162.4	25.4	37.8	35.6	550.0
2007	13.4	88.0	102.0	86.0	60.0	301	17.0	79.6	19.8	17.2	163.8	49.5	997.3
2008	153.4	154.3	46	237.6	2.2	122.9	30	28.5	195.3	62.2	73.3	62.6	1168.3
2009	11.3	340.7	136.5	189	143.8	75.7	32.1	1.8	29.2	59.8			

Note: Bold results are for this monitoring period. * Data set not complete

Wind Speed and Direction

Wind speed and direction data have been collected from the meteorological station at Donaldson Coal Mine since December 1999. These data are presented in the form of windrose charts. Windrose charts for each month and season within the 2009 AEMR reporting period are included in **Appendix 5**. A windrose chart for the entire 2009 AEMR reporting period is also included in **Appendix 5**.

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

3.2.2 Air Pollution

There are two principle sources of air pollution from the Donaldson Coal Mine. The first is airborne dust that comes from the mining activities (measured as depositional dust, PM₁₀ and Total Suspended Particulates (TSP)). The second source is from the combustion of diesel fuel, which is measured as PM_{2.5} particles.

Donaldson operates the following dust monitoring equipment:

- one High Volume Air Sampler (HVAS) measuring TSP and
- two HVAS measuring PM₁₀;
- two continuous DustTrak monitors measuring PM₁₀;
- eleven Depositional Dust Gauges measuring insoluble solids; and
- one GRIMM monitor measuring PM₁₀ and PM_{2.5} on two campaign events.

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

Control Strategy:

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

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

Environmental Performance:

No dust complaints were made during the 2009 AEMR reporting period.

A review of the dust monitoring data for the period suggests that there has been no significant change in the regional dust levels as a result of mining activities compared to the previous reporting period. Seasonal variations are evident (ie. summer versus winter) and in some cases high readings have been recorded on the DustTrak's and the Depositional Dust Gauges. These high

events are related to activities adjacent to the monitoring site or regional effects (other than mining) including, but not limited to, dirt roads, bushfires, regional dust storms and lawn mowing.

A summary of the air quality monitoring data for the reporting period is provided.

Depositional Dust Gauges

Results were recorded for 132 monthly samples at eleven (11) dust gauges out of a possible total of 132. All results were obtained and all were judged to be valid, with acceptable levels of contamination from other sources including bird droppings, vegetation, refer **Table 9**.

All gauges were in compliance with the Donaldson Air Quality Management Plan, with an annual average insoluble solid results for each gauge below the criteria of 4 g/m².month. Results are displayed in **Table 10**. Results are generally similar or slightly higher to the previous year's results however; they indicate no major increase in dust emissions.

TABLE 9: MISSING DEPOSITIONAL DUST GAUGE DATA.

Location	Date	Reason for exclusion
Nil	N/A	N/A

N/A = Not Applicable – all gauges were collected in the AEMR Reporting period.

TABLE 10: CONCENTRATION MONITORING - DEPOSITIONAL DUST GAUGES

Sample Site	No. Samples Required	No. samples collected and analysed	Maximum Insoluble Solids (g/m ² .month)	Minimum Insoluble Solids (g/m ² .month)	Annual Average Insoluble Solids (g/m ² .month)
DG1	12	12	4.3	0.2	1.0
DG2	12	12	9	0.4	2.4
DG3	12	12	5.2	0.6	1.3
DG4	12	12	11.3	0.4	1.2
DG5A	12	12	3.2	0.3	0.9
DG6	12	12	5.6	1.1	2.3
DG7	12	12	2.5	0.5	1.0
DG8	12	12	6.8	0.6	1.4
DG9	12	12	2.3	0.6	1.2
DG10	12	12	5.7	0.3	1.6
DG11	12	12	5.7	0.6	1.3

High Volume Air Samplers

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

PM₁₀

The annual average PM₁₀ at both monitoring sites was below the annual average maximum criteria of 30ug/m³. The annual average PM₁₀ at the Beresfield Golf Course and at the "Bartter Enterprise" location have shown slight increases compared to the previous 2008 AEMR reporting period but remain below annual average criteria. Results are displayed in **Table 11**.

During this AEMR reporting period, all PM₁₀ measurements recorded at the “Bartter Enterprise” location satisfied the 24-hour NEPM maximum criteria of 50 µg/m³. Three (3) of the 24 hour PM₁₀ measurements recorded at the Beresfield Golf Course location exceeded this criteria. The PM₁₀ results exceeding the NEPM 24hr criteria at the Beresfield Golf Course was recorded on the 13 November 2008 (69 µg/m³), the 31 December 2008 (59 µg/m³) and the 6 January 2009 (51 µg/m³). The predominant winds on these days were NW-N.

The Beresfield Golf Course is located E to NE of current mining operations and any dust emissions from Donaldson Coal would have resulted in minimal impact under these wind conditions. The higher dust levels are most likely due to particulates originating NW to N of the site or localised effects and have not been attributed to the mining activities of Donaldson Coal.

TABLE 11: DETAILS OF CONCENTRATION MONITORING (PM₁₀ HIGH VOLUME AIR SAMPLERS).

Sample Site	No Samples Required	No samples collected and analysed	Maximum PM ₁₀ Value (µg/m ³)	Minimum PM ₁₀ Value (µg/m ³)	Mean PM ₁₀ Value (µg/m ³)
Beresfield Golf Course	61	61	69	1	23
“Bartter Enterprise”	61	61	42	3	16

Total Suspended Particulates

TSP measurements were performed at the “Bartter Enterprise” location, using a high volume air sampler. Details of these measurements are included in **Table 12**.

The annual average TSP result at “Bartter Enterprise” (33 µg/m³) was well below the annual average criteria of 90 µg/m³. While there are no specified criteria for a 24-hr TSP maximum in the Donaldson consent or EPA license, all TSP results were well below the US EPA short term good air quality criteria of 260 µg/m³.

In general, the results recorded during this reporting period are slightly higher to the corresponding measurements of the 2008 AEMR reporting period however, they still indicate a low dust impact from mining operations. The ratio of PM₁₀ to TSP over the reporting period was 38%, which is a slightly lower ratio than the last reporting period results (49%) indicating less finer particulates in the Total Suspended Particulates.

TABLE 12: CONCENTRATION MONITORING (TSP HIGH VOLUME SAMPLERS).

Sample Site	No Samples Required	No samples collected and analysed	Maximum TSP Value (µg/m ³)	Minimum TSP Value (µg/m ³)	Mean TSP Value (µg/m ³)
“Bartter Enterprise”	61	61	95	10	33

Table 13 displays the data capture rate for the three high volume air sampler units during the period. All data from all scheduled run events was collected in the AEMR monitoring period.

TABLE 13: HIGH VOLUME SAMPLER DATA CAPTURE RATE.

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

DustTrak Monitors

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

Table 14 summarises the DustTrak monitoring data and the data capture rate. The measurements of PM₁₀ by optical methods (such as the DustTrak monitors) are known to be particularly sensitive to rainfall or high humidity events. Monthly inspections of the DustTrak monitors and regular servicing of the instruments assist with reducing occasions when the measurements become unstable or drift from sensible values. It was considered appropriate to exclude non-valid data from the calculations of the highest 24-hour average PM₁₀, annual average PM₁₀ and the lowest 24-hour average PM₁₀. Despite this, the valid data recovery rate, refer **Table 14**, upon which the PM₁₀ averages are based are still substantial.

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

The monthly air quality monitoring reports provided to Donaldson Coal by PAEHolmes provide graphs of all the data collected, including valid and non-valid data. Charts of all DustTrak data in the AEMR monitoring period are provided in **Figures 3 and 4**.

TABLE 14: DETAILS OF DUSTTRAK CONTINUOUS MONITORING

Site	Data collection	Total data recovery (%)	Valid data recovery (%)	Highest 24-hour average PM ₁₀	Annual average PM ₁₀	Lowest 24-hour average PM ₁₀
Weakleys Drive	Continuous	52.1	47.3	469.4	12.62	0.26
"Bartter Enterprise"	Continuous	28.0	22.0	40.43	12.38	0.46

Note: Data in this table is for the annual reporting period 1 November 2008 to 31 October 2009 as reported by PAEHolmes.

The results from DustTrak monitoring are comparable to those obtained from the PM₁₀ High Volume Air Sampling at the Barter site and the annual averages were again, below the maximum NEPM annual average criteria.

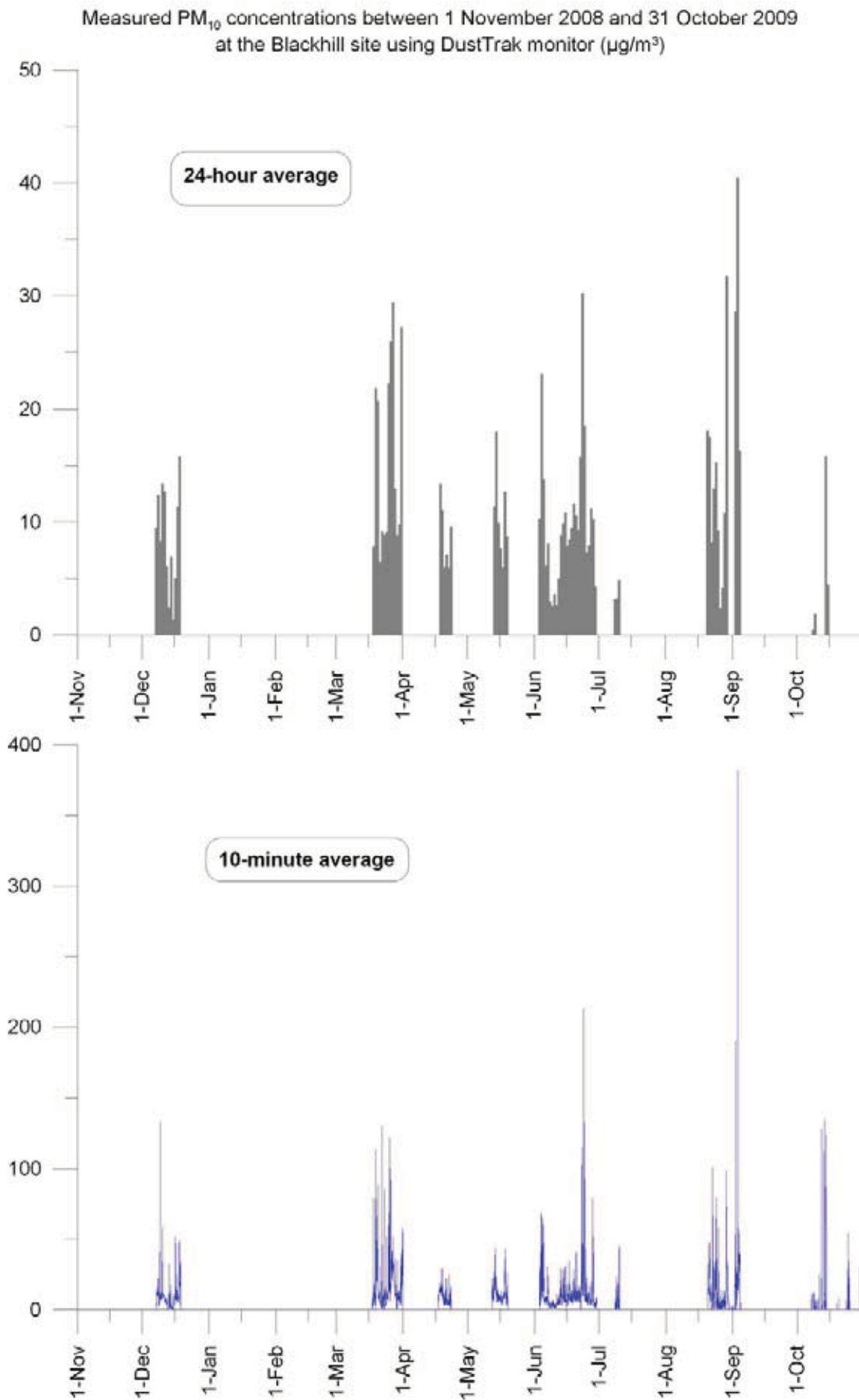


Figure 3: DustTrak Monitoring 1 November 2008 to 31 October 2009 at the Blackhill Site

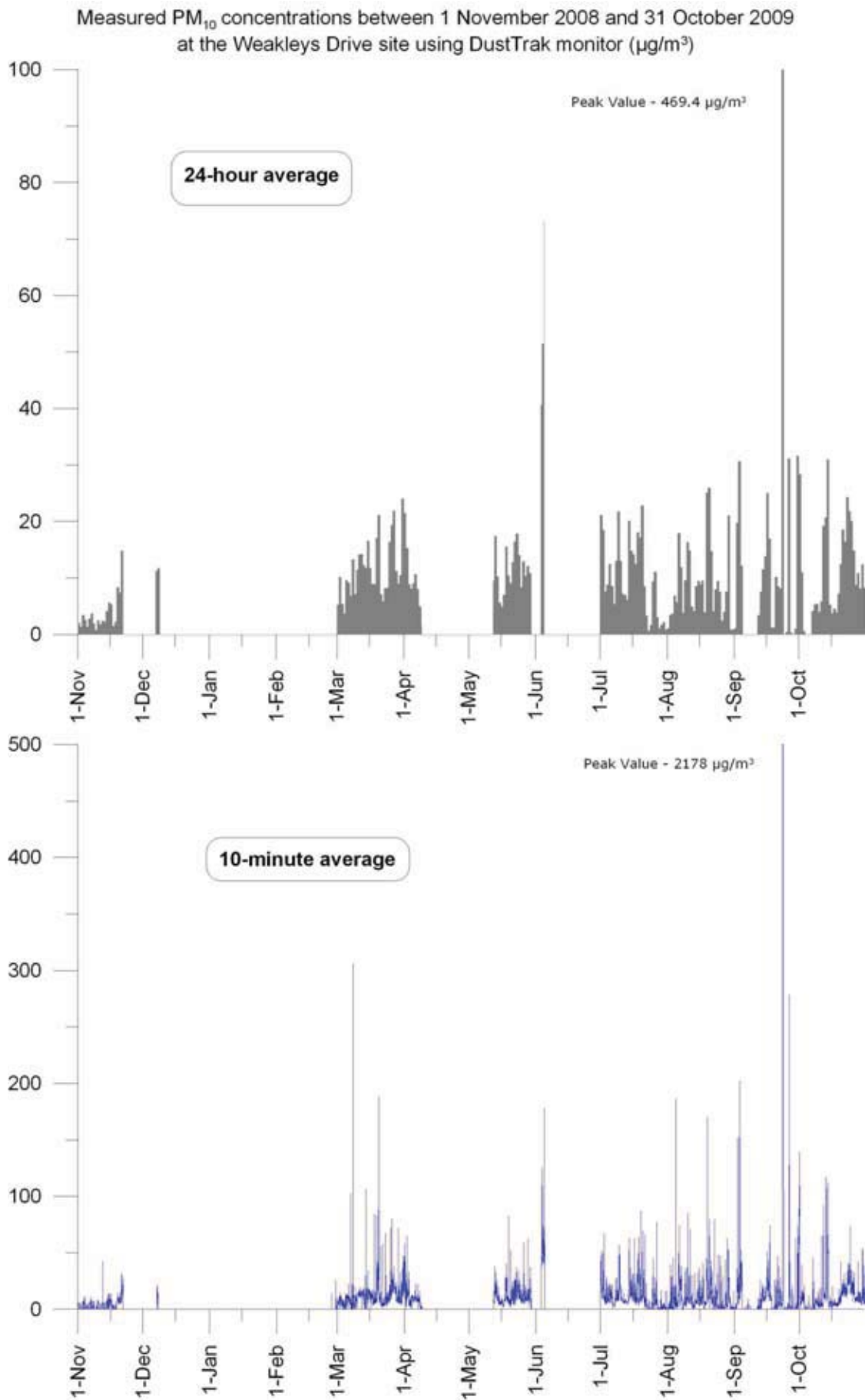


Figure 4: DustTrak Monitoring 1 November 2008 to 31 October 2009 at the Weakleys Drive Site

PM_{2.5} Air Quality Monitoring

PM_{2.5} dust monitoring was undertaken by a GRIMM monitor for four campaign events during this reporting period at the Barter (Blackhill) site. Monitoring was conducted continuously over the period 26th of November and 2nd of December 2008, 22nd and 30th of March 2009, 22nd and 29th of June 2009 and the 22nd and 29th of August 2009. 10-minute averages were obtained and are provided in **Figures 5, 6, 7 and 8**.

Data collected during the November 2008, March 2009, June 2009 and August 2009 sampling events showed that PM₁₀ measured at the site consisted of approximately 44%, 30%, 49% and 47% PM_{2.5} particles respectively. This is similar to previous recorded results and 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 vehicles due to the proximity of major roads to the monitoring location.

