

TARRAWONGA COAL PTY LTD

(ABN 73 100 742 185)

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

FOR THE

TARRAWONGA COAL MINE (ML 1579)

01 May 2009 – 30 April 2010



Tarrawonga Coal Pty Ltd
Annual Environmental Management Report
for the
Tarrawonga Coal Mine
(ML 1579)

MOP Commencement Date **01-05-2006** – MOP Completion Date **01-02-2012**
AEMR Commencement Date **01-05-2009** – AEMR Completion Date **30-04-2010**

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1 INTRODUCTION AND OBJECTIVES

1.1 Scope

1.1.1 Introduction and Period of Reporting

This is the fourth Annual Environmental Management Report (AEMR) produced for the Tarrawonga Coal Mine, and it has been prepared in accordance with Condition 3 of Mining Lease (ML 1579) (Mining Act 1992) and Condition 5 (Schedule 6) of DA 88-4-2005. The AEMR generally follows the format identified in the Department of Primary Industries Mineral Resources (DPI-MR) document entitled "*Guidelines to the Mining, Rehabilitation and Environmental Management Process*" Version 3 dated January 2006.

Though primarily covering the period from 01 May 2009 to 30 April 2010 (the reporting period), where relevant the AEMR provides information on historical aspects of the operations, longer term trends in environmental monitoring results and provides relevant information on activities to be undertaken during the ensuing period, i.e. from 01 May 2010 to 30 April 2011, or beyond.

The Tarrawonga Coal Mine is located within the Narrabri Shire, approximately 42 km north-northwest of Gunnedah, and is 15 km north-east of Boggabri (Figure 1).

1.1.2 The Company

Tarrawonga Coal Mine is owned by Tarrawonga Coal Pty Ltd (TCPL), a joint venture between Whitehaven Coal Mining Pty Ltd Limited (WCMPL) (70%) and Idemitsu Boggabri Coal Ltd (IBC) (30%). WCMPL is a subsidiary company of Whitehaven Coal Limited (WCL), a publicly listed company which has several coal mining interests in the Gunnedah region of NSW. The mine is operated by Whitehaven Coal Mining Pty Ltd (WCMPL).