Figure 5: PM10 and PM2.5 chart for the period 26th of November and 2nd of December 2008

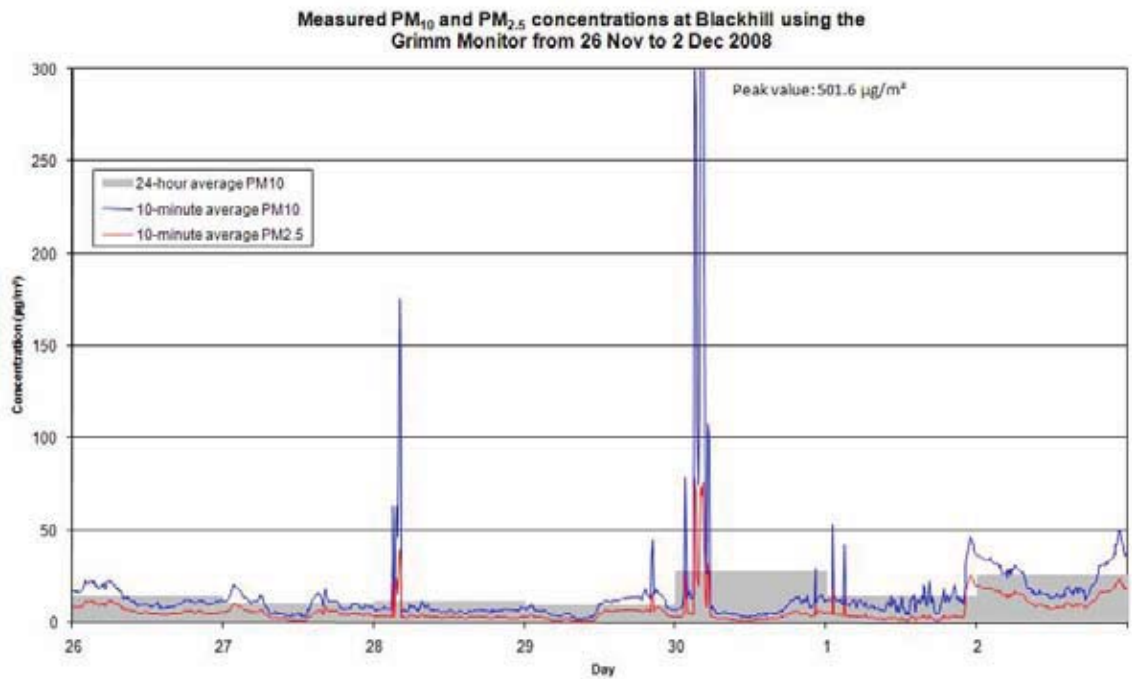


Figure 6: PM10 and PM2.5 chart for the period 22nd and 30th of March 2009

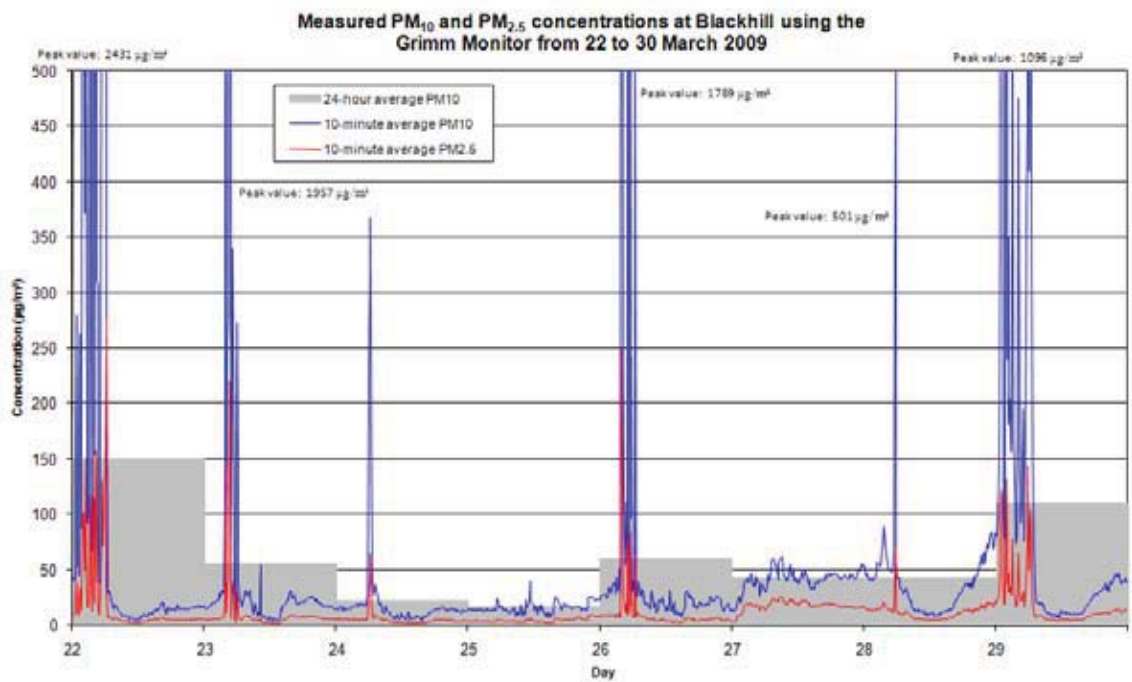


Figure 7: PM10 and PM2.5 chart for the period 22nd and 29th of June 2009

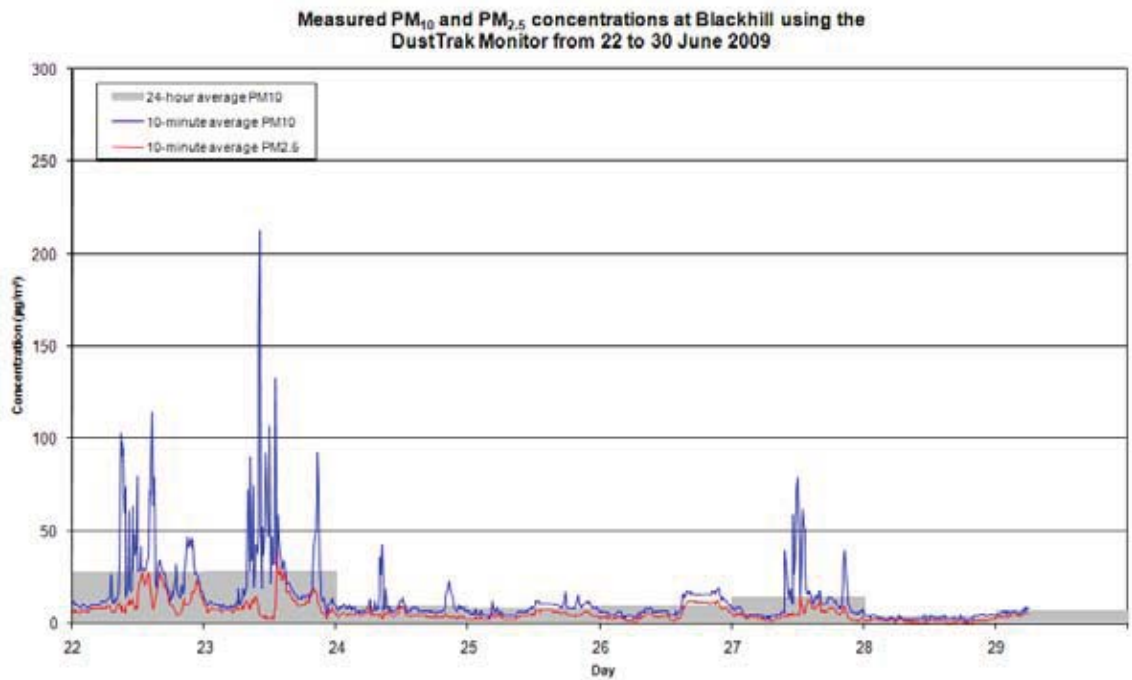
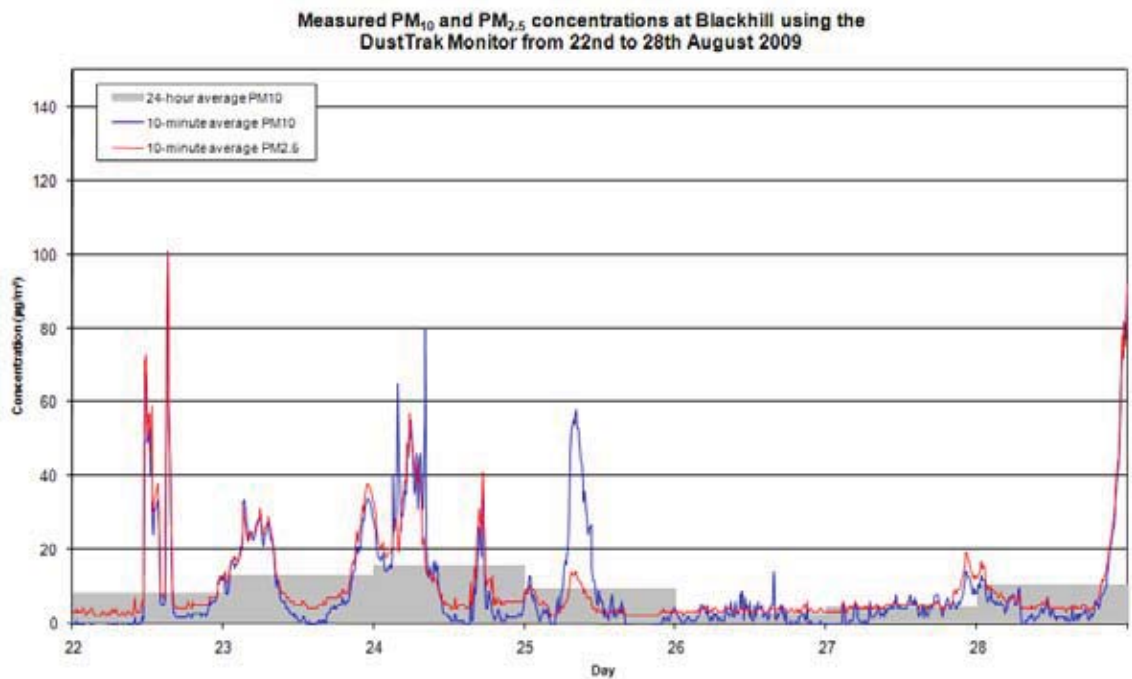


Figure 8: PM10 and PM2.5 chart for the period 22nd and 29th of August 2009.



3.2.3 Erosion and Sediment Control

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

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

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

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

Control Strategy:

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

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

Environmental Performance:

There were no complaints received by the mine relating to sediment control issues. Routine water quality monitoring undertaken at locations upstream and downstream of the mine is used to assess the performance of the sediment retention structures. Total Suspended Solids (TSS) is reported as an indicative measure of the effectiveness of sediment control. **Table 15** includes TSS data collected during the 2009 AEMR reporting period. Where necessary flocculants have been used in the past to precipitate sediment from solution and ensure an appropriate water quality.

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

3.2.4 Surface Water

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

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

Samples collected from the six existing stream sites are analysed for Electrical Conductivity (EC), pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS) and Sulfates (SO₄), on a monthly basis. A full suite analysis is also carried out on a quarterly basis and includes analysis for EC, pH, TDS, TSS, SO₄, Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Fluoride (F), Arsenic (As), Aluminium (Al), Barium (Ba), Cadmium (Cd), Cobalt (Co), Copper (Cu), Chromium (Cr), Iron (Fe), Manganese (Mn), Lead (Pb), Zinc (Zn), Total Alkalinity as CaCO₃, Nitrates and Phosphates (total). Surfactants (detergents) and Total Petroleum Hydrocarbons (TPH) are included in the suite of analysis for the industrial area sump or as required.

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

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

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

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

One monitoring survey was completed during the 2009 AEMR reporting period, on the 21st November 2008.

Control Strategy:

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

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

Environmental Performance:

There were no water-related complaints received during the 2009 AEMR reporting period. In addition, monthly water monitoring results were routinely reviewed to determine whether there were any changes as a result of activities at the mine.

Chemical & Physical Monitoring:

A summary of three key parameters, required by the DEC Pollution Control Licence, for the reporting period as well as the pre-mining baseline is included in **Table 15** for reference.

Mean pH values for all stream-monitoring locations as recorded on a monthly basis are generally comparable to the pre-mining pH levels. The average pH of all sites is within the recommended ANZECC Guideline (pH 6.5 – 9.0) for fresh and marine waters for the protection of aquatic ecosystems. As such, it appears that the activities of Donaldson Coal in this reporting period have not affected the pH of the surrounding stream environments.

The mean EC values in **Table 15** were generally higher than pre-mining results but were higher at the upstream water sites suggesting that Donaldson Coal is not having any significant impact on EC levels.

The annual mean TSS values at monitoring locations were generally similar to the respective pre-mining levels apart from higher values at Scotch Dairy Creek Upstream and Weakleys Flat Creek Downstream. TSS levels were impacted by very high rainfall during the year and were not directly attributable to impacts from Donaldson Coal.

TABLE 15: SUMMARY OF KEY WATER QUALITY PARAMETERS COMPARED WITH PRE-MINING DATA.

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value			Lowest Sample value			Mean Sample Value		
			pH	EC	TSS	pH	EC	TSS	pH	EC	TSS
Four Mile Ck Upstream	12	10	7.2	680	23	6.5	240	9	6.9	441	13
<i>Pre-mining</i>	---	---	<i>7.44</i>	<i>522</i>	<i>90</i>	<i>6.70</i>	<i>265</i>	<i>180</i>	<i>7.06</i>	<i>276</i>	<i>32</i>
Four Mile Ck Downstream	12	10	7.9	270	69	6.8	140	<2	7.1	179	24
<i>Pre-mining</i>	---	---	<i>7.73</i>	<i>265</i>	<i>32</i>	<i>6.40</i>	<i>120</i>	<i>2</i>	<i>7.15</i>	<i>175</i>	<i>8</i>
Scotch Dairy Creek Upstream	12	10	6.8	445	400	5.2	190	15	5.9	326	190
<i>Pre-mining</i>	---	---	<i>6.81</i>	<i>200</i>	<i>47</i>	<i>5.90</i>	<i>71</i>	<i>9</i>	<i>6.33</i>	<i>210</i>	<i>22</i>
Scotch Dairy Creek Downstream	12	11	6.9	315	65	5.5	170	7	6.1	210	53
<i>Pre-mining</i>	---	---	<i>6.80</i>	<i>270</i>	<i>1283</i>	<i>5.80</i>	<i>145</i>	<i>12</i>	<i>6.43</i>	<i>180</i>	<i>271</i>
Weakleys Flat Ck Upstream	12	11	7.1	2010	168	6.5	295	5	6.9	911	22
<i>Pre-mining</i>	---	---	<i>7.49</i>	<i>310</i>	<i>3</i>	<i>6.60</i>	<i>200</i>	<i>1</i>	<i>7.15</i>	<i>249</i>	<i>2</i>
Weakleys Flat Ck Downstream	12	11	7	1200	237	6.2	260	10	6.6	584	79
<i>Pre-mining</i>	---	---	<i>7.28</i>	<i>546</i>	<i>17</i>	<i>6.40</i>	<i>230</i>	<i>3</i>	<i>7.01</i>	<i>419</i>	<i>8</i>

Biological Monitoring

Assessment of stream fauna is used to assess areas of environmental stress through the diversity of the macroinvertebrate population and the presence of pollutant sensitive or pollutant tolerant species. Macroinvertebrate monitoring was undertaken on the 21st November 2008. Six sites are targeted on the three major tributaries traversing the mine site. **Table 16** includes the results for the last 15 surveys as well as the baseline survey.

It is observed that the streams examined support a relatively diverse ecology including species typical of the Hunter Region, and some sensitive families of invertebrates. The predominance of mildly impaired invertebrate species is indicative of fair water quality in the streams. The majority of AUSRIVAS scores for the sites included in this report are reasonable, refer to **Table 16**.

There was no indication of obvious deterioration in water quality in the downstream sites which could be attributed to intermediate land use activities (Tuft and Associates, 2008). Overall, there is no indication of obvious deterioration in water quality in the downstream sites, which could be directly attributed to intermediate mining activity of Donaldson. Individual site conclusions are provided by Tuft and Associates and these reports may be supplied upon request.

Table 16: MACROINVERTEBRATE MONITORING (SPRING/AUTUMN 2001-2008) RESULTS COMPARED WITH BASELINE.

	Four Mile Upstream	Four Mile Downstream	Scotch Dairy Upstream	Scotch Dairy Downstream	Weakleys Flat Downstream	Weakleys Flat Upstream
DIVERSITY						
Spring 2008	32	24	23	25	25	28
Autumn 2008	19	12	18	22	14	18
Spring 2007	28	20	16	19	27	24
Autumn 2007	22	20	11	16	19	22
Spring 2006	24	20	17	20	18	17
Autumn 2006	16	23	13	18	16	21
Spring 2005	19	24	23	23	15	26
Autumn 2005	11	27	20	21	12	25
Spring 2004	17	25	12	15	10	30
Autumn 2004	17	31	17	31	22	34
Spring 2003	17	27	17	13	16	28
Autumn 2003	14	28	19	27	27	33
Spring 2002	21	24	12	20	22	25
Autumn 2002	22	19	33	27	24	34
Spring 2001	37	30	NR	30	26	31
Autumn 2001	20	30	18	25	36	31
BASELINE	30	36	39	32	39	44
SIGNAL INDEX						
Spring 2008	5.3	5.9	5.4	6.2	5.6	5.4
Autumn 2008	5.6	5.4	5.5	5.6	5.7	5.3
Spring 2007	5.4	6.1	5.1	4.7	5.1	4.7
Autumn 2007	5.7	5.3	6.0	5.2	5.4	4.8
Spring 2006	5.4	5.3	5.5	5.3	4.3	4.3
Autumn 2006	6.4	4.8	4.7	5.6	5.7	4.4
Spring 2005	5.7	5.7	5.1	6.0	5.7	4.3
Autumn 2005	5.2	5.6	5.2	6.2	4.6	4.4
Spring 2004	5.7	5.5	5.2	4.9	4.6	5.0
Autumn 2004	6.0	5.5	5.0	4.9	5.4	5.0
Spring 2003	6.0	5.9	4.6	5.7	5.5	5.3
Autumn 2003	6.1	5.7	5.2	5.5	4.6	5.0
Spring 2002	6.0	5.7	4.0	5.9	5.7	5.4
Autumn 2002	5.7	5.4	5.2	6.0	5.5	5.3
Spring 2001	5.8	5.8	NR	5.6	5.7	5.4
Autumn 2001	5.6	5.3	5.3	5.6	5.3	5.0
BASELINE	6.0	5.7	5.7	5.6	5.5	5.4
AUSRIVAS						
Spring 2008	0.68 (Band B)	0.68 (Band B)	0.8 (Band B)	0.96 (Band A)	1.02 (Band A)	1.1 (Band A)
Autumn 2008	0.69 (Band B)	0.58 (Band B)	0.78 (Band B)	1.01 (Band A)	0.66 (Band B)	0.55 (Band B)
Spring 2007	0.65 (Band B)	0.77 (Band B)	0.46 (Band C)	0.58 (Band B)	0.78 (Band B)	0.69 (Band B)
Autumn 2007	0.64 (Band B)	0.73 (Band B)	0.29 (Band C)	0.69 (Band C)	0.78 (Band B)	0.55 (Band B)
Spring 2006	0.78 (Band B)	0.58 (Band B)	0.48 (Band C)	0.89 (Band A)	0.77 (Band B)	0.39 (Band C)
Autumn 2006	0.54 (Band B)	0.49 (Band B)	0.48 (Band B)	0.69 (Band B)	0.68 (Band B)	out of range
Spring 2005	0.19 (Band C)	0.68 (Band B)	0.68 (Band B)	0.48 (Band C)	0.60 (Band B)	0.58 (Band B)
Autumn 2005	0.52 (Band B)	0.31 (Band C)	0.48 (Band B)	0.6 (Band B)	0.42 (Band C)	0.45 (Band C)
Spring 2004	0.78 - Band B	0.58 - Band B	0.48 - Band C	0.88 - Band A	0.58 - Band B	0.69 - Band B
Autumn 2004	0.55 - Band B	0.97 - Band A	0.95 - Band A	0.68 Band B	0.93 - Band A	0.79 - Band B
Spring 2003	0.69 - Band B	0.73 - Band B	0.6 - Band B	1.06 - Band A	0.9 - Band A	0.78 - Band B
Autumn 2003	0.69 - Band B	0.73 - Band B	0.6 - Band B	1.06 - Band A	0.9 - Band A	0.78 - Band B
Spring 2002	0.67 - Band B	0.57 - Band B	0.29 - Band C	0.59 - Band B	0.58 - Band B	0.49 - Band C
Autumn 2002	0.87 - Band A	0.93 - Band A	1.03 - Band A	1.09 - Band A	0.78 - Band B	103 - Band A
Spring 2001	1.08 - Band A	0.58 - Band B	NR	0.9 - Band A	0.96 - Band A	0.69 - Band B
Autumn 2001	0.68 - Band B	0.61 - Band B	0.83 - Band A	0.95 - Band A	0.87 - Band A	0.87 - Band A
BASELINE	0.93 - Band A	1.04 - Band A	1.08 - Band A	0.82 - Band A	0.86 - Band A	0.82 - Band A

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

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

- Riparian vegetation

Table 17 provides a summary of the RCE ranking results for the last sixteen (16) surveys as well as the baseline survey.

TABLE 17: RCE RANKING FOR ALL MONITORING SITES (2000-2008).