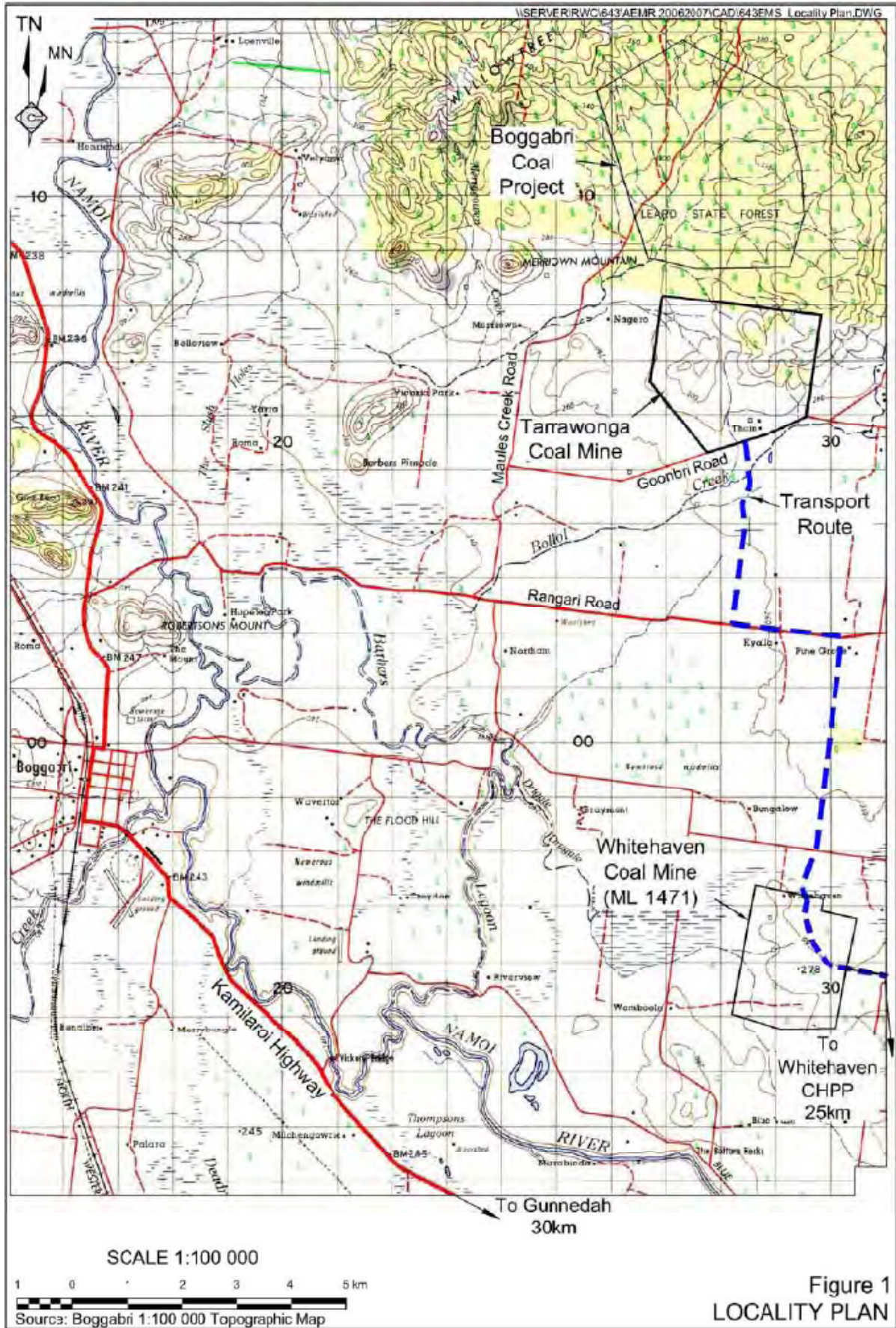


Figure 1
LOCALITY PLAN

WCL's coal mining assets are as follows;

- Canyon Coal Mine (formerly Whitehaven Coal Mine), 10km south of Tarrawonga, 100% owned by WCL, which ceased production in July 2009 and is currently under final rehabilitation;
- Whitehaven Rail Siding and CHPP, 6km north-west of Gunnedah, 100% owned by WCL;
- Werris Creek Coal Mine, 4km south of Werris Creek, 100% owned by WCL;
- Narrabri Underground Coal Mine, 30km south-southeast of Narrabri, 70% owned by subsidiary company Narrabri Coal Pty Ltd. Construction is well advanced with first production scheduled for second quarter 2010;
- Rocglen Coal Mine (formerly Belmont Coal Mine), 28km north of Gunnedah, 100% owned by WCL, which commenced operations in 2008;
- Sunnyside Coal Mine, 15km south west of Gunnedah, 100% owned by subsidiary company Namoi Mining Pty Ltd, which commenced production in 2008;
- WCL also has 100% ownership of the Bonshaw project near Ashford, and
- 100% ownership of the former Gunnedah Colliery through Namoi Mining Pty Ltd;
- 100% ownership of the former Vickery site, with development assessment work underway with a view to re-opening the former Blue Vale and adjacent deposits; and
- WCL is also actively pursuing other prospective tenements with a view of maintaining a long-term presence in the Gunnedah Basin.

1.1.3 Background and History of the Tarrawonga Coal Mine

The Tarrawonga Coal Mine was developed after substantial investigations were undertaken under Exploration Licence 5967, granted in July 2002. Following completion of relevant assessments and studies, the Department of Planning provided approval to the development via Development Consent (DA-88-4-2005) on the 9th November 2005. Environment Protection Licence 12365 was also granted on 9th January 2006.

The Development Consent provided for the extraction of approximately 12.4 million tonnes of ROM coal, at a maximum rate of 2 million tonnes per year. The consent allowed for the crushing and screening of ROM coal at the mine site prior to transport

to the Whitehaven Siding Coal Handling and Preparation Plant near Gunnedah. It also allows for the disposal of rejects from the Whitehaven CHPP at the mine.

Over the life of the approved mine, a total area of approximately 160 ha will be disturbed for mining and associated activities within ML 1579.

The external boundary of ML 1579 corresponds to the DA Area referred to in DA 88-4-2005 and covers an area of approximately 726 ha.

1.1.4 Products and Markets

Coal within the Tarrawonga coal deposit can be described as a high volatility coal which will produce a very low sulphur semi-soft coking/thermal coal with typically <10% ash. It is expected that up to 65% of coal produced would be suitable for marketing as a thermal or semi soft coking coal without the requirement for further washing. The coal also contains a low percentage of sulphur and phosphorous and exhibits a high energy.

Export and domestic coal products produced directly or indirectly from the mine, i.e. with or without washing, primarily comprise:

Export	–	0-50 mm (raw and washed)
Domestic	–	30-50 mm (raw and washed)
	–	0-30 mm (raw and washed)

The majority of coal produced is exported to Asia. Tarrawonga mine produces thermal coal which is suitable for power generation and for use in steel mills.