Site	Date of Collection	Bank Condition Scores	Bank Condition Rating	Bed Condition Score	Bed Condition Rating	Stream Condition (RCE)	RCE Rating
Site 1 Four Mile Ck U/S	26/09/00	22	Excellent	10	Good	45	Excellent
	19/03/01	16	Good	6.5	Fair	45	Excellent
	11/10/01	16	Good	9	Good	40	Good
	15/04/02	12	Fair	7	Fair	34	Fair
	9/10/02	18	Good	9	Good	43	Good
	17/04/03	19	Excellent	8	Fair	43	Good
	10/10/03	16	Good	11	Excellent	43	Good
	1/4/04	19	Excellent	9	Good	48	Excellent
	6/10/04	14	Good	8	Fair	40	Good
	15/4/05	15	Good	7	Fair	40	Good
	27/9/05	15	Good	9	Good	41	Good
	11/4/06	15	Good	10	Good	41	Good
	17/11/06	14	Good	9	Good	40	Good
	20/4/07	15	Good	7	Fair	39	Good
	5/10/07	15	Good	11	Excellent	41	Good
	8/4/08	14	Good	11	Excellent	41	Good
21/11/08	17	Good	8	Fair	41	Good	
Site 2 Four Mile Ck D/S	26/09/00		Excellent	6	Poor	39	Good
	19/03/01	21	Good	7	Fair	39	Good
	11/10/01	15	Good	7	Fair	37	Good
	15/04/02	16	Good	6	Poor	36	Fair
	9/10/02	16	Excellent	9	Good	45	Good
	17/04/03	20	Excellent	10	Good	45	Good
	10/10/03	19	Good	11	Excellent	43	Good
	1/4/04	16	Good	10	Good	44	Good
	6/10/04	17	Good	10	Good	41	Good
	15/4/05	14	Good	10	Good	39	Good
	27/9/05	14	Good	10	Good	40	Good
	11/4/06	15	Good	8	Fair	38	Good
	17/11/06	15	Good	10	Good	43	Good
	20/4/07	16	Good	8	Fair	40	Good
	5/10/07	16	Good	10	Good	40	Good
	8/4/08	13	Good	10	Good	40	Good
21/11/08	12	Fair	9	Good	35	Fair	
Site 3 Scotch Dairy Ck U/S	26/09/00	21	Excellent	8	Fair	39	Good
	19/03/01	15	Good	7	Poor	37	Good
	11/10/01	NR	NR	NR	NR	NR	NR
	15/04/02	12	Fair	9	Good	37	Good
	9/10/02	16	Fair	9	Good	43	Good
	17/04/03	17	Good	6	Poor	36	Fair
	10/10/03	15	Good	5	Poor	36	Fair
	1/4/04	19	Excellent	5	Poor	40	Good
	6/10/04	14	Good	5	Poor	36	Good
	15/4/05	14	Good	5	Poor	34	Fair
	27/9/05	14	Good	5	Poor	33	Fair
	11/4/06	13	Good	5	Poor	33	Fair
	17/11/06	16	Good	4	Very Poor	37	Good
	20/4/07	14	Good	5	Poor	36	Fair
	5/10/07	13	Good	5	Poor	35	Fair
	8/4/08	13	Good	4	Very Poor	33	Fair
21/11/08	17	Excellent	4	Very Poor	41	Good	

TABLE 17 (continued): RCE RANKING FOR ALL MONITORING SITES (2000-2008).

Site	Date of Collection	Bank Condition Scores	Bank Condition Rating	Bed Condition Score	Bed Condition Rating	Stream Condition (RCE)	RCE Rating
Site 4 Scotch Dairy Ck D/S	26/09/00	20	Excellent	5	Poor	39	Good
	19/03/01	17	Good	7	Fair	39	Good
	11/10/01	16	Good	11	Excellent	42	Good
	15/04/02	15	Good	8	Fair	40	Good
	9/10/02	16	Good	5	Poor	34	Fair
	17/04/03	17	Good	5	Poor	35	Fair
	10/10/03	15	Good	6	Poor	37	Good
	1/4/04	17	Good	5	Poor	40	Good
	6/10/04	13	Good	7	Fair	37	Good
	15/4/05	15	Good	6	Poor	37	Good
	27/9/05	16	Good	6	Poor	38	Good
	11/4/06	14	Good	5	Poor	35	Fair
	17/11/06	15	Good	6	Poor	36	Fair
	20/4/07	16	Good	8	Fair	35	Fair
	5/10/07	16	Good	8	Fair	40	Good
	8/4/08	13	Good	5	Poor	33	Fair
21/11/08	16	Good	8	Fair	39	Good	
Site 5 Weakleys Flat Ck D/S	26/09/00	21	Excellent	7	Fair	41	Good
	19/03/01	18	Good	6	Poor	40	Good
	11/10/01	14	Good	10	Good	40	Good
	15/04/02	14	Good	5	Good	37	Good
	9/10/02	17	Good	8	Fair	42	Good
	17/04/03	17	Good	8	Fair	39	Good
	10/10/03	15	Good	12	Excellent	42	Good
	1/4/04	17	Good	9	Good	45	Good
	6/10/04	14	Good	7	Fair	39	Good
	15/4/05	13	Good	6	Poor	36	Fair
	27/9/05	12	Fair	8	Fair	37	Good
	11/4/06	15	Good	9	Good	37	Good
	17/11/06	14	Good	10	Good	36	Fair
	20/4/07	17	Good	8	Fair	37	Good
	5/10/07	15	Good	8	Fair	38	Good
	8/4/08	16	Good	8	Fair	40	Good
21/11/08	15	Good	8	Fair	39	Good	
Site 6 Weakleys Flat Ck U/S	26/09/00	19	Excellent	5	Poor	34	Fair
	19/03/01	14	Good	6.5	Fair	33.5	Fair
	11/10/01	15	Good	6	Poor	34	Fair
	15/04/02	12	Fair	9	Good	37	Good
	9/10/02	16	Good	8	Fair	39	Good
	17/04/03	15	Good	9	Good	38	Good
	10/10/03	15	Good	7	Fair	36	Fair
	1/4/04	17	Good	9	Good	39	Good
	6/10/04	14	Good	6	Poor	35	Fair
	15/4/05	14	Good	5	Poor	30	Fair
	27/9/05	14	Good	8	Fair	36	Fair
	11/4/06	11	Fair	8	Fair	34	Fair
	17/11/06	13	Good	6	Poor	29	Fair
	20/4/07	11	Fair	7	Fair	33	Fair
	5/10/07	14	Good	7	Fair	34	Fair
	8/4/08	13	Good	8	Fair	37	Good
21/11/08	15	Good	6	Poor	34	Fair	

3.2.5 Groundwater

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

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

Control Strategy:

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

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

The analytes EC, pH, TDS, TSS and SO₄ are routinely taken each month at all of the current piezometer sites. A full suite analysis is taken every six months and includes analysis of EC, pH, TDS, TSS, SO₄, Ca, Mg, Na, K, Cl, F, I, As, Al, Ba, Cd, Co, Cu, Cr, Fe, Mn, Pb, Zn and Total Alkalinity as CaCO₃.

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

Environmental Performance:

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

A summary of the three key parameters required by the EPL (pH, EC and the Standing Water Level) for the reporting period as well as the pre-mining baseline is included in **Table 18**.

Site **DPZ 7** was destroyed in September 2007 and **DPZ 9** was destroyed in March 2007 due to progressive mining operations.

Generally the average Standing Water Levels (SWL) in 2008/9 were higher than the baseline period (water moving away from the surface), sites in close proximity to mining operations (DPZ5 and DPZ8) show the greatest change, most likely due to the predicted localized groundwater drawdown from mining operations. SWL in bores more remote from mining operations have generally shown a recovery in groundwater levels compared to the corresponding values in the 2008 AEMR reporting period, most likely due to the continued recharge of the aquifers after the above average rainfall in 2008/9.

Average pH values have shown some reductions from background levels at sites DPZ5 and DPZ8 and average EC values are similar to pre-mining values apart from DPZ5 which has shown a significant decrease in EC. Sites DPZ5 and DPZ8 are located in close proximity to mining operations and may be showing some localized impact however sites located further from open cut mining are showing no mining impact.

Overall, it appears that Donaldson has had negligible or no impact on water quality of the surrounding off site groundwater resources during the 2009 AEMR reporting period.

TABLE 18: SUMMARY OF KEY GROUNDWATER PARAMETERS COMPARED WITH PRE-MINING BASELINE DATA.

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value			Lowest Sample value			Mean Sample Value		
			pH	EC	SWL*	pH	EC	SWL*	pH	EC	SWL*
DPZ2	12	0	-	-	-	-	-	-	-	-	-
<i>Pre-mining</i>	---	---	<i>No pre-mining samples available</i>								
DPZ3	12	12	6.8	13350	9.59	5.4	245	8.41	6.5	9354	9.1
<i>Pre-mining</i>	---	---	<i>6.96</i>	<i>11350</i>	<i>11.51</i>	<i>5.99</i>	<i>10200</i>	<i>12.05</i>	<i>6.59</i>	<i>10860</i>	<i>11.76</i>
DPZ5	12	12	6.9	8290	12.14	5.5	145	8.41	5.9	1839	7.5
<i>Pre-mining</i>	---	---	<i>7.21</i>	<i>8520</i>	<i>5.73</i>	<i>6.72</i>	<i>4280</i>	<i>5.90</i>	<i>7.37</i>	<i>6986</i>	<i>5.81</i>
DPZ6	12	12	6.9	4570	29.6	6.3	3020	24.48	6.5	4000	26.6
<i>Pre-mining</i>	---	---	<i>No pre-mining samples available</i>								
DPZ7@50m	-	-	-	-	-	-	-	-	-	-	-
<i>Pre-mining</i>	---	---	<i>6.14</i>	<i>2390</i>	<i>21.47</i>	<i>5.36</i>	<i>2180</i>	<i>22.00</i>	<i>5.76</i>	<i>2270</i>	<i>21.78</i>
DPZ8	12	6	5.1	3000	31.69	3.1	2370	12.84	3.8	2570	29.5
<i>Pre-mining</i>	---	---	<i>5.66</i>	<i>1820</i>	<i>24.35</i>	<i>5.46</i>	<i>1690</i>	<i>24.35</i>	<i>5.56</i>	<i>1755</i>	<i>24.35</i>
DPZ9	-	-	-	-	-	-	-	-	-	-	-
<i>Pre-mining</i>	---	---	<i>6.32</i>	<i>2940</i>	<i>17.37</i>	<i>5.47</i>	<i>2221</i>	<i>17.65</i>	<i>6.02</i>	<i>2563</i>	<i>17.49</i>
DPZ10	12	12	6.7	3700	13.92	6.6	3320	12.92	6.7	3590	13.1
<i>Pre-mining</i>	---	---	<i>6.97</i>	<i>3760</i>	<i>12.40</i>	<i>6.48</i>	<i>3670</i>	<i>12.40</i>	<i>6.71</i>	<i>3611</i>	<i>12.40</i>
DPZ12	12	8	6.9	12000	24.15	6.3	2280	16.07	6.8	8528	20.1
<i>Pre-mining</i>	---	---	<i>No pre-mining samples taken due to restricted access to private property</i>								
DPZ13	12	12	7.1	14570	8.94	6.7	12500	7.04	6.9	13329	7.3
<i>Pre-mining</i>	---	---	<i>7.22</i>	<i>13750</i>	<i>7.25</i>	<i>6.67</i>	<i>12200</i>	<i>7.01</i>	<i>6.87</i>	<i>12907</i>	<i>7.14</i>

* Standing Water Level is recorded as metres (m) below the natural surface. Some sites were dry at the time of sampling, with no sample available which accounts for the reduced number of samples collected.

3.2.6 Contaminated Land

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

Control Strategy:

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

- There are no underground storage tanks (UST) on the site;
- Earthen and concrete bunding is used as secondary containment for the bulk storage of hydrocarbons and chemicals;
- Oil spill mop and absorbents are used to clean up spills;
- When spills occur the contaminated material is excavated and taken to a landfarm where it is remediated prior to being placed back in the fill;
- Oil/Water separators are used to remove any residual hydrocarbon from washdown waters;

- Spills are recorded on an Environmental Incidents report. This form is used to identify where improvements can be made to reduce the likelihood of the incident re-occurring;
- Both the mining contractor and the Donaldson Coal Environmental Officer undertake informal and formal inspections of the workshop areas to ensure hydrocarbons and chemicals are stored appropriately;
- All new employees are taken through an Environmental Awareness Induction prior to commencing work at the mine. This includes an explanation of ways to avoid spills and to ensure that appropriate actions are taken to clean up the spill and ensure that it is remediated;
- Toolbox talks are undertaken with all employees to explain ways to avoid spills and to ensure that appropriate actions are taken to clean up the spill and ensure that it is remediated; and
- A land farm area has been constructed on the out-of pit dump where contaminated soil is stored temporarily and treated to remove the hydrocarbons before being placed back on the rehabilitated areas and revegetated.

Environmental Performance:

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

3.2.7 Threatened Flora

There was one species of threatened flora identified during the EIS, *Tetradlea juncea* (Black-eyed Susan). As a result a *Tetradlea juncea* Management Plan was developed by Gunninah (2000b). The aim of the plan is to provide a comprehensive program for the *Tetradlea juncea* population in the south western portion of the mine site.

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

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

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

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

The *Tetratheca juncea* Conservation Area Annual Report 2007 (Ecobiological, 2008) was prepared during the 2008 AEMR period. The June 2009 monitoring showed an increase in identifiable living plant parts (including stems and flowers) compared with the inspection in August 2008. The daily rainfall data for the 2008/2009 period indicated higher than average annual rainfall over this period which may have contributed to the increase in living plant parts.

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 to any clearing activities.

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

Environmental Performance:

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

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

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

The following is a summary from the *Tetratheca juncea* Conservation Area Annual Report 2008 (Ecobiological, 2009):

Reasons for the decline in pollinator activity can only be speculated upon however most of the known *Tetratheca juncea* pollinators make nests in small tunnels in the ground and so the availability of suitable ground would be a pre-requisite. It has been over 10 years since a fire in the TjCA and it is possible that suitable nesting areas have either been overgrown or covered in leaf litter.

Empirical observation suggests that the *Tetratheca juncea* is being out-competed by other species. The grass *Entolasia stricta* would seem to be a main competing species but other species can also have an impact. In one case (Clump 18) a *Patersonia glabrata* clump had displaced the *Tetratheca juncea* clump.

There has been one published study (Norton 1994) and one unpublished study (Driscoll unpub) looking at the response of *Tetratheca juncea* to fire. Both studies showed that the plant clumps resprout following fire. Norton (1994) noted that the temperature of the fire and length of heating experienced by the plant clumps had an effect on their ability to resprout. High temperatures are likely to burn deep into the rootstock and result in the plant being killed. Driscoll (unpub) observed that even if the main rootstock was killed the plant could resprout from secondary roots away from the original location.

Bartier et al (2001) studied the germination of *Tetratheca juncea* seed and found that the application of smoke water resulted in a significant increase in germination rate. They also studied the viability of the soil sandbank and found it to be only a few months.

Overall, indications are that the population in the TjCA would benefit from a fire through the area. As was recommended in the 2007 annual report it is again recommended that the TjCA be burned at an appropriate time. An appropriate time would be no later than April in order to take advantage of viable seed and to allow for re-sprouting during warm weather. Figure 9 shows a recommended area to be burnt.

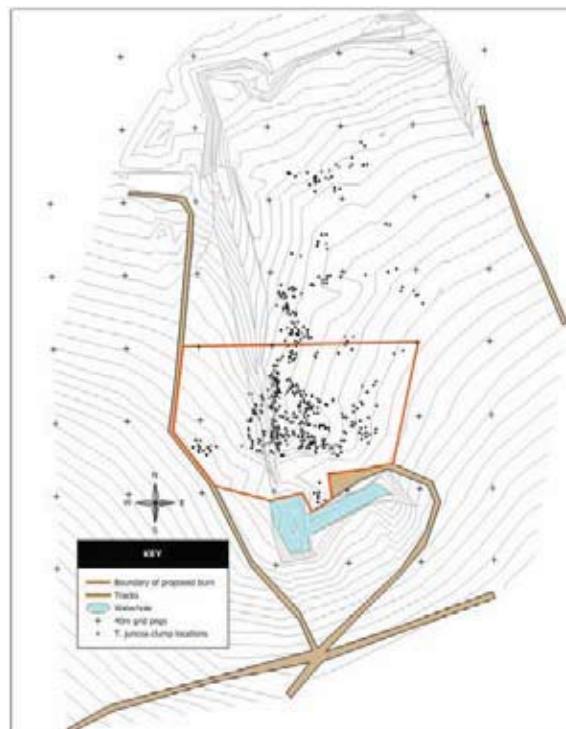


Figure 9: Recommended burn area for 2009

Two relocation events of *Tetratheca juncea* plants were undertaken during the 2006/2007 AEMR periods, as these plants were in the path of mining activities. This occurred in October 2006, where

53 plants were tagged and relocated, and April 2007 where 107 plants were tagged and relocated into an existing relocation program. The plants were then watered and monitored over a period of 6 to 8 weeks. Fortunately the region had significant rain events throughout both of these relocation periods. The plants will continue to be monitored and results will be reported annually in conjunction with the monitoring results for the existing relocation program. The annual survey was conducted in August 2008 and the monitoring indicated a significant increase in identifiable living plant parts (including stems and flowers) compared with the inspection in May 2007, but the overall living plant numbers remained the same as the previous year.

From the time of translocation, where 100% of plants were living, to September 2005 (where plants 36 and 37 were translocated), 79% of the total translocated plants had survived and all living plants were flowering. Between September 2005 and June 2006, more plants had succumbed to environmental pressures. Only 14 of the total 37 plants translocated (36%) had survived.

In May 2007, just 10 of the 37 translocated plants (27%) were alive, with some observed to be flowering. No seed pods were identified. This survival rate remained the same over the next 15 months to August 2008. The June 2009 monitoring survey indicated that one plant on Group 3 has perished since the last monitoring survey back in August 2008, and one plant on Group 4 has 2 new shoots, which have not been identified from this plant since June 2006 (12 months since planting). The total survival rate for the initial translocation program is currently 27% after 4 years. From the ten surviving plants in the June 2009 monitoring survey, seven were showing flower buds and flowers, and all had significant additional growth.

Grevillea parviflora subsp. *parviflora* is listed as a Vulnerable species in both the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. During pre-clearing surveys, several populations of the species have been located on the Donaldson property with some being potentially within the mining footprint. The Donaldson Flora and Fauna Management Plan (EcoBiological 2007) requires that where threatened plants are found to be within the mine disturbance area, and it is not possible to plan around them, the plants be relocated using the best available information and methods. The recipient sites were located as close as possible to the source sites to minimise the disturbance during transport. The plants were then watered and monitored up to 6 weeks after relocation and generally greater than 70% survival rate was observed.

3.2.8 Threatened Fauna

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

- The Powerful Owl;
- The Masked Owl;
- The Barking Owl;
- Yellow-bellied Sheath-tail Bat
- Eastern Bent-wing Bat
- Eastern Freetail Bat
- Greater Broad-nose Bat
- Little Bent-winged Bat.

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

Control Strategy:

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

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

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

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

Six monthly and annual reports are produced compiling the work undertaken throughout the year, along with detailed annual data interpretation and comparison with the baseline study. In addition Donaldson Coal has completed a recent experiment that tested the utilisation of artificial nest boxes placed in trees in 2005. This study continued through summer and winter from 2005 to 2008. There was a significant increase in proportion of nest boxes occupied over time from 2005 to 2008. Nest box utilization in summer was significantly higher in summer than in winter across the years. Two species of fauna (Sugar Glider and Common Bushtail Possum) were visually confirmed to be active in and around the nest boxes on the site. In June 2008, 51.1% of nest boxes showed evidence of use, while in December 2008, this figure increased considerably to 64.4%. In July 2009 evidence of use reduced slightly to 60%. The individuals at Donaldson Coal are an important population considered in this research project.

Bird surveys targeted bi-annual bird surveys began in 2003 with a winter and summer survey of each quadrant conducted. A 2-ha area centered on each quadrant was surveyed for 30 minutes in the morning between the 29th June and the 1st July 2009 and the birds were identified either visually, with the aid of binoculars, or by call interpretations.

Results for the annual flora and fauna monitoring survey conducted in late 2008 indicates that:

- Plant species numbers have increased since 2001 and have all floristic structural components which is indicative of a dynamic plant community with a apparently high recruitment from the seed pool, normally an indicator of healthy plant community status.
- This continually increasing habitat, structural attributes and floristic diversity however is not reflected in faunal content. There has been an observed decline in mammal species between 2001 and 2008 most notably within the arboreal mammals. This decline is a probable indicator of the pressures being placed on the remnant habitat by the increasing habitat loss and the ever shrinking size of the Donaldson habitat remnant overall.
- The decline or disappearance of several species of arboreal mammal that has occurred at Donaldson may also be having an impact on the Powerful Owl population that occurs in the area.
- The declining species are all common prey items of the Powerful Owl and together with the general loss of foraging range may place significant pressure on the Powerful Owls at the subject site.
- Where possible other management options should be put in place to improve declining faunal numbers and diversity. Such measures might include a major spraying campaign to rid the site of most of the Lantana that is constantly encroaching on native forest and a study to investigate the impact of shrinking habitat patches and loss of prey items on the Powerful Owl.

Environmental Performance:

The monitoring undertaken to date suggests that flora is establishing well after mining but that there is additional pressure being placed on fauna populations in remnant habitats from habitat loss.

The consultants, Ecobiological, did not find any signs (sightings, scats or scratchings) of Koalas during their searches during the 2009 reporting period.

3.2.9 Weeds and Pests

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

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

Control Strategy:

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

- Observance of the requirements prescribed by the NSW Noxious Weeds Act (1993);
- Assessment of weeds during pre-clearing and monitoring surveys;
- Dedicated weed control programs along access roads, tracks and exploration lines;

- Ensuring vehicles coming onto the site are clean and free of soil that could transfer weeds from other sites; and
- Restricting access to the Donaldson mine site by the erection of a fence and gates in an attempt to control illegal dumping.

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

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

Environmental Performance:

Donaldson Coal continued the noxious weed control program, targeting *Pampas Grass*, in 2009. The plants, located on disturbed areas of the mine, were treated with herbicide application and flowering head removal. The treatment was carried out by suitably qualified personnel utilising manual shears and application of a Glyphosate herbicide product. All seed heads were bagged and disposed off site in a safe and secure manner.

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

3.2.10 Blasting

Blasting activities commenced at Donaldson Coal mine on the 15th November 2001. A total of 64 blasts were undertaken at the mine during the 2009 AEMR reporting period compared to 113 blasts in the 2008 AEMR reporting period.

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

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

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

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

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

The Barter site monitor results have not been included, as the site has been vacated and is now derelict. The Fairfax Regional Printing facility is monitored for ground vibration as required by the development consent. An additional monitor was placed at the ABAKK residences as the pit moved westward along John Renshaw Drive. The location of the monitor was in agreement with the owners of the property.

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 DCCC (EPA) License 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 hook up and firing;
- Use of experienced blast contractors;
- Monitoring the meteorological conditions prior to blasting;
- Avoidance of concurrent blasts with adjoining Coal Mines; and
- Notifying Landowners and occupiers of blast events.

Environmental Performance:

A summary of the Peak Particle Velocity monitoring results for blasts undertaken during the period is presented in **Table 19**. All blast results are included in **Appendix 9**. The maximum vibration (peak particle velocity) recorded at the sites, excluding the Hunter Water Pipeline site, during the reporting period was 1.6 mm/s, which was below the applicable criteria (5 mm/s).

TABLE 19: SUMMARY OF PEAK PARTICLE VELOCITY (ppv) MONITORING RESULTS (mm/s).

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value	Lowest Sample value	Mean Sample Value
Weakleys Dr (Chidgey)	64	63	0.26	0.026	0.055
Fairfax Printing	64	63	0.22	0.020	0.070
Avalon Estate	64	63	0.260	0.010	0.068
HWC Pipeline	64	63	22.08	0.070	2.840
Abakk	64	63	1.6	0.02	0.284

A summary of the overpressure monitoring results for blasts undertaken during the period is presented in **Table 20** below. DCCC (EPA) License criteria are applicable at the Weakleys Drive and Avalon Estate monitors. All blasts at these sites recorded blast overpressure below 115dB(L), well within the Licence conditions. Overpressure monitoring is not required at the HWC pipeline site.

TABLE 20: SUMMARY OF OVERPRESSURE (dBL) MONITORING RESULTS.

Sample Site	No Samples Required	No samples collected and analysed	Highest Sample Value	Lowest Sample value	Mean Sample Value
Weakleys Dr (Chidgey)	64	63	110	88.5	98.1
Fairfax Printing	64	63	112.5	86.9	99.9
Avalon Estate	64	63	112.1	81.5	96.6
ABAKK	64	63	114.9	86.4	101.9

Overall the data capture rate during the reporting period has been very good. **Table 21** shows the data capture rate for each of the blast monitoring units during the reporting period. None of the blasts undertaken at Donaldson during the period were too small to trigger the monitors that are some 1100m from the mine. Only one blast was not monitored due to an incorrect SMS trigger setting which was rectified for the following blast event.

TABLE 21: SUMMARY OF DATA CAPTURE RATES – BLAST MONITORING UNITS

Monitoring Location	% Data Capture
Chidgey (Weakleys Drive)	98.4
Fairfax Regional Printing Press	98.4
McDonnell's (Avalon Estate)	98.4
Abakk	98.4
Hunter Water Pipeline	98.4
OVERALL:	98.4

The rate of data capture was similar from that recorded in the previous AEMR reporting period. The high rate of data capture has been achieved by way of the following initiatives implemented by the mine.

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

3.2.11 Noise

Heggies Pty Ltd² have completed four routine quarterly unattended continuous noise surveys for Donaldson during the 2009 AEMR reporting period. The dates for the surveys are as follows:

- Tuesday 16th December - Tuesday 23rd December 2008;
- Tuesday 17th March- Wednesday 25th March 2009
- Thursday 18th June – Monday 29th June 2009; and
- Wednesday 2nd September – Wednesday 9th September 2009

² Heggies Pty Ltd (Newcastle Office), Newcastle, NSW. Ph:02 4908 4500

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

- Tuesday 16th December (daytime) and Tuesday 23rd December 2008 (daytime), Monday 22nd December (evening) and Wednesday 17th December 2008 (night-time);
- Tuesday 17th March (daytime), Monday 23rd March (evening) and Tuesday 24th March 2009 (night-time);
- Thursday 18th June (daytime), Wednesday 24th June (evening) and Wednesday 24th/Thursday 25th June 2009 (night-time); and
- Wednesday 2nd September (daytime), Wednesday 2nd/Thursday 3rd September (evening) and Thursday 3rd/Friday 4th September 2009 (night-time)

Heggies Pty Ltd² have performed baseline and preceding quarterly surveys at 11 locations around the Donaldson mine site. Heggies Pty Ltd, (2004, 2005a-c). Based on these surveys, the noise monitoring is now concentrated at the four potentially most affected areas at the time of survey. These locations are provided in **Table 22**.

TABLE 22: LIST OF PRESENT NOISE MONITORING SITES

Location	Donaldson Monitoring location
98 Weakleys Dr., Beresfield	Location A
684 Black Hill Road, Black Hill	Location F
156 Buchannan Road, Buchannan	Location G
17 Kilshanny Ave, Ashtonfield	Location L
Catholic Diocese of Maitland (formerly Bartter Enterprises)	Location K

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

Control Strategy:

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

- Construction of an 8m high acoustic barrier which will be progressively moved with the excavation;
- Reduced night time operations, operating only on a day and afternoon roster with the full overburden removal and mining fleets;
- Testing of all equipment prior to being put to work at the operation;
- Constructing roadways and dumps to best use the natural shielding of the topography;
- Routine noise monitoring and complaint based investigative monitoring to determine compliance with noise limits;
- Monitoring the meteorological conditions and re-arranging the pit where possible to shield noisy activities during temperature inversions.

Environmental Performance:

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

Results of Unattended Continuous Surveys

Tuesday 16th December – Tuesday 23rd December 2008 (December Quarter)

Table 23 presents a comparison between the noise statistics collected during the December quarter 2008 unattended continuous survey and the pre-mining baseline statistics.

TABLE 23: Unattended Continuous Monitoring Ambient Noise Levels, DECEMBER 2008 MONITORING PERIOD.

Location	Period	LA1	LA10	LA90	LAeq
A Weakleys Drive Beresfield	Daytime	58	54	48	54
	Evening	59	56	46	55
	ENCM Daytime	59	55	47	55
	Night	58	54	41	52
F Lot 684 Black Hill Road, Black Hill	Daytime	64	55	45	55
	Evening	63	54	43	57
	ENCM Daytime	64	55	44	55
	Night	56	52	41	52
G 156 Buchanan Road, Buchanan	Daytime	74	67	41	62
	Evening	72	63	40	61
	ENCM Daytime	73	67	40	62
	Night	65	47	35	56
L 17 Kilshanny Ave, Ashtonfield	Daytime	51	44	35	57
	Evening	49	45	36	44
	ENCM Daytime	51	45	35	57
	Night	46	41	32	48
K Catholic Diocese of Maitland	Daytime	No Data	No Data	No Data	No Data
	Evening	56	50	41	49
	ENCM Daytime	No Data	No Data	No Data	No Data
	Night	No Data	No Data	No Data	No Data

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

Ambient LA₉₀ Noise Levels

A summary of ambient LA₁₀ noise levels can be found within **Table 23**.

The summary of results in **Table 23** show that ambient day, evening and night time LA₉₀ noise levels recorded for the quarter ending December 2008 were within 3 dBA of levels recorded during the baseline monitoring process at Locations A and K. Significant increases of 6 dBA, 8 dBA and 10 dBA were recorded respectively in the daytime, evening and night-time periods at Location F. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by increase in traffic volumes, road-works and insect/cricket/frog activity and not from Donaldson Mine or Abel Project activity.

A comparison of the current monitoring period with the previous monitoring period shows that with the exception of a 3 dBA increase during the daytime at location F, LA₉₀ noise levels have remained generally similar at Locations F and K. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by local traffic and road-works and not from Donaldson Mine or Abel Project activity.

Given that no data was available at Location A during September 2008 no comparison can be made to noise levels.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₉₀ noise levels recorded during the evening at location K and during all periods at locations A were significantly lower than those recorded in December 2007. Increases were recorded during the daytime (2 dBA), evening (2 dBA) and night-time (1 dBA) at location F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Project activity.

Tuesday 17th March – Wednesday 25th March 2009 (April Quarter)

Table 24 presents a comparison between the noise statistics collected during the March 2009 quarter unattended continuous survey and the pre-mining baseline statistics.

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

Location	Period	LA1	LA10	LA90	LAeq
A	Daytime	59	56	48	54
Weakleys Drive Beresfield	Evening	59	54	46	53
	ENCM Daytime	59	55	47	53
	Night	58	53	41	51
F	Daytime	64	55	39	53
Lot 684 Black Hill Road, Black Hill	Evening	60	50	37	51
	ENCM Daytime	63	54	38	52
	Night	55	48	33	48
G	Daytime	64	60	37	55
156 Buchanan Road, Buchanan	Evening	63	55	32	52
	ENCM Daytime	64	59	34	54
	Night	60	40	28	48
L	Daytime	58	48	35	51
	Evening	58	45	37	52
	ENCM Daytime	58	47	35	51
	Night	44	41	36	42
K	Daytime	56	51	41	52
	Evening	55	50	41	49
	ENCM Daytime	56	51	40	51
	Night	56	50	36	49

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

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

Ambient LA₉₀ Noise Levels

The summary of results in **Table 24** show that ambient day, evening and night time LA₉₀ noise levels recorded for the quarter ending March 2009 were within 3 dBA of levels recorded during the baseline monitoring process at Locations A, F and K. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by an increase in traffic volumes and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₉₀ noise levels were similar (within 1 dBA) at Location A and were significantly lower (2 dBA to 8 dBA) at Locations F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Ambient LA₁₀ Noise Levels

The summary of results in **Table 23** show that ambient day, evening and night-time LA₁₀ noise levels recorded for the quarter ending March 2009 were less than or similar (within 1 dBA) to levels recorded during the baseline monitoring process at Locations A and K. Ambient evening and night-time LA₁₀ noise levels were less than or similar (within 1 dBA) to levels recorded during the baseline monitoring process at Location F. A significant increase (4 dBA) was recorded during the daytime at Location F. Operator attended noise surveys at this location (Location F) noted that the LA₁₀ noise levels were dominated by local traffic and not from Donaldson Mine or Abel Coal Mine activity.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₁₀ noise levels during all periods were generally equal to (within 1 dBA) or less than those recorded at Locations A and F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Thursday 18th June – Monday 29th June 2009 (June Quarter)

Table 25 presents a comparison between the noise statistics collected during the June 2009 quarter unattended continuous survey and the pre-mining baseline statistics.

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

Location	Period	LA1	LA10	LA90	LAeq
A Weakleys Drive Beresfield	Daytime	61	57	49	56
	Evening	60	56	48	54
	ENCM Daytime	61	57	48	56
	Night	59	54	37	52
F Lot 684 Black Hill Road, Black Hill	Daytime	70	58	45	57
	Evening	64	54	46	54
	ENCM Daytime	69	56	45	57
	Night	58	52	44	52
G 156 Buchanan Road, Buchanan	Daytime	74	68	37	65
	Evening	74	59	38	60
	ENCM Daytime	74	67	37	63
	Night	65	44	37	55
L 17 Kilshanny, Ashtonfield	Daytime	57	47	32	50
	Evening	52	42	36	45
	ENCM Daytime	56	46	32	49
	Night	44	39	32	43
K Catholic Diocese of Maitland	Daytime				
	Evening				
	ENCM Daytime			No Data	
	Night				

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

Ambient LA₉₀ Noise Levels

The summary of results in **Table 25** show that ambient day, evening and night time LA₉₀ noise levels recorded for the quarter ending March 2009 were 4 dBA higher than levels recorded during the baseline monitoring process at Location A in the daytime. Evening and night-time levels at Location A were the same or lower than those recorded during the baseline monitoring. Significant increases of 6 dBA, 11 dBA and 13 dBA were recorded respectively in the daytime, evening and night-time periods at Location F. Given observations made during operator attended noise surveys, it is likely that the rise in noise levels was caused by increase in traffic volumes and insect/cricket/frog activity and not from Donaldson Mine or Abel Project activity.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₉₀ noise levels were 3 dBA and 4 dBA higher during the daytime and evening respectively at Location A whilst night-time levels were 3 dBA lower than the coinciding period last year. LA₉₀ noise levels were similar (within 2 dBA) at Location F. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Ambient L10₁₀ Noise Levels

The summary of results in **Table 25** show that ambient day, evening and night time LA₁₀ noise levels recorded for the quarter ending March 2009 were less than or similar (within 1 dBA) to levels recorded during the baseline monitoring process at Location A. Ambient evening and night-time LA₁₀ noise levels were 5 dBA to 7 dBA greater than levels recorded during the baseline monitoring process at Location F. Operator attended noise surveys at this location (Location F) noted that the LA₁₀ noise levels were dominated by local traffic and not from Donaldson Mine or Abel Coal Mine activity.

A comparison of the current monitoring period with the previous monitoring periods shows that recorded LA₁₀ noise levels at Location A were generally similar (within 2 dBA) to levels at Location A during the March 2009 quarterly monitoring. Noise levels at Location L were lower during all periods. Increases of 3 dBA to 4 dBA were recorded Location F. Significant increases of 20 dBA and 14 dBA were recorded respectively in the daytime and evening periods at Location G. Operator attended noise surveys at these locations (Location F and G) noted that the LA₁₀ noise levels were dominated by local traffic and not from Donaldson Mine or Abel Coal Mine activity.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₁₀ noise levels recorded at Location A were greater than last year with a maximum increase of 3 dBA being recorded during the evening. LA₁₀ noise levels at Location F were 3 dBA and 2 dBA higher during the daytime and evening, respectively, whilst night-time noise levels were slightly lower than last year. Given observations made during operator attended noise surveys, it is likely that the variance in noise levels was caused by local traffic and insect/cricket/frog activity and not from Donaldson Mine or Abel Coal Mine activity.

Wednesday 2nd September – Wednesday 9th September 2009 (September Quarter)

Table 26 presents a comparison between the noise statistics collected during the September 2009 quarter unattended continuous survey and the pre-mining baseline statistics.

TABLE 26: Unattended Continuous Monitoring Ambient Noise Levels, SEPTEMBER 2009 MONITORING PERIOD.

Location	Period	LA1	LA10	LA90	LAeq
A	Daytime	59	54	47	57
Weakleys Drive, Beresfield	Evening	56	53	43	52
	ENCM Daytime	58	53	44	56
	Night	57	52	37	52
F	Daytime	68	57	42	56
Lot 684 Black Hill Road, Black Hill	Evening	63	54	47	53
	ENCM Daytime	67	55	42	56
	Night	59	51	40	53
G	Daytime	72	66	38	62
156 Buchanan Road, Buchanan	Evening	70	60	32	58
	ENCM Daytime	71	56	33	61
	Night	65	43	29	55
L	Daytime	58	47	32	58
	Evening	50	41	33	42
	ENCM Daytime	56	45	32	58
17 Kilshanny Ave, Ashtonfield	Night	42	36	29	52
	Daytime	58	55	44	65
	Evening	57	53	39	50
K Catholic Diocese of Maitland	ENCM Daytime	57	54	42	52
	Night	57	51	33	52

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

Ambient LA₉₀ Noise Levels

The summary of results in **Table 26** show that ambient day, evening and night time LA₉₀ noise levels recorded for the quarter ending September 2009 were lower than levels recorded during the baseline monitoring process at Location A in the daytime, evening and night-time. Significant increases of 13 dBA, 22 dBA and 19 dBA were recorded respectively in the daytime, evening and night-time periods at Location F.

A comparison of the current monitoring period with the previous monitoring period shows that LA₉₀ noise levels were generally lower at Locations A, G and L. Significant increases of 7 dBA, 11 dBA and 6 dBA were recorded respectively in the daytime, evening and night-time periods at Location F.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₉₀ noise levels were 10 dBA, 13 dBA and 8 dBA higher during the daytime, evening and night-time respectively at Location F. LA₉₀ noise levels at Location K were 3 dBA higher during the daytime and were lower during the evening and night-time periods.

Ambient LA₁₀ Noise Levels

The summary of results in **Table 26** show that ambient day, evening and night-time LA₁₀ noise levels recorded for the quarter ending September 2009 were less than levels recorded during the baseline monitoring process at Location A. Ambient daytime, evening and night-time LA₁₀ noise levels were 4 dBA to 6 dBA greater than levels recorded during the baseline monitoring process at Location F.

A comparison of the current monitoring period with the previous monitoring period shows that recorded LA₁₀ noise levels at Location A were lower than levels at Location A during the June 2009 quarterly monitoring. Noise levels at Locations F, G and L were the similar (within 1 dBA) or lower during all periods.

A comparison of the current monitoring period with the coinciding monitoring period last year indicates that LA₁₀ noise levels recorded at Locations F and K were slightly higher than last year with a maximum increase of 2 dBA being recorded during the daytime at both locations.