1.1.5 Operational and Environmental Management

1.1.5.1 Contacts

The management personnel responsible for operational and environmental performance at the Tarrawonga Coal Mine and their relevant contacts are as follows.

- Mr Chris Stephens, Manager Mining Engineering - retains statutory responsibility for mining activities at the site. Contact: (02) 6743 4000.

- Mr Casper Dieben, General Manager, Operations - oversees open cut operations for the Whitehaven Group. Contact: 0407 123 958.
- Mr Danny Young, Environmental Manager – oversees day to day environmental and rehabilitation performance across the site. Contact: 02 6741 9316 or mobile: 0427 497 710.

Mining operations are undertaken by Whitehaven Coal Mining Pty Ltd personnel. The day-to-day operational responsibilities are allocated to the Project Manager, Mr Jason Conomos. Contact: (02) 6743 4000.

1.1.5.2 Support Personnel

In addition to the personnel identified in Section 1.1.5.1, Tarrawonga Coal utilises specialist assistance as and when required. Specialist environmentally-based or related companies or consultants involved in activities at the mine during the reporting period included:

- Geoff Cunningham Natural Resource Consultants Pty Ltd;
- Countrywide Ecological Services;
- Eco Logical Australia Pty Ltd;
- Orica Blasting Limited;
- Soil Services;
- EnviroAg;
- Spectrum Acoustics;
- Landskape Pty Ltd;
- Geoterra Pty Ltd;
- Wilkinson Murray Pty Ltd; and
- Lindsay Gilbert & Associates Pty Ltd.

All mining and environmental management activities are undertaken generally in accordance with the MOP, management plans and procedures prepared in satisfaction of Tarrawonga Coal's Mining Lease, Environment Protection Licence (EPL 12365), Development Consent and the relevant legislation.

1.1.6 Corporate Environmental Policy

WCL has a documented Health, Safety and Environmental policy which states:

“Whitehaven is committed to supplying coal in a safe, efficient and environmentally responsible manner. Whitehaven will conduct business in a way that maintains a safe and healthy workplace for our employees, contractors, visitors and the surrounding community and will protect the environment in all stages of mining and processing.

Whitehaven’s Goals are:

- *To achieve zero injuries and occupational illnesses.*
- *To achieve zero equipment damage.*
- *To achieve zero environmental incidents.*

Whitehaven will achieve these goals by:

- *Ensuring health, safety and environment is considered in all planning and work activities.*
- *Involving our employees through regular communication, consultation and training.*
- *Identifying and controlling all potential hazards in the workplace through hazard identification and risk analysis.*
- *Ensuring all incidents are reported, controlled and learning’s applied and shared.*
- *Providing effective injury management and rehabilitation for all employees.*
- *Seeking continuous improvement in performance by taking into account employee & community concerns and advances in health, safety and environment.*
- *Providing details of legislative and other requirements and necessary training and resources to meet these requirements.*

Responsibilities:

All persons working for Whitehaven have a personal responsibility to comply with this policy and subsidiary Health, Safety & Environment systems. No work is to be undertaken without a clear understanding of a safe method that minimises the risk of injury, equipment damage and environmental harm.

Whitehaven employees shall share the responsibility to:

- *Work in a healthy, safe and environmentally responsible manner.*
- *Encourage others to work in a healthy, safe and environmentally responsible manner.*
- *Promptly report incidents, unsafe practices or conditions and environmental concerns as they become apparent.*
- *Co-operate with Management in the support of promotion of health and safety and responsible environmental management in the work place.”*

This policy applies to all mines operated by Whitehaven Coal Limited and its subsidiaries.

1.2 Approval Status

1.2.1 Leases, Licences and Approvals

Table 1 identifies the leases, licences and approvals in place for the Tarrawonga Coal Mine at the end of the reporting period, the issuing / responsible Authority, dates of issue, duration (where limited) and relevant comments. The list is presented chronologically according to the date of issue.

Reviews of compliance/performance with the conditions identified in DA-88-4-2005 Appendix 1), Environment Protection Licence 12365 (Appendix 2), and ML 1579, are presented in Appendix 3, Tables A3-1, A3-2 and A3-3 respectively.