Results of Attended Surveys

Tuesday 16th December - Tuesday 23rd December 2008

Operator attended noise measurements were conducted during the daytime on Tuesday 16 December 2008 and Tuesday 23 December 2008, the evening on Monday 22 December 2008 and the night-time on Wednesday 17 December 2008. The results of the operator attended noise measurements are given in **Tables 27 to 31**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

TABLE 27: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} - dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
16/12/2008 17:27 W = 1-2m/s S Temp = 27°C	Daytime Ambient	65	62	58	51	55	Traffic noise dominant (Weakleys Drive) ~ 50-64, Birds/Insects ~ 50-56, Resident noise ~ 48-53. Donaldson mine inaudible Abel mine inaudible
22/12/2008 21:03 W = 0.5m/s NE Temp = 23°C	Evening Ambient	86	79	74	57	71	Traffic noise dominant (Weakleys Drive) ~ 66-86, Crickets/insects < 55, Other Industry ~ 49-69. Donaldson mine inaudible Abel mine inaudible
17/12/2008 10:35 W = 1-3 SSE Temp = 20°C	Night-time Ambient	91	82	74	54	71	Traffic noise dominant (Weakleys Drive) ~ 68-84, Insects/crickets <55. Donaldson mine inaudible Abel mine inaudible

TABLE 28: ATTENDED SURVEY RESULTS – LOCATION F – LOT 684 BLACK HILL ROAD, BLACK HILL

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} - dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
23/12/2008 09:33 W = 0.5m/s NW Temp = 24°C	Daytime Ambient	84	79	63	49	64	Traffic (John Renshaw Dr) ~ 51-55, Traffic (Black Hill Rd) ~ 80-84, Birds/Insects ~ 49-58, Bloomfields (engine noise) just audible during lulls of 49 dBA. Donaldson mine inaudible Abel mine inaudible
22/12/2008 20:40 W = 0.5 m/s NE Temp = 23°C	Evening Ambient	83	62	52	46	55	Traffic (John Renshaw Dr) ~ 51-55, Traffic (Black Hill Rd) ~ 83, Crickets/insects/frogs ~ 47, Roadside-Works Light Generator ~ 47. Donaldson mine inaudible Abel mine inaudible
17/12/2008 23:21 W = 1-3m/s SE Temp = 21°C	Night-time Ambient	83	70	53	48	58	Traffic (John Renshaw Dr) ~ 50-53, Traffic (Black Hill Rd) ~ 76-82, Wind in trees ~ 40-45, Crickets/insects/frogs ~ 45. Donaldson mine inaudible Abel mine inaudible

TABLE 29: ATTENDED SURVEY RESULTS – LOCATION G – 156 BUCHANAN ROAD, BUCHANAN

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
23/12/2008 09:57 W = 1m/s NW Temp = 26°C	Daytime Ambient	88	82	75	46	71	Traffic (Buchanan Rd) ~ 74-82, Plane ~ 51-52, Birds/insects ~ 42-48. Donaldson mine inaudible Abel mine inaudible
22/12/2008 20:13 W = 1m/s NE Temp = 23°C	Evening Ambient	83	80	72	56	70	Traffic (Buchanan Rd) ~ 75-83, Insects (dominant) ~ 54-72, Bloomfields just audible during lulls of 54. Donaldson mine inaudible Abel mine inaudible
17/12/2008 23:44 W = Calm Temp = 21°C	Night-time Ambient	79	75	58	40	60	Traffic (Buchanan Rd) ~ 75-76, Insects ~ 36-37, Wind in trees ~ 40-43, Bloomfields engine noise <35. Donaldson mine inaudible Abel mine inaudible

TABLE 30: ATTENDED SURVEY RESULTS – LOCATION L - 17 KILSHANNY AVE, ASHTONFIELD

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
16/12/2008 16:50 W = 1-2m/s S Temp = 27°C	Daytime Ambient	76	61	46	35	49	Distant Traffic ~ 36-42, Bird ~ 38-43, Resident noise ~ 41-60, Operator noise ~ 76. Donaldson mine inaudible Abel mine inaudible
22/12/2008 21:30 W = 1m/s NE Temp = 21°C	Evening Ambient	71	59	49	41	48	Distant Traffic ~ 43-47, Local Traffic ~ 49-53, Insects ~ 41-45, Plane ~ 50-56. Donaldson mine inaudible Abel mine inaudible
17/12/2008 22:08 W = Calm Temp = 21°C	Night-time Ambient	70	61	55	51	54	Distant Traffic ~ 46-48, Local Traffic ~ 63-66, Dog Bark ~ <51, Crickets/insects (dominant)~ 50-55, Bloomfields: train ~ <51 engine noise ~ <51. Donaldson mine inaudible Abel mine inaudible

TABLE 31: ATTENDED SURVEY RESULTS – LOCATION K - CATHOLIC DIOCESE OF MAITLAND (FORMERLY BARTTER ENTERPRISES)

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
23/12/2008 09:00 W = <0.5m/s NE Temp = 24°C	Daytime Ambient	70	55	52	47	50	Traffic (John Renshaw Dr) ~ 48-58, Birds/insects ~ 50-53, Lawnmower ~ 48-53, Donaldson mine; dozer ~ 47-55. Donaldson LA10 Contribution ~ 45-46. Abel mine inaudible
22/12/2008 19:42 W = 1-2m/s NE Temp = 25°C	Evening Ambient	91	84	75	48	72	Traffic (John Renshaw Dr) ~ 78-91, Birds/insects ~ 48-58, Wind in trees ~ 48-55, Donaldson Mine; dozer ~ 48-53. Donaldson LA10 Contribution ~ 47-48. Abel mine inaudible
17/12/2008 22:58 W = 1-3m/s NW Temp = 21°C	Night-time Ambient	90	82	73	49	70	Traffic (John Renshaw Dr) ~ 79-89, Insects ~ 40-44, Donaldson Mine; truck engines ~ <50. Donaldson LA10 Contribution ~ 47-48. Abel mine inaudible

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were only observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) during the daytime, evening and night-time. Condition 23 of schedule 2 of the Donaldson Mine consent is currently operable at the Catholic Diocese site with an agreement in place for the receiver to accept higher noise levels. However, Heggies understand the dwellings on the Catholic Diocese site are currently unoccupied and therefore determining whether consent is achieved at this location is unnecessary. Attended noise surveys conducted with relevance to Location K have therefore been used to assess noise levels at nearest occupied residential receivers to the Catholic Diocese site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at Location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution at these residential locations was approximately 30 dBA during the evening and night-time and 33 dBA during the daytime which is in compliance with Donaldson Mine consent.

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

Tuesday 17th March and Wednesday 25th March 2009

- Tuesday 17th March (daytime), Monday 23rd March (evening) and Tuesday 24th March 2009 (night-time);

Operator attended noise measurements were conducted during the daytime on Tuesday 17 March 2009, the evening on Monday 23 March 2009 and the night-time on Tuesday 24 March 2009. The results of this survey are presented in **Tables 3 2-36**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

TABLE 32: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
17/3/2009 11:55 W = 1m/s W Temp = 27°C	Daytime Ambient	72	64	59	49	56	Traffic noise dominant (Weakleys Drive) ~ 49-53, Birds/Insects ~ 39-46, Resident noise ~ 45-47. Donaldson mine inaudible Abel mine inaudible
23/3/2009 19:05 W = <1m/s NE Temp = 25°C	Evening Ambient	84	77	73	56	72	Traffic noise dominant (Weakleys Drive) ~ 60-84, Crickets/insects < 56, Other Industry ~ 57-63. Donaldson mine inaudible Abel mine inaudible
24/3/2009 23:15 W = Calm Temp = 22°C	Night-time Ambient	90	81	65	47	67	Traffic noise dominant (Weakleys Drive) ~ 50-90, Insects ~ 47-49 Other Industry 48-54. Donaldson mine inaudible Abel mine inaudible

TABLE 33: ATTENDED SURVEY RESULTS – LOCATION F – LOT 684 BLACK HILL ROAD, BLACK HILL

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
17/3/2009 10:33 W = <0.5m/s W Temp = 26°C	Daytime Ambient	85	70	57	39	59	Traffic (John Renshaw Dr) ~ 41-53, Traffic (Black Hill Rd) ~ 85, Sheep ~ 38-41, Birds ~ 40-47. Donaldson mine inaudible Abel mine inaudible
23/3/2009 18:21 W = <1m/s NE Temp = 27°C	Evening Ambient	83	75	60	46	61	Traffic (John Renshaw Dr) ~ 47-64, Traffic (Black Hill Rd) ~ 83, Crickets/insects/frogs ~ 46-56, Donaldson mine Cricket Drill just audible in lulls of 44 dBA Donaldson L _{A10} Contribution <36 dBA. Abel mine inaudible
24/3/2009 22:25 W = Calm Temp = 21°C	Night-time Ambient	73	64	55	44	53	Traffic (John Renshaw Dr) ~ 49-73, Crickets/insects/frogs ~ 41-46, Abel Mine; fan noise ~ 40-44. Abel L _{Aeq} Contribution ~ 38 dBA. Donaldson mine inaudible

TABLE 34: ATTENDED SURVEY RESULTS – LOCATION G – 156 BUCHANAN ROAD, BUCHANAN

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
17/3/2009 13:50 W = <1m/s W Temp = 30°C	Daytime Ambient	86	81	71	44	68	Traffic (Buchanan Rd) ~ 46-74, Birds/insects ~ 44-56. Donaldson mine inaudible Abel mine inaudible
23/3/2009 18:44 W = <1m/s NE Temp = 28°C	Evening Ambient	86	83	79	42	73	Traffic (Buchanan Rd) ~ 44-86, Insects ~ 44-46, Plane ~ 42-45 Donaldson mine inaudible Abel mine inaudible
24/3/2009 22:48 W = Calm Temp = 22°C	Night-time Ambient	83	81	66	65	36	Traffic (Buchanan Rd) ~ up to 83, Wind in trees ~ 36-40. Donaldson mine inaudible Abel mine inaudible

TABLE 35: ATTENDED SURVEY RESULTS – LOCATION L - 17 KILSHANNY AVE, ASHTONFIELD

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
17/3/2009 13:20 W = <1m/s W Temp = 31°C	Daytime Ambient	64	54	47	33	44	Distant Traffic ~ 35-37, Bird ~ 33-38, Dog ~ 35-53 Resident noise ~ 37-39. Donaldson mine inaudible Abel mine inaudible
23/3/2009 19:31 W = <1m/s NE Temp = 25°C	Evening Ambient	77	61	46	36	45	Distant Traffic ~ 36-38, Local Traffic up to 77, Insects/birds ~ 36-41, Resident noise up to 56. Donaldson mine inaudible Abel mine inaudible
24/3/2009 23:47 W = Calm Temp = 20°C	Night-time Ambient	52	47	40	36	39	Dog Bark ~ 37, Crickets/insects ~ 36-39, Operator noise up to 52 Donaldson mine inaudible Abel mine inaudible

TABLE 36: ATTENDED SURVEY RESULTS – LOCATION K - CATHOLIC DIOCESE OF MAITLAND (FORMERLY BARTTER ENTERPRISES)

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} - dBA
		L _{Amax}	LA1	LA10	LA90	LA _{eq}	
17/3/2009 11:12 W = 1m/s W Temp = 26°C	Daytime Ambient	71	59	53	45	51	Traffic (John Renshaw Dr) ~ 44-53, Birds/insects ~ 44-55, Plane ~ 50-53, Donaldson mine; Excavator ~ 43-54 Reverse alarm ~ 47-48 Donaldson LA10 Contribution ~ 49 dBA. Abel mine inaudible
23/3/2009 18:03 W = <1m/s NE Temp = 25°C	Evening Ambient	95	87	82	57	78	Traffic (John Renshaw Dr) ~ 56-95, Birds/insects ~ 55-61, Donaldson Mine (just audible); excavator ~ 55, truck ~ 55-58. Donaldson LA10 Contribution <47 dBA. Abel mine inaudible
24/3/2009 22:03 W = Calm Temp = 23°C	Night-time Ambient	99	84	73	75	47	Traffic (John Renshaw Dr) ~ 48-99, Insects ~ 45-48, Donaldson Mine; excavator ~ 44-48. Donaldson LA10 Contribution ~ 45 dBA. Abel mine inaudible

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) during the daytime, evening and night-time and at Location F Black Hill Rd, during the evening.

To determine whether compliance is achieved, the mine contribution recorded at Location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution at these residential locations was approximately 35 dBA during the daytime, 33 during the evening and 31 dBA during the night-time and which is in compliance with Donaldson Mine consent.

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

Thursday 18th June and Wednesday 24th June 2009

Operator attended noise measurements were conducted during the daytime period on Thursday 18th June 2009. Operator attended noise measurements for evening on Wednesday 24th June and night-time periods were conducted over Wednesday 24th June and Thursday 25th June 2009.

The results of the operator attended noise measurements are given in **Tables 37-41**. Noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

TABLE 37: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	LA1	LA10	LA90	L _{Aeq}	
18/6/2009 11:25 W = 0.5m/s E Temp = 17°C	Daytime Ambient	78	63	55	46	54	Traffic noise dominant (Weakleys Drive) ~ up to 55, Geese ~ 65, Local industry noise ~ 51-55. Donaldson mine inaudible Abel mine inaudible
24/6/2009 21:30 W = Calm Temp = 8°C	Evening Ambient	83	77	71	53	66	Traffic noise dominant (Weakleys Drive) ~ 60-84, Crickets/insects < 56, Other Industry ~ 57-63. Donaldson mine inaudible Abel mine inaudible
25/6/2009 00:15 W = Calm Temp = 8°C	Night-time Ambient	83	77	69	49	66	Traffic noise dominant (Weakleys Drive) ~ 50- 83, Insects ~ 40, Distant road traffic 43. Donaldson mine inaudible Abel mine inaudible

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

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	LA1	LA10	LA90	L _{Aeq}	
18/6/2009 10:00 W = <0.5m/s E Temp = 16°C	Daytime Ambient	78	71	58	45	58	Traffic (John Renshaw Dr) ~ up to 57, Traffic (Black Hill Rd) ~ 71-78, Crickets ~ 44-46, Rain ~ 44-46. Donaldson mine inaudible Abel mine inaudible
24/6/2009 20:05 W = Calm Temp = 9°C	Evening Ambient	66	59	53	44	50	Traffic (John Renshaw Dr) ~ 57-66, Crickets/insects/frogs ~ 46, Donaldson mine inaudible Abel mine inaudible.
24/3/2009 22:42 W = Calm Temp = 8°C	Night-time Ambient	74	65	55	47	54	Traffic (John Renshaw Dr) ~ 53-74, Crickets/insects/frogs ~ 44-47, Abel Mine inaudible. Donaldson mine; dozer just audible in lulls Donaldson LA10 Contribution ~ <37 dBA.

TABLE 39: ATTENDED SURVEY RESULTS – LOCATION G – 156 BUCHANAN ROAD, BUCHANAN

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	LA1	LA10	LA90	L _{Aeq}	
18/6/2009 11:48 W = <1m/s E Temp = 17°C	Daytime Ambient	82	79	74	43	69	Traffic (Buchanan Rd) ~ 74-81, Birds/insects ~ 49-55. Bloomfields ~ 36 Donaldson mine inaudible Abel mine inaudible
24/6/2009 20:30 W = Calm Temp = 28°C	Evening Ambient	80	72	55	35	57	Traffic (Buchanan Rd) ~ 74-80 Insects ~ 37, Plane ~ 42 Bloomfields dozer just audible in lulls Donaldson mine inaudible Abel mine inaudible
24/6/2009 23:10 W = Calm Temp = 7°C	Night-time Ambient	79	69	51	31	55	Traffic (Buchanan Rd) ~up to 79. Distant road traffic ~ 40. Insects ~ 32-38. Bloomfields dozer just audible in lulls Donaldson mine inaudible Abel mine inaudible

TABLE 40: ATTENDED SURVEY RESULTS – LOCATION L - 17 KILSHANNY AVE, ASHTONFIELD

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	LA1	LA10	LA90	L _{Aeq}	
18/6/2009 14:10 W = <1m/s E Temp = 17°C	Daytime Ambient	78	68	57	39	55	Distant Traffic ~ 40-47, Birds ~ 48-50, Dog ~ 57-70 Local traffic ~ 70, 78 Bloomfield mine just audible in lulls ~ 40. Donaldson mine inaudible Abel mine inaudible
24/6/2009 21:05 W = Calm Temp = 8°C	Evening Ambient	78	52	42	37	50	Distant Traffic ~ 36-38, Local Traffic up to 78, Insects/birds ~ 36-40, Water dripping in building ~ 41. Bloomfield mine just audible ~ 37. Donaldson mine inaudible Abel mine inaudible
24/6/2009 23:37 W = Calm Temp = 7°C	Night-time Ambient	66	47	38	34	39	Dog Bark ~ 57-66, Crickets/insects ~ 36, Bloomfield mine just audible ~ 34-35. Donaldson mine inaudible Abel mine inaudible

TABLE 41: ATTENDED SURVEY RESULTS – LOCATION K - CATHOLIC DIOCESE OF MAITLAND (FORMERLY BARTTER ENTERPRISES)

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
18/6/2009 10:55 W = <1m/s E Temp = 16°C	Daytime Ambient	68	56	51	43	45	Traffic (John Renshaw Dr) ~ 48-60, Birds/insects ~ 50-60, Operator noise ~ 68, Donaldson mine; Dozer ~ 40 Donaldson LA10 Contribution ~ 40 dBA. Abel mine inaudible
23/3/2009 18:03 W = <1m/s NE Temp = 25°C	Evening Ambient	95	87	82	57	78	Traffic (John Renshaw Dr) ~ 60-98, Birds/insects ~ 46, Donaldson Mine ; excavator ~ 62,64,65, truck ~ 55-58. Donaldson LA10 Contribution ~ 54 dBA. Abel mine inaudible
24/6/2009 22:23 W = Calm Temp = 8°C	Night-time Ambient	94	86	73	53	72	Traffic (John Renshaw Dr) ~ 55-94, Frogs ~ 55, Donaldson Mine; excavator ~ 55-58 reverse buzzer ~ 56 trucks ~ 55-56. Donaldson LA10 Contribution ~ 50 dBA. Abel mine inaudible

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) during the daytime, evening and night-time and at Location F Black Hill Rd, during the night-time. Donaldson Mine consent is currently operable at the Catholic Diocese site with an agreement in place for the receiver to accept higher noise levels. However, Heggies understand the dwellings on the Catholic Diocese site are currently unoccupied and therefore determining whether consent is achieved at this location is unnecessary. Attended noise surveys conducted with relevance to Location K have therefore been used to assess noise levels at nearest occupied residential receivers to the Catholic Diocese site in the Black Hill area.

To determine whether compliance is achieved, the mine contribution recorded at Location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution at these residential locations was approximately 30 dBA during the daytime, 34 during the evening and 30 dBA during the night-time which is in compliance with Donaldson Mine consent.

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

Wednesday 2nd September - Friday 4th September 2009

Operator attended noise measurements were conducted on Wednesday 2nd September (daytime), Wednesday 2nd/ Thursday 3rd September (evening) and Thursday 3rd/ Friday 4th September 2009 (night-time)

The results of the operator attended noise measurements are given in **Tables 42 to 46**. Ambient noise levels given in the tables include all noise sources such as traffic, insects, birds, and mine operations as well as any other industrial operations. Mine contributions listed in the tables are from Donaldson Mine and are stated only when a contribution could be quantified.

TABLE 42: ATTENDED SURVEY RESULTS – LOCATION A - 98 WEAKLEYS DRIVE BERESFIELD.

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels LAmax – dBA
		LAmax	LA1	LA10	LA90	LAeq	
2/09/2009 14:16 W = <2 m/s SW Temp = 24°C Cloud cover = 0/8	Daytime Ambient	87	66	60	53	59	Traffic noise dominant (Weakleys Drive) ~ up to 60, Geese ~ 65, Residential noise ~ 55-60 (max 87). Donaldson mine inaudible Abel mine inaudible
2/9/2009 20:14 W = <1 m/s SW Temp = 12°C Cloud cover = 0/8	Evening Ambient	83	79	71	55	69	Traffic noise dominant (Weakleys Drive) ~ 60-83, Distant road traffic from NE Highway ~ 55-57. Donaldson mine inaudible Abel mine inaudible
3/9/2009 22:06 W = Calm Temp = 14°C Cloud cover = 8/8	Night-time Ambient	84	79	71	50	67	Traffic noise dominant (Weakleys Drive) ~ up to 84, Vehicle idling nearby ~ 50, Distant road traffic 50. Donaldson mine inaudible Abel mine inaudible

TABLE 43: ATTENDED SURVEY RESULTS – LOCATION F – LOT 684 BLACK HILL ROAD, BLACK HILL

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
2/09/2009 11:30 W = <2 m/s SW Temp = 20°C Cloud cover = 0/8	Daytime Ambient	89	74	59	44	63	Traffic (John Renshaw Dr) ~ up to 64, Traffic (Black Hill Rd) ~ 75-89, Birds/insects ~ 44-47, Leaf rustle ~ 47, Road works on John Renshaw Dr audible in lulls but not measurable. Donaldson mine inaudible Abel mine inaudible
2/9/2009 19:47 W = Calm Temp = 11°C Cloud cover = 0/8	Evening Ambient	83	65	55	49	57	Traffic (John Renshaw Dr) ~ 55-65, Aircraft ~ 55, Crickets/insects/frogs ~ 50-52, Donaldson mine; Haul trucks ~ 52-54, Dozer track slap ~ 50-51, Abel mine inaudible. Donaldson LA10 Contribution ~ 46 dBA.
3/9/2009 21:42 W = Calm Temp = 15°C Cloud cover = 8/8	Evening Ambient	74	61	53	48	53	Traffic (John Renshaw Dr) ~ 57-59, Traffic (Black Hill Road) ~ 74, Crickets/insects/frogs ~ 50, Donaldson mine occasionally just audible; Haul truck breaking ~ 51, Dozer track slap audible once ~ 49, Abel mine inaudible. Donaldson LA10 Contribution ~ 39 dBA.
3/9/2009 23:02 W = Calm Temp = 14°C Cloud cover = 7/8	Night-time Ambient	73	61	54	49	53	Traffic (John Renshaw Dr) ~ up to 64, Traffic (Black Hill Road) ~ 73, Crickets/insects/frogs ~ 49-51, Bloomfield colliery haul trucks and dozer ~ up to 53, Abel Mine inaudible. Donaldson mine; dozer (49-51) and quackers (49) occasionally audible in lulls. Donaldson LA10 Contribution ~ 39 dBA.

TABLE 44: ATTENDED SURVEY RESULTS – LOCATION G – 156 BUCHANAN ROAD, BUCHANAN

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	LA1	LA10	LA90	L _{Aeq}	
2/09/2009 14:16 W = <2 m/s SW Temp = 24°C Cloud cover = 0/8	Daytime Ambient	83	77	72	42	67	Traffic (Buchanan Rd) ~ 74-83, Birds/insects ~ 45-46. Nearby people talking ~ 45-50. Donaldson mine inaudible Abel mine inaudible
2/9/2009 20:14 W = Calm Temp = 13°C Cloud cover = 0/8	Evening Ambient	82	78	67	37	65	Traffic (Buchanan Rd) ~ 77-82 Insects ~ 37, Aircraft ~ 49, Leaf rustle ~ 39-40, Bloomfield trucks occasionally just audible in lulls Donaldson mine inaudible Abel mine inaudible
4/9/2009 00:15 W = Calm Temp = 14°C Cloud cover = 7/8	Night-time Ambient	49	43	41	35	38	Traffic (Buchanan Rd) ~up to 46. Distant road traffic ~ 40. Insects ~ 38-39. Bloomfields dozer and haul trucks up to 44. Donaldson mine inaudible Abel mine inaudible

TABLE 45: ATTENDED SURVEY RESULTS – LOCATION L - 17 KILSHANNY AVE, ASHTONFIELD

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	LA1	LA10	LA90	L _{Aeq}	
2/09/2009 14:16 W = <2 m/s SW Temp = 24°C Cloud cover = 0/8	Daytime Ambient	69	62	52	38	50	Distant Traffic ~ 40-43, Distant motorbikes ~ 54-55, Birds/insects ~ 38, Dog barking ~ 57-69 Local traffic ~ 69 Leaf rustle ~ 38-39, Donaldson mine inaudible Abel mine inaudible
2/9/2009 20:48 W = Calm Temp = 11°C Cloud cover = 0/8	Evening Ambient	73	48	44	40	43	Distant Traffic ~ 41-45, Insects/birds ~ 40-42, Reverse beepers (non mine) ~ 47, Dogs barking ~ 58-62, Donaldson mine inaudible Abel mine inaudible
4/9/2009 00:55 W = Calm Temp = 14°C Cloud cover = 7/8	Night-time Ambient	70	42	38	31	40	Operator noise ~ 70, Crickets/insects ~ 33, Donaldson haul trucks occasionally just audible ~ 32-35, Distant road traffic 35.. Donaldson LA10 Contribution ~ <30 dBA. Abel mine inaudible

TABLE 46: ATTENDED SURVEY RESULTS – LOCATION K - CATHOLIC DIOCESE OF MAITLAND (FORMERLY BARTTER ENTERPRISES)

Date/Start Time Weather	Measurement Description	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emission and Typical Maximum Levels L _{Amax} – dBA
		L _{Amax}	L _{A1}	L _{A10}	L _{A90}	L _{Aeq}	
2/09/2009 14:16 W = <2 m/s SW Temp = 24°C Cloud cover = 0/8	Daytime Ambient	70	54	50	39	47	Traffic (John Renshaw Dr) ~ 51-55, Birds/insects ~ 45, Operator noise ~ 70, Donaldson mine inaudible. Abel mine inaudible
2/9/2009 21:34 W = Calm Temp = 11°C Cloud cover = 0/8	Evening Ambient	87	81	69	46	68	Traffic (John Renshaw Dr) ~ 79-87, Distant road traffic ~ 45, Distant industrial noise ~ 46, Donaldson Mine ; Dozer track slap~ 46,47,50,54, Haul trucks ~ 46-51. Donaldson L _{A10} Contribution ~ 48 dBA. Abel mine inaudible
3/9/2009 22:27 W = Calm Temp = 14°C Cloud cover = 8/8	Night-time Ambient	92	81	72	46	70	Traffic (John Renshaw Dr) ~ up to 92, Frogs, insects and birds ~ 53, Donaldson Mine; Dozer track slap ~ 45, 47, 48, Reverse buzzer ~ 46, Haul trucks ~ 46. Donaldson L _{A10} Contribution ~ 45 dBA. Abel mine inaudible

Noise generated by local and distant traffic was a significant contributor to noise levels at all monitored locations as well as cricket, insect and frog noise during the evening and night-time measurements. Donaldson Mine operations were observed to be audible at Location K Catholic Diocese of Maitland (formerly Bartter Enterprises) and Location F Black Hill Rd during the evening and night-time and just audible at Location L Kilshanny Avenue, Ashtonfield, during the night-time.

To determine whether compliance is achieved, the mine contribution recorded at Location K has been used to calculate the contribution to the nearest residential receivers in Black Hill. This calculated contribution was then compared to the Black Hill consent limit. Calculations found that the mine contribution at these residential locations was approximately 34 dBA during the evening and 31 dBA during the night-time which is in compliance with Donaldson Mine consent.

In conclusion, based on the results and observations from operator attended surveys, contributed noise levels from Donaldson Mine comply with noise emission goals for all periods.

Complaints Based Noise Monitoring

There was one complaints based noise monitoring event during the 2009 AEMR reporting period. This was conducted at 190 Black Hill Rd Black Hill in response to a residents concerns and the results indicated conformance by Donaldson Coal to the noise emission criteria.

3.2.12 Visual and Stray Lighting

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

Control Strategy:

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

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

Environmental Performance:

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

3.2.13 Cultural and Natural Heritage Conservation

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

To date thirty-one sites of Aboriginal Cultural Heritage have been identified on property owned by Donaldson Coal. None of these sites were in areas that were impacted on by mining during the 2009 AEMR period.

Archaeological Studies

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

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

Management Plans

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

Control Strategy:

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

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

Environmental Performance:

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

3.2.14 Spontaneous Combustion

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

Control Strategy:

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

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

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

Environmental Performance:

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

3.2.15 Bushfire

A Bushfire Management Plan was prepared in 2004 for the areas owned by Donaldson Coal. This includes both those areas to be disturbed by mining activities and the areas set-aside as conservation areas. The management plan was submitted to the NSW Rural Fire Service (RFS) for review and part of the review involved a site inspection by the RFS. The Cessnock/Maitland Bushfire Management Committee ratified the Bush Fire Management Plan for the Donaldson Coal site at its meeting in October 2006. The Bushfire Management Plan takes into consideration the requirement for hazard reduction burns, natural fire regime and the need to maintain the ecological value of the site for flora and fauna.

Control Strategy:

Donaldson Coal 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.

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

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

A hazard burn reduction was undertaken during the 2009 AEMR period. In April 2009, the Rural Fire Service completed a controlled burn off along the Hunter Water Corporation water pipeline. Hazard reduction will again be considered in the next AEMR reporting period as determined by the Bushfire Management Plan and the advice of the local RFS office. The program will maintain reduced fuel loading and protect mine assets and adjoining private properties.

Environmental Performance:

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

3.2.16 Mine Subsidence

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

3.2.17 Public Safety

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

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

3.3 REPORTABLE INCIDENTS

There were no externally reportable environmental incidents recorded at the mine during the reporting period. There were two (2) internal environmental incidents reported as a requirement of the Environmental Management Strategy, compared to the 2008 reporting period where three (3) internally reportable environmental incidents were recorded. **Table 47** shows the nature of those incidents.

TABLE 47: LIST OF INTERNAL ENVIRONMENTAL INCIDENTS REPORTED.

Nature of the Incident	Number Recorded
Excavators using horns to signal trucks after dark	1
Fuel Spill	1

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

4 COMMUNITY RELATIONS

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

4.1 ENVIRONMENTAL COMPLAINTS

There were twenty-seven (27) complaints received by Donaldson Coal during the 2009 AEMR reporting period, with eleven (11) received in the previous AEMR reporting period. The complaints were in relation to blast (26) and noise (1) impacts, and information about the complaints is provided in **Appendix 4**. All complaints are followed up and remedial or additional monitoring was undertaken as required. This included additional noise monitoring in the Blackhill area (refer **section 3.2.11**).

4.2 COMMUNITY LIAISON

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

4.2.1 Community Consultative Committee (CCC).

There was one CCC meeting held at the Donaldson Mine site during the 2009 AEMR reporting period. Included in **Table 48** are the details of the CCC meeting held during the reporting period. No issues were raised.

TABLE 48: CCC MEETING DETAILS

Date	Location	No. of attendees
24 th June 2009	Donaldson Coal	7

4.2.2 Site Tours/Inspections

The CCC inspected the mine in June focusing on the rehabilitation areas during the 2009 AEMR period. Donaldson proposes to continue site inspections when required by the CCC so that CCC members can see the operation first hand. In June 2009, Donaldson Coal gave a presentation to Scott Brook and other Government Representatives followed by an inspection of rehabilitated areas.

4.2.3 Community Newsletters

Copies of newsletters are generally provided in **Appendix 6** however, there were no community newsletters prepared in the 2009 AEMR reporting period. A Community Noticeboard has been established on the Donaldson Coal Internet Site which has proven to be successful and is the preferred venue for communicating information about the mining operations to the local community and any other interested parties.

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

The Donaldson Coal Internet site was launched in August 2000. It has since been reviewed and improved, with additional information and a site upgrade in August 2004. The site has been developed to provide information to the wider community. It contains up to date copies of the CCC meeting minutes, a Community Noticeboard, Donaldson news and

updates, the most recent Environmental Monitoring Report, pictures of the mine and general information. It also contains a list of contact details should anyone wish to contact the mine directly either by telephone or e-mail.

4.3 SOCIAL/ECONOMICAL CONTRIBUTIONS

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

4.3.1 Employment Status and Demography

Donaldson Coal Pty Ltd currently directly employs 59 full-time employees in the production, maintenance and management areas. **Table 49** shows the breakdown of numbers for key functional areas as well as the percentage living in the Maitland Area.

TABLE 49: SUMMARY OF OPEN CUT EMPLOYEE STATISTICS

Functional Area:	No.	Place of Residence
Management/Supervisor	14	Maitland (36), Other (74%)
Maintenance/Production	48	Maitland (38%) Other (62%)

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

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

4.3.2 Roll-on Employment Effects

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

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

4.3.3 Value Adding Programs Directly Benefiting the Community

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

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

5 REHABILITATION

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

5.1 BUILDINGS

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

5.2 REHABILITATION OF DISTURBED LAND

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

During the reporting period a total of 14.8 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 MR and the final recommendations are implemented in rehabilitation practices. During the 2008/9 AEMR reporting period all areas of rehabilitation were treated following the recommendations of the URS report.

Actions undertaken during the 2009 AEMR period included the continued selective use of the top 7 meters of the upper overburden and interburden strata for capping over the dump areas. In December 2008 the ripping of topsoil on rehabilitated areas was finalised and the area was seeded. The existing rehabilitated areas were fertilized.

5.3 OTHER INFRASTRUCTURE

Other than those already mentioned 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
- Repairs undertaken to drains in rehabilitation areas

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

5.4 REHABILITATION STATUS AT END OF THE REPORTING PERIOD

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

Approximately 14.8 Ha of rehabilitation was completed in this 2009 AEMR reporting period with no rehabilitation planned for 2009-2010 due to the mine progressing towards the western area across Four Mile Creek. Due to the changes to the mining and rehabilitation sequencing an amendment to the Mine Operations Plan will be progressed in 2010 and will be discussed in more detail with DII/MR.

The rehabilitation report for 2009 is provided in **Appendix 7**. The latest rehabilitation plan, October 2009, and the forecast plan for October 2010 are provided in **Appendix 8**.

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

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

In 2010, the overburden material will continue to be placed in the dumps in a method that is commensurate with the final landform design. The design will minimise the final trim works required to achieve the designed post mining landform. Drainage control and erosion protection measures are being incorporated into the final landform design. This includes, but is not limited to, contour and graded banks, drains and sediment retention basins. Slopes are generally regraded to no greater than 10 degrees. Areas available for rehabilitation will be topsoiled and immediately seeded to reduce the risk of soil erosion.

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

5.5 REHABILITATION TRIALS AND RESEARCH

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

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

5.6 FURTHER DEVELOPMENT OF THE FINAL REHABILITATION PLAN

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

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

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

6. ACTIVITIES PROPOSED IN THE NEXT AEMR PERIOD

The following activities and environmental initiatives are proposed by Donaldson Coal over the next AEMR period.

- Ongoing maintenance of rehabilitated areas.

7. DEVELOPMENT CONSENT COMPLIANCE REVIEW

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

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

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

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

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

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

8. REFERENCES

- Global Soil Systems (May 2000a) *Erosion & Sediment Control Plan*, Unpublished report for Donaldson Coal Pty Ltd.
- Holmes Air Sciences (October 2007) *Air Quality Management Plan*, Unpublished report for Donaldson Coal Pty Ltd.
- Perrens Consultants (November 2000) *Water Management Plan*, Unpublished report for Donaldson Coal Pty Ltd.
- Robyn Tufft & Associates (2009) *Donaldson Coal Mine Macroinvertebrate Sampling program Operations Survey: Spring 2008*, Unpublished report for Donaldson Coal Pty Ltd.
- Gunninah (July 2007) *Donaldson Open-cut Coal Mine, Beresfield, Flora and Fauna Management Plan*. Unpublished Report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000a) *Donaldson Open-cut Coal Mine, Tetratheca juncea Management Plan*. Unpublished Report for Donaldson Coal Pty Ltd.
- Gunninah (December 2000b) *Donaldson Open-cut Coal Mine Tetratheca juncea survey and identification report*, Unpublished Report for Donaldson Coal Pty Ltd.
- Global Soil Systems (2000b) *Donaldson Coal Waste Management Plan*, Unpublished report completed by Donaldson Coal.
- Richard Heggies & Associates Pty Ltd (2007) *Noise Monitoring Survey, Fourth Quarter 2008, Donaldson Mine*, Unpublished report completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2008a) *Noise Monitoring Survey, First Quarter 2009, Donaldson Mine*, Unpublished report completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2008b) *Noise Monitoring Survey, Second Quarter 2009, Donaldson Mine*, Unpublished report completed by Donaldson Coal
- Richard Heggies & Associates Pty Ltd (2008c) *Noise Monitoring Survey, Third Quarter 2009, Donaldson Mine*, Unpublished report completed by Donaldson Coal
- EcoBiological *The Experimental Translocation of Tetratheca juncea (tremandraceae) at Donaldson Coal Mine, Beresfield (2007)*, Unpublished report for Donaldson Coal Pty Ltd
- Hunter Eco *Relocation of Grevillea parviflora subsp. Parviflora, Donaldson Open Cut Mine (2007)*, Unpublished report for Donaldson Coal Pty Ltd

APPENDIX 1:

**Donaldson Coal
Environmental Policy**



Donaldson Coal Pty Limited
ABN 87 073 089 945

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.
- Develop, maintain and review energy and greenhouse gas reduction objectives, targets and performance indicators.

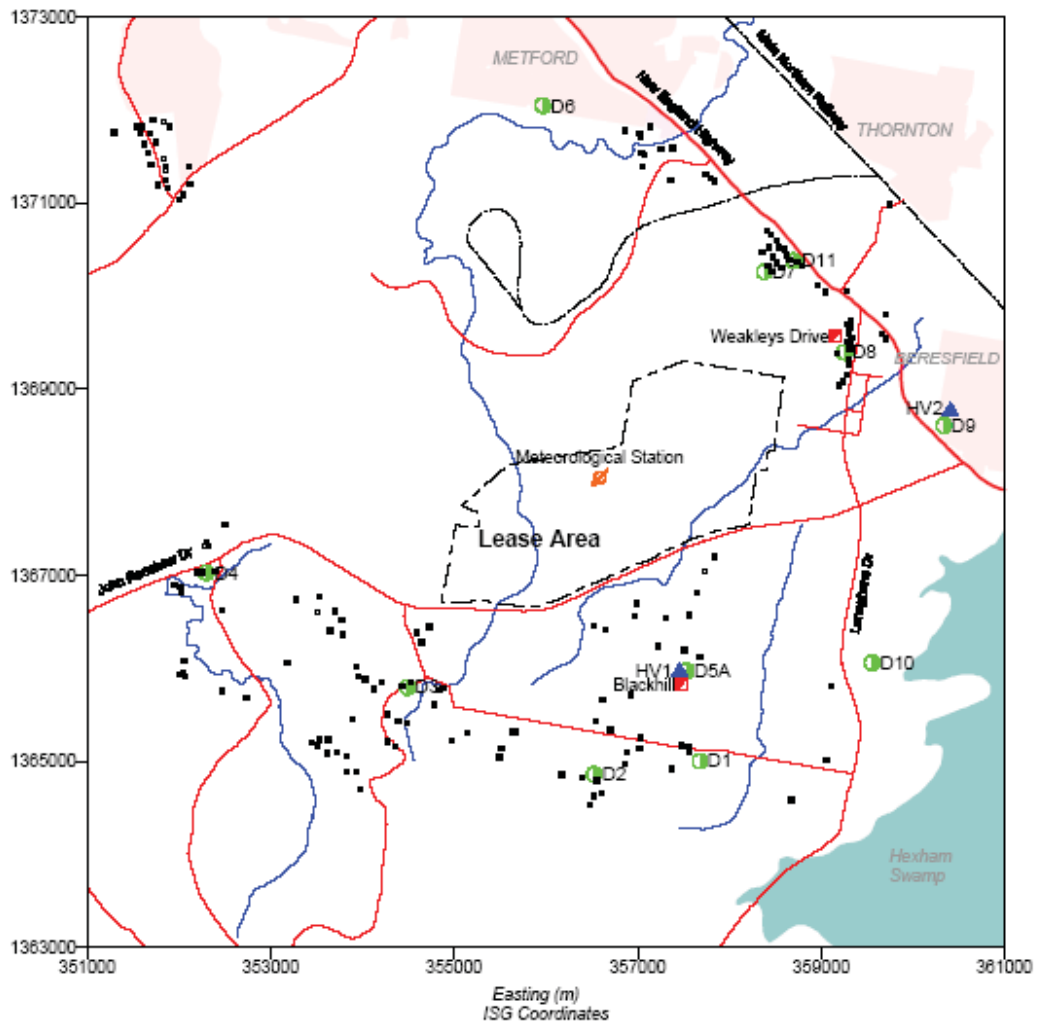
A handwritten signature in black ink, appearing to read 'Brendan McPherson'.

BRENDAN McPHERSON
Chief Executive Officer - Donaldson Coal Pty Ltd.

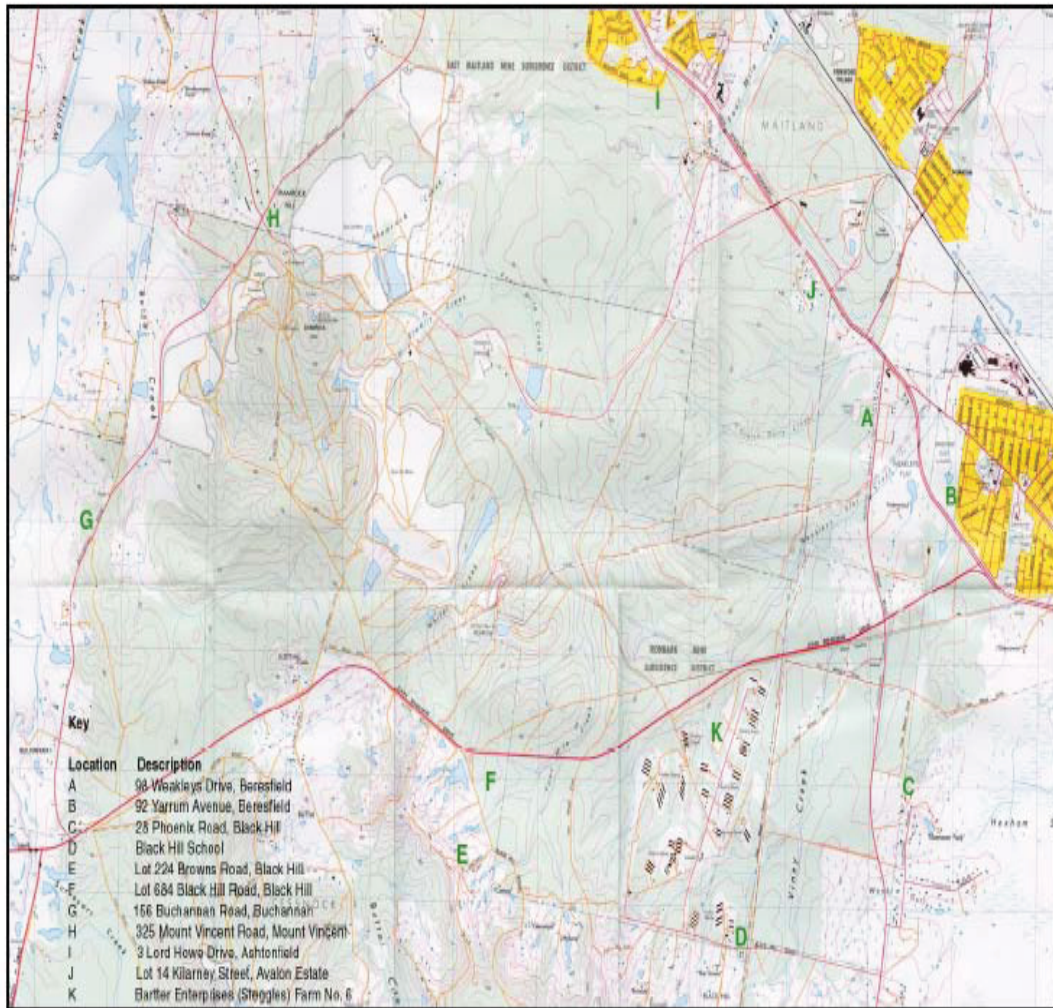
SEPTEMBER 2000.

APPENDIX 2:

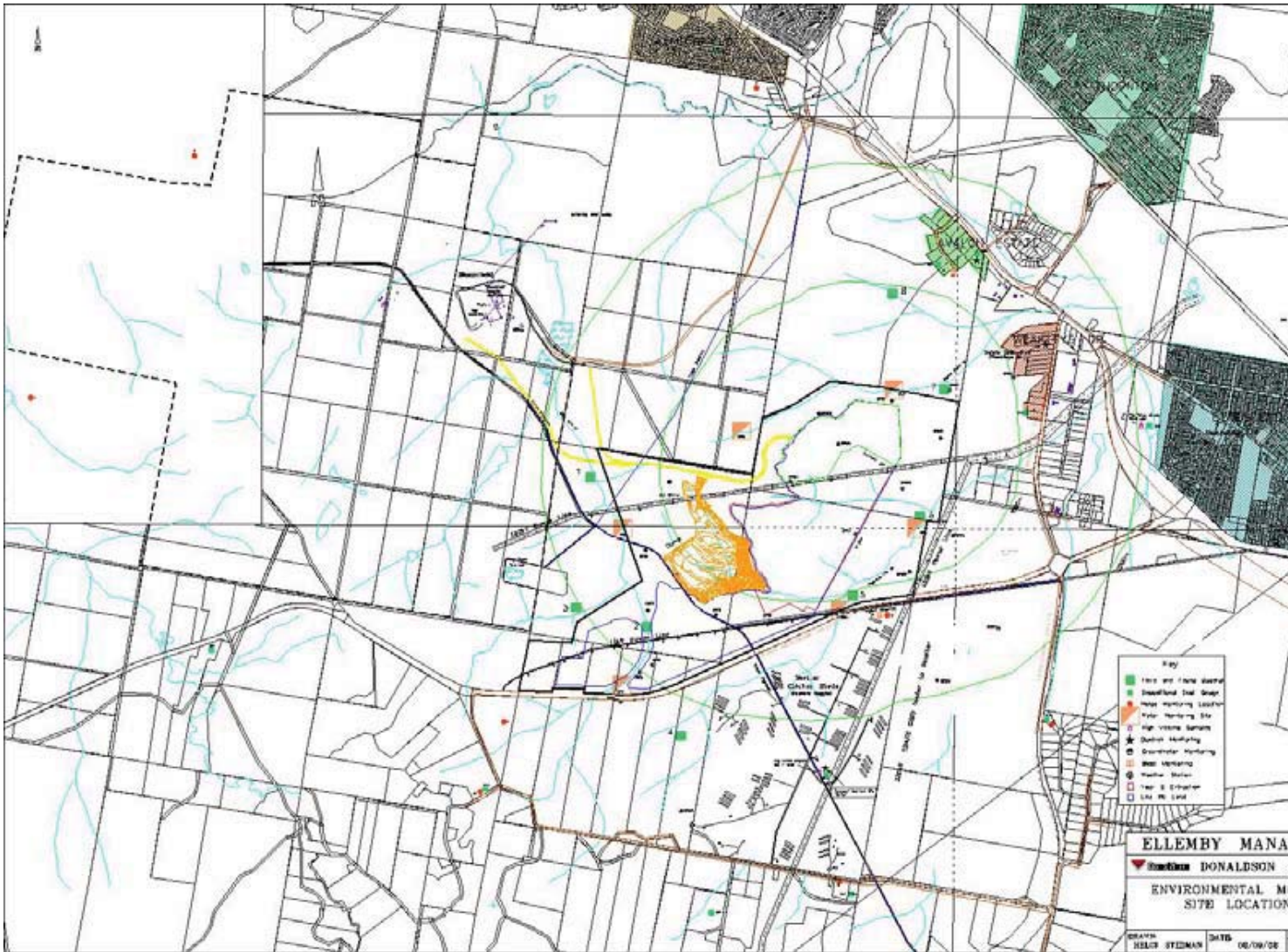
Site Locality Plan and Monitoring Locations



Air Quality Monitoring Locations



Noise Monitoring Locations



Water Monitoring Locations

APPENDIX 3:

Description and Location Plan of known Aboriginal Sites

Aboriginal Sites Within the Donaldson Mine Lease Area

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

Four Mile Creek 2 (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 Lower slope, north west of Weakleys Flat Creek	Artefact scatter (2 artefacts)	
CA3	Umwelt (2001)	370985E 6370511N Lower slope above a tributary of Scotch Dairy Creek	Isolated find	
CA4	Umwelt (2001)	369568E 6370040N Mid slope above Scotch Dairy Creek	Isolated find	
CA5	Umwelt (2001)	368391E 6366747N Mid slope, east of Four Mile Creek	Isolated find	
CA6	Umwelt (2001)	368229E 6366592N Lower slope above a tributary of Four Mile Creek	Isolated find	
CA7	Umwelt (2001)	367617E 6366456N Mid slope above Four Mile Creek	Isolated find	
CA8	Umwelt (2001)	370746E 6369747N Lower slope, south of Scotch Dairy Creek	Isolated find	
DMS2	Umwelt (2002)	370966E 6368184N Mid slope, south of Weakleys Flat Creek	Artefact scatter (2 artefacts)	
DMS4	Umwelt (2002)	368649E 6368181N Mid slope, east of Four Mile Creek	Isolated find	

DMS5	Umwelt (2002)	370665E 6368177N Mid slope, south of Weakleys Flat 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 Flat Creek	Isolated find	Consent to Destroy granted (2002)
ISF5	Umwelt (2001)	370275E 6368626N Mid slope above Weakleys Flat Creek	Isolated find	Application being prepared for consent to remove
ISF6	Umwelt (2001)	370305E 6368600N Mid slope above Weakleys Flat Creek	Isolated find	Application being prepared for consent to remove
Ironbark 2 (38-4-339)	Ruig (1993)	369190E 6367890N Upper slope above tributary of Weakleys Flat Creek	Isolated find	
DMS1	Umwelt (2002)	369734E 6369122N	Isolated find	Consent to Destroy granted (2002)
DMS3	Umwelt (2002)	369090E 6367962N Mid slope above Four Mile Creek	Isolated find	

APPENDIX 4:

List of Complaints Received by the Mine

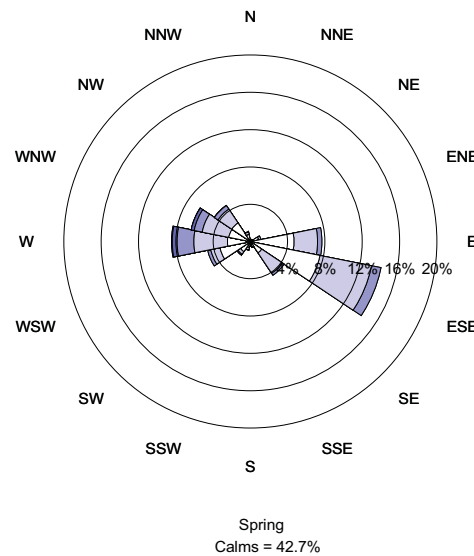
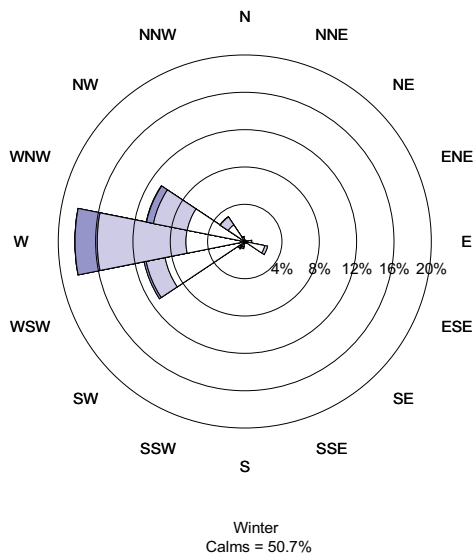
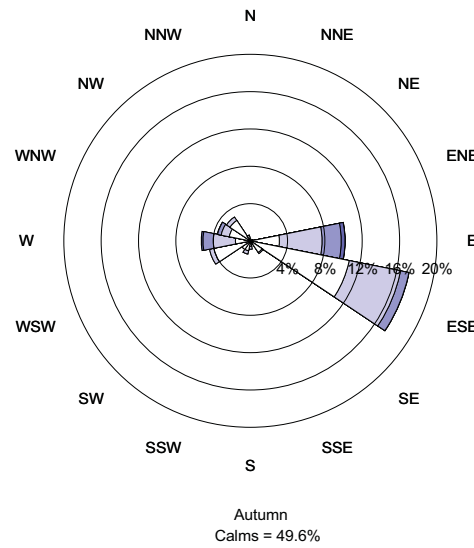
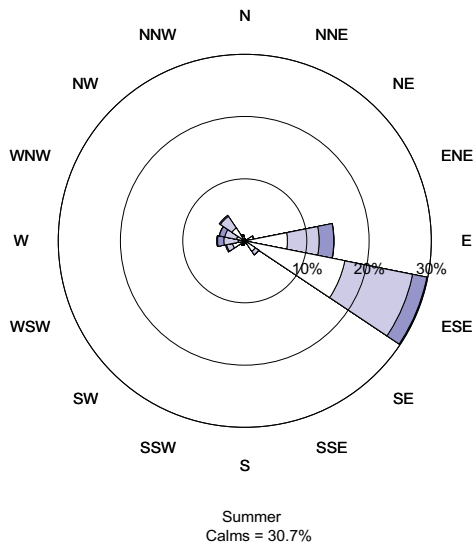
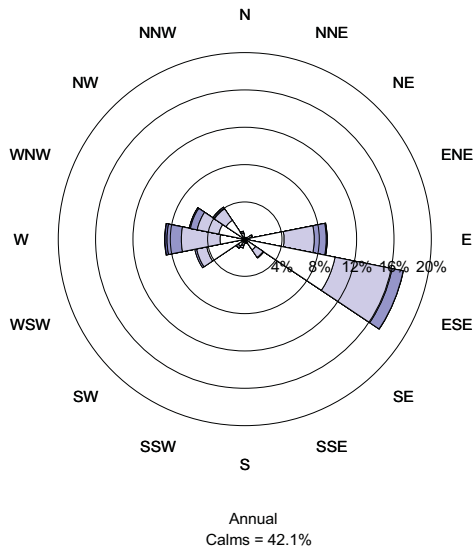
SUMMARY OF COMPLAINTS RECEIVED BY DONALDSON COAL (in the 2008/09 AEMR reporting period)

Ref	Complainant	Location	Date	Time	Issue	Area	ABAKK Results	
							Overpressure	Ground Vibration
Donaldson	P Craft	John Renshaw Drive	16/12/2008	3:17 PM	Traffic hold up with the blast and dust on the road.	blast	0.49	111.2
Donaldson	DECC	Blackhill	12/03/2009	12:05	DECC received a complaint concerning the blasts undertaken last week. Advised DECC that the results at the ABAKK residences were within the EPL limits.	blast	0.04	93.7
Donaldson	Mr. Cliff Harding	Blackhill	12/03/2009	2:43	Complained about the blasts last week that shook his house.	blast	1.23	114.5
Donaldson	Mr. T Morgan	Blackhill	20/03/2009	12:09	Complaining about blast that shook his house.	blast	1.1	114
Donaldson	Mr. Cliff Harding	Blackhill	20/03/2009	12:33	Complained about the blasts last week that shook his house. Results were 116.8 dB and 2.17 mm/s at his property.	blast	1.1	114
Donaldson	Mr. Cliff Harding	Blackhill	23/03/2009	14:59	Complaining about blasting shaking his house. Monitored the blast this week and there were no issues.	blast	1.1	114
Donaldson	Anonymous via DECC	Blackhill	1/04/2009	12:05	Caller affected by a blast, there was a very severe vibration through the ground which caller could feel through their feet. The caller is uncertain which of the two nearest mines was the source.	blast	0.54	114.9
Donaldson	Anonymous via DECC	Blackhill	1/04/2009	12:05	Caller affected by a blast from the mine. The caller was affected by vibration from the blast, for example the windows in the building were shaking violently. The noise was also quite loud.	blast	0.54	114.9
Donaldson	Anonymous via DECC	Blackhill	1/04/2009	12:09	EXTREMELY loud blast from mine shook house to point that caller wondered for a minute if it was an earthquake. (Caller was on 7th Floor of Newcastle Hospital when the 1989 earthquake hit) which caller said 'wasn't much different' to today's blast Caller says she is used to blasting from colliers in the area but this must have been excessive due to level of 'shock' and reverberation in caller's house.	blast	0.54	114.9
Donaldson	Anonymous via DECC	Blackhill	27/04/2009		Complaining about blast last Friday. Blast shook doors and windows in house. Blast within limits.	blast	0.06	107
Donaldson	Anonymous via DECC	Blackhill	29/04/2009	12:09	Caller received no notification of the blasting occurring, but there is a sign on the road outside the mine advising blasting will occur between 10 and 2pm today. Very loud blast, the house shook. Caller felt vibrations through the ground and the air.	blast	0.25	106.3
Donaldson	Anonymous via DECC	Blackhill	1/05/2009	12:07	Caller affected by a loud blast at the mine. The caller's building shook.	blast	0.28	107.7
Donaldson	Tony from A&K Mackay Building	Blackhill	1/05/2009	12:09	Complained about the blast which shook his house like an explosion. Advised caller that blast was monitored at their property and was within limits.	blast	0.28	107.7
Donaldson	Anonymous via DECC	Blackhill	1/05/2009	12:07	Caller affected by a loud blast at the mine. The caller's building shook.	blast	0.28	107.7
Donaldson	Tony from A&K Mackay Building	Blackhill	1/05/2009	12:09	Complained about the blast which shook his house like an explosion. Advised caller that blast was monitored at their property and was within limits.	blast	0.28	107.7
Donaldson	Karen Stewart	Blackhill	6/05/2009	1:05	Complaining about blast. Felt it at her home.	blast	0.53	105.1
Donaldson	Tony (A & K Mackay)	Blackhill	6/05/2009	1:06	Complained about the blast.	blast	0.53	105.1
Donaldson	Anonymous via DECC	Blackhill	6/05/2009	1:13	Caller affected by blast at the mine. The blast caused caller's building to shake, and "shook the fillings out of my teeth".	blast	0.53	105.1
Donaldson	Karen Stewart	Blackhill	6/05/2009	1:05	Complaining about blast. Felt it at her home.	blast	0.53	105.1
Donaldson	Tony (A & K Mackay)	Blackhill	6/05/2009	1:06	Complained about the blast.	blast	0.53	105.1
Donaldson	Anonymous via DECC	Blackhill	6/05/2009	1:13	Caller affected by blast at the mine. The blast caused caller's building to shake, and "shook the fillings out of my teeth".	blast	0.53	105.1
Donaldson	Mr. Cliff Harding	Blackhill	15/05/2009	12:07	Complaining about blast.	blast	0.19	111.8
Donaldson	Mr. Cliff Harding	Blackhill	15/05/2009	12:07	Complaining about blast.	blast	0.19	111.8
Donaldson	DECC	Blackhill	17/06/2009	13:34	Complained about the blast.	blast	0.13	94.7
Donaldson	DECC	Donaldson Open Cut	10/08/2009	9:19 AM	Stated that a blast happened at the open cut at 12:15 pm.	blast	0.146	92.6
Donaldson	Albert Peachman via DECC	Blackhill	1/08/2009		Noise and dust coming from Open Cut	noise		
Donaldson	Via DECC	Blackhill	21/10/2009	13:00	Complaint about noise from a blast at Donaldson	blast	0.158	98.9

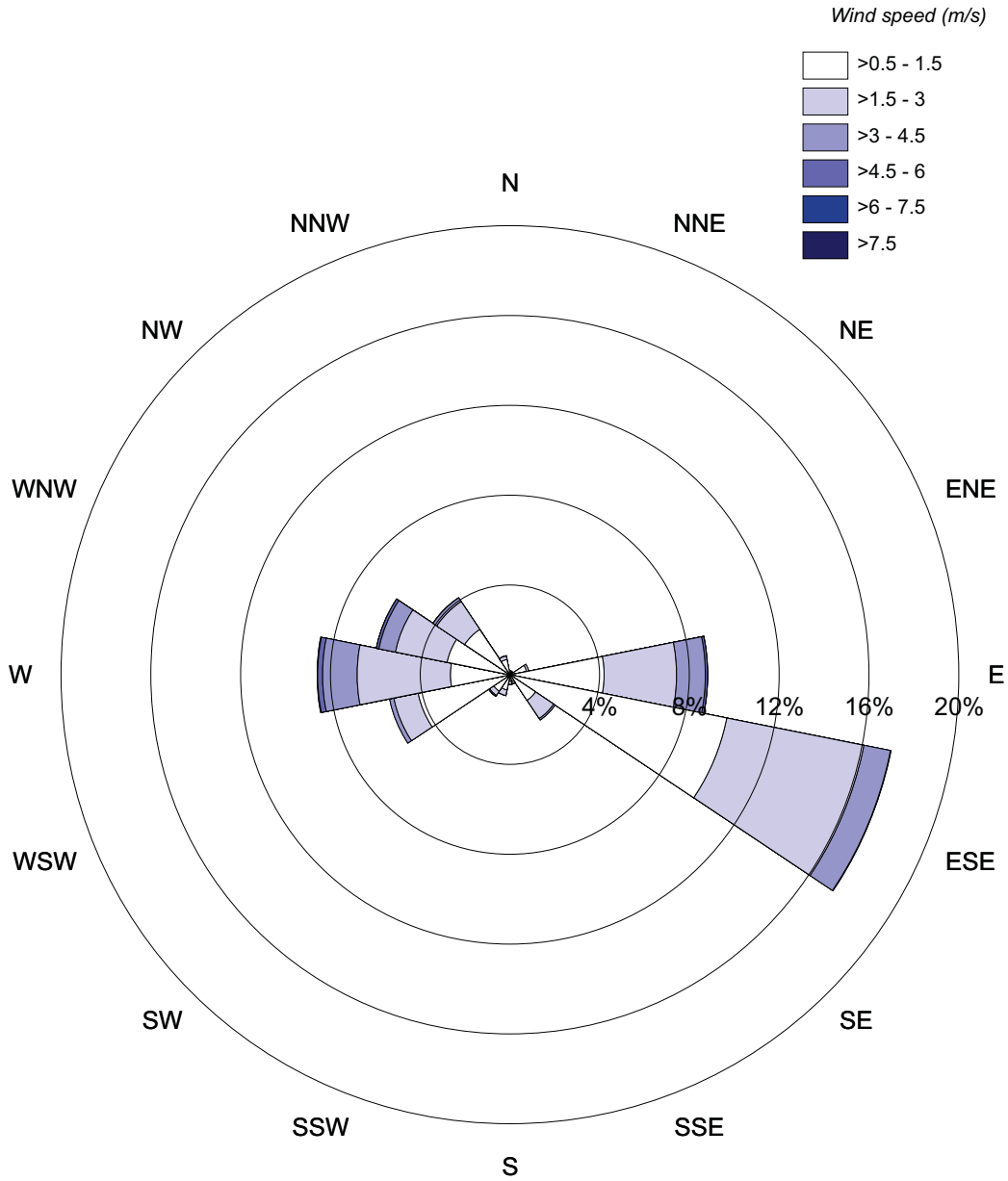
APPENDIX 5:

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

Annual and seasonal windroses for Donaldson (Nov 2008 to Oct 2009)



Windrose for Donaldson November 2008 to October 2009



Calms = 42.1%

APPENDIX 6:

Newsletter

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

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)	39.66	41.04	42.48
B2: Active Mining Area (excluding items B3 – B5 below)	29.39	31.55	31.68
B3 Waste emplacements, (active/unshaped/in or out-of-pit)	22.82	37.51	72.08
B4 Tailings emplacements, (active/unshaped/uncapped)	0	0	0
B5 Shaped waste emplacement (awaits final vegetation)	44.72	45.38	26.27
ALL DISTURBED AREAS	136.59	155.48	172.51
C REHABILITATION PROGRESS			
C1 Total Rehabilitated area (except for maintenance)	137.81	102.78	122.97
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	0
E2 Native forest/ecosystems	137.81	102.78	122.97
E3 Plantations and crops	0	0	0
E4 Other (include non-vegetative outcomes)	0	0	0

F1

F2

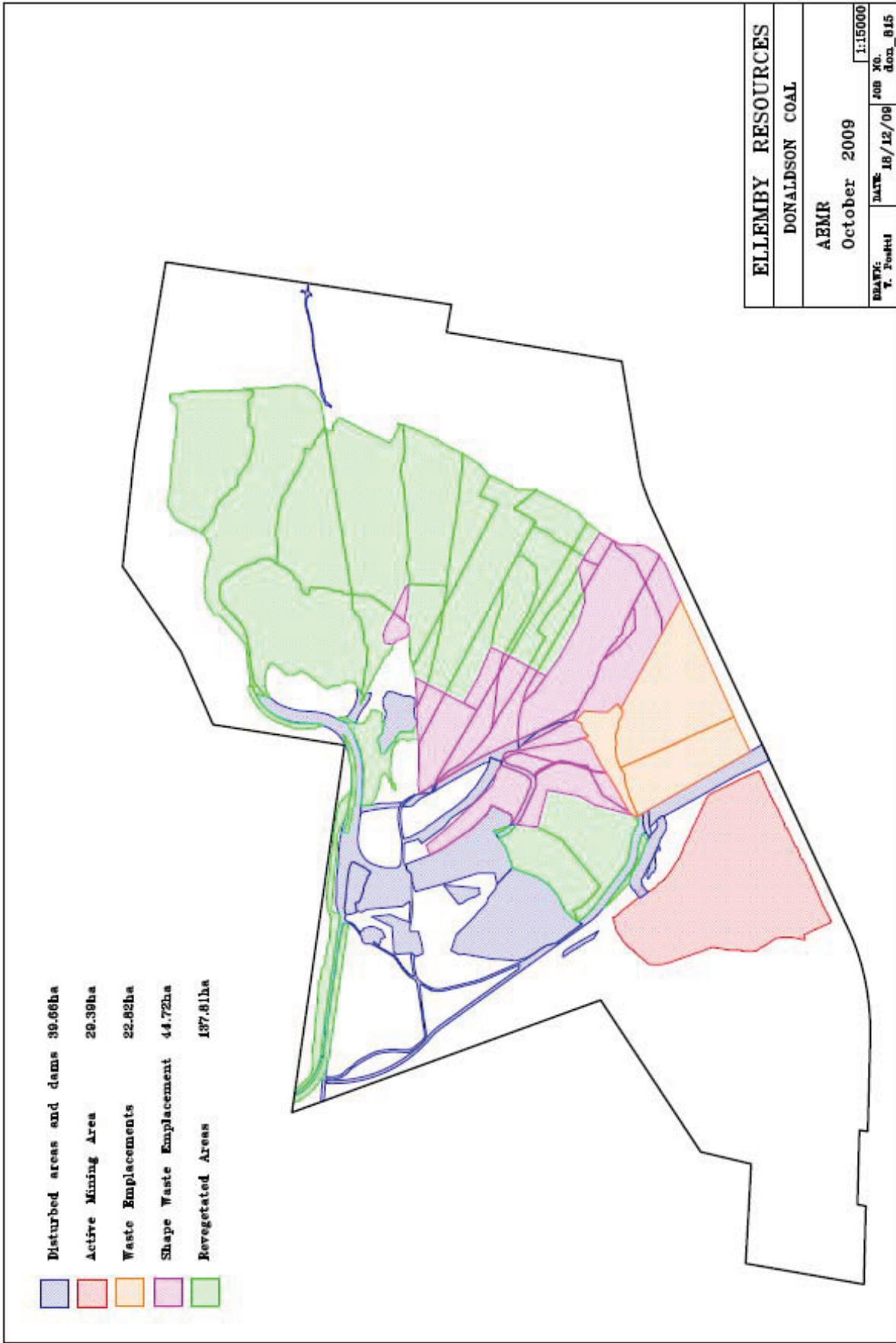
TABLE: MAINTENANCE ACTIVITIES ON REHABILITATED LAND

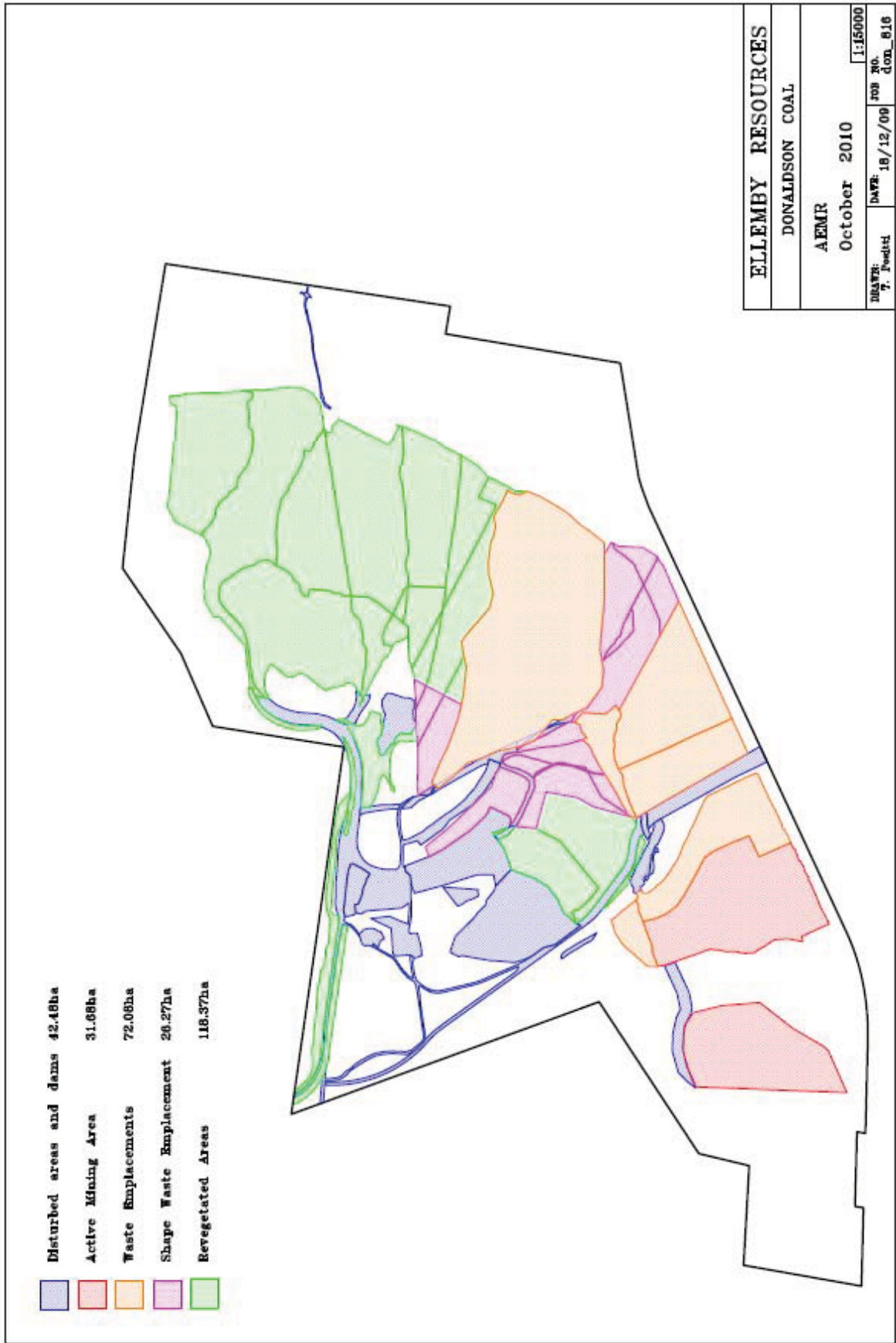
(This period's activities and activities proposed in the next reporting period)

NATURE OF TREATMENT	Area Treated (ha)		Comment/control strategies/ treatment detail
	Report period	Next period	
Additional erosion control works (drains re-contouring, rock protection)	0	0	
Re-covering (detail - further topsoil, subsoil sealing etc)	0	0	
Soil treatment (detail - fertiliser, lime, gypsum etc)	0	0	<ul style="list-style-type: none"> Lime has been added to areas along the haul road batters and the out of pit dump as part of the AMD Management Plan protocols. 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 Plans





APPENDIX 9:

Blasting Results

Date	Chidgey Peak Vector Sum Vibration	Chidgey Peak Air Blast Overpressure	Fairfax Peak Vector Sum Vibration	Fairfax Peak Air Blast Overpressure	Avalon Peak Vector Sum Vibration	Avalon Peak Air Blast Overpressure	Pipeline Peak Vector Sum Vibration	Abakk Peak Vector Sum Vibration	Abakk Peak Air Blast Overpressure
4/11/2008	0.07	103.2	0.070	104.30	0.070	102.60	2.100	0.420	105.400
5/11/2008	0.02	91.9	0.060	96.10	0.020	89.00	0.390	0.030	100.700
7/11/2008	0.08	98.3	0.070	102.00	0.090	98.00	2.970	0.780	106.900
11/11/2008	0.01	94.9	0.050	98.60	0.020	94.10	0.370	0.040	103.300
12/11/2008	0.03	96.8	0.050	100.20	0.010	93.30	0.520	0.030	98.600
18/11/2008	0.06	103.9	0.060	103.40	0.070	100.40	3.030	0.250	103.300
20/11/2008	0.03	96.5	0.020	98.20	0.050	94.10	22.080	0.020	86.400
21/11/2008	0.06	101.9	0.050	99.20	0.050	100.60	4.290	0.520	103.800
26/11/2008	0.06	95.8	0.070	99.50	0.070	97.40	4.840	0.420	109.800
27/11/2008	0.02	88.5	0.220	94.40	0.020	87.80	5.990	0.050	99.800
28/11/2008	0.04	103.8	0.050	106.60	0.130	108.10	2.770	0.200	101.200
2/12/2008	0.02	89.3	0.070	93.80	0.260	85.10	1.200	0.040	94.600
3/12/2008	0.07	98.8	0.150	100.60	0.090	98.00	3.960	0.400	105.500
5/12/2008	0.07	100.4	0.060	107.10	0.060	103.00	3.860	0.600	110.000
10/12/2008	0.89	107.8	0.110	108.20	0.100	104.60	4.830	0.510	111.000
12/12/2008	0.11	95.4	0.140	98.80	0.130	91.90	3.350	0.650	110.200
16/12/2008	0.08	102.7	0.090	106.40	0.080	101.60	1.910	0.490	111.200
14/01/2009	NR	NR	NR	NR	NR	NR	NR	NR	NR
16/01/2009	0.07	95.1	0.070	102.10	0.070	96.00	1.620	0.580	103.800
21/01/2009	0.05	105.3	0.070	110.30	0.060	107.50	2.960	0.290	108.900
23/01/2009	0.05	100.2	0.050	104.40	0.050	98.00	2.180	0.330	104.800
28/01/2009	0.04	94.9	0.050	97.90	0.050	95.50	1.490	0.160	111.900
24/02/2009	0.28	109	0.220	107.70	0.160	103.90	4.410	<-0.2	109.500
27/02/2009	0.15	101.5	0.190	103.80	0.190	104.50	4.080	1.600	108.200
27/02/2009	0.09	102.3	0.100	103.90	0.100	98.50	9.360	0.360	108.200
5/03/2009	0.02	96.2	0.020	93.80	0.030	92.40	1.280	0.040	93.700
11/03/2009	0.20	101.3	0.200	107.40	0.240	101.20	5.050	1.230	114.500
18/03/2009	0.03	94.1	0.030	92.90	0.010	87.40	0.560	0.050	100.000
20/03/2009	0.20	99.6	0.210	105.00	0.210	100.20	3.740	1.100	114.000
25/03/2009	0.03	99.5	0.040	102.60	0.030	96.40	0.660	0.070	108.600
1/04/2009	0.14	104.8	0.130	101.10	0.140	95.00	11.300	0.540	114.900
8/04/2009	0.09	101	0.090	96.90	0.140	100.50	10.410	0.330	105.200
17/04/2009	0.25	104.3	0.030	105.10	0.010	98.50	0.350	0.070	113.700
24/04/2009	0.06	100.4	0.050	102.40	0.050	98.70	2.100	0.060	107.000
29/04/2009	0.05	97	0.070	102.70	0.060	99.60	1.660	0.250	106.300
1/05/2009	0.05	102.6	0.050	107.70	0.080	104.90	2.770	0.280	107.700
6/05/2009	0.13	96.5	0.110	98.60	0.160	91.90	3.210	0.530	105.100
13/05/2009	0.08	94.5	0.130	98.80	0.090	94.10	1.620	0.650	97.100
15/05/2009	0.06	110	0.060	110.20	0.070	112.10	3.260	0.190	111.800
4/06/2009	0.03	93.5	0.040	90.50	0.030	84.60	0.100	0.080	87.300
17/06/2009	0.04	92.7	0.040	93.80	0.050	93.50	0.960	0.130	94.700
25/06/2009	0.02	104.9	0.030	96.70	0.030	103.50	0.610	0.060	102.500
3/07/2009	0.03	102.8	0.030	102.70	0.030	107.40	0.460	0.060	98.600
14/07/2009	0.06	94.8	0.050	97.70	0.060	94.00	1.350	0.240	97.000
16/07/2009	0.1:26	94.4	0.050	97.00	0.040	91.90	0.990	0.200	96.400
21/07/2009	0.03	104.7	0.040	109.20	0.060	103.10	10.150	0.080	106.900
28/07/2009	0.03	92	0.040	91.40	0.030	99.50	0.430	0.160	92.200
4/08/2009	0.045	93.7	0.045	90.80	0.032	83.60	0.510	0.165	95.600
7/08/2009	0.038	90.9	0.045	86.90	0.051	84.60	0.445	0.146	92.600
14/08/2009	0.032	91.3	0.071	90.80	0.058	81.80	0.438	0.285	94.500
20/08/2009	0.038	100.8	0.071	107.00	0.045	97.90	2.152	0.171	106.100
26/08/2009	0.032	106.6	0.051	112.5	0.045	105.9	8.352	0.203	112.800
1/09/2009	0.032	100.9	0.032	105.10	0.039	102.70	1.095	0.120	107.200
4/09/2009	0.052	97.8	0.057	101.00	0.045	107.40	1.107	0.184	94.500
11/09/2009	0.058	94.000	0.063	97.000	0.065	93.600	1.392	0.228	97.200
18/09/2009	0.026	94.400	0.032	89.500	0.019	87.200	0.090	0.038	93.400
24/09/2009	0.026	94.400	0.032	96.300	0.019	106.500	0.080	0.038	87.300
30/09/2009	0.026	90.500	0.025	92.700	0.019	92.500	0.070	0.032	87.700
2/10/2009	0.260	92.200	0.025	88.600	0.026	84.800	0.316	0.044	92.600
9/10/2009	0.026	88.500	0.032	94.600	0.026	90.000	0.342	0.044	90.900
16/10/2009	0.039	95.500	0.051	99.100	0.045	93.800	0.943	0.260	88.000
21/10/2009	0.032	94.400	0.038	97.900	0.045	94.000	2.490	0.158	98.900
23/10/2009	0.045	95.500	0.044	97.500	0.052	91.100	0.772	0.209	92.400
30/10/2009	0.032	96.000	0.038	96.500	0.026	81.500	0.721	0.082	97.000