Table 1 - Tenements, Licences and Approvals

Issuing / Responsible Authority	Type of Lease, Licence, Approval	Date of Issue	Expiry	Comments
Department of Industry & Investment	Exploration Licence (EL 5967)	24 th July 2002 Renewed 4 th October 2007	23 rd July 2012	Approval for exploration
Minister for Planning	Development Approval (DA) 88-4-2005 (Appendix 1)	9 th November 2005	9 th November 2017	Approval for the mine
Department of Environment, Climate Change and Water	Environment Protection Licence No. 12365 (Appendix 2)	9 th January 2006	Nil Anniversary date: 9 th January Next review: 18 th September 2014	Approval granted for Coal Mine and Coal Works to 2 Mtpa
Department of Industry & Investment	ML 1579	3 rd April 2006	2 nd April 2027	Approval of open cut
NSW Office of Water	Water Licence 90BL253276	27 th April 2006	Nil	Used for groundwater monitoring purposes.
	90BL253278	"	"	
	90BL253279	"	"	
	90BL253280	"	"	
	90BL254253	"	"	
	90BL254254	"	"	
	90BL254255	"	"	
	90BL254692	12 th May 2009	11 th May 2014	50ML - Mining

1.2.2 Amendments to Leases, Licences and Approvals

Amendments to leases, licences and approvals for the Tarrawonga Coal Mine are as follows:

- Exploration Licence (EL 5967) – licence expired on 23rd July 2007, and was renewed to 23rd July 2012, effective 4th October 2007.
- Development Approval (DA 88-4-2005) – no changes were made during the reporting period.
- Environment Protection Licence (EPL No. 12365) – an application to vary EPL 12365 was made to DECCW in May 2009. The variation requested to include Storage Dam 16 as a new surface water discharge point. The

variation also requested that the licensee be changed from East Boggabri Coal Pty Ltd to Tarrawonga Coal Pty Ltd. This variation was subsequently accepted. Refer to Appendix 2 for the up-to-date EPL.

- Mining Lease (ML 1579) – no changes were made during the reporting period.
- Water Licences – Tarrawonga Coal was granted a replacement water bore licence during the reporting period, to replace the bore that was within the footprint of the open cut. The licence has a 50ML allocation for mining purposes.

During the reporting period, Tarrawonga Coal also made application under Section 75W of the Environmental Planning and Assessment Act 1979 for a modification to its consent, which would enable access to a further 4 - 5 million tonnes of coal, as well as modifications to the existing out of pit overburden dumps and water management structures. The application was pending determination at the time of lodgement of this AEMR.

1.3 Actions Requested at Previous AEMR Review

The annual environmental meeting for the 2008/2009 AEMR for Tarrawonga Coal Mine was undertaken by the Department of Industry and Investment (I&I) on the 8th July 2009.

Advice from I&I following that review identified satisfaction with the form and content of the report, and the reporting of the environmental management of the mine's activities. The I&I did request consideration to and improvements on the matters included in Table 2.

Table 2 – I&I AEMR Review Issues/Considerations

No.	Issue/Observation	Action to be completed
1	Highwall along boundary	Tarrawonga to resolve backfilling the highwall along boundary with Boggabri. Issue: Tarrawonga waiting for Boggabri to decide if they will mine along the boundary.
2	Poor vegetation establishment on lower lift	Ensure supplementary plant or other remedial action undertaken along section of the rehabilitation located next to discharge point where sterile Rhodes grass had been used
3	Extensive roly poly weed invasion	Monitor and manage the extent of the roly poly weed invasion to ensure the successional development of other species.
4	Hydrocarbon management – extent of concrete drip pad underneath refuelling station insufficient – excessive spillage where vehicles refuel observed	Extend bunding and concrete pad adjacent to the refuelling station to capture spills and splashes from vehicles when refuelling.
5	Mixed waste – Skips in workshop area contained mixed waste that could have been separated for recycling	Workshop management plan to be developed and to include protocols for waste management.
6	Laydown pad – large number of empty oil drums and containers observed in unbunded area on laydown pad	Empty hydrocarbon containers to be placed within trayed area/skip to contain leaks. Management plan to be developed/examined to improve management of the laydown area.

The actions described below have occurred as a result of the observations and recommendations in Table 2:

1. The potential mining through the Tarrawonga/Idemitsu boundary has been removed from current plans. As a consequence, in pit backfilling against the highwall at the northern end of site has commenced.
2. The area determined by I&I as having poor vegetation establishment at last year's AEMR review had retained the greatest cover of vegetative matter in its second year as compared to rehabilitation of other sections of the northern emplacement over their second year. The use of a sterile Rhodes grass has given little capacity for successional invasion by roly poly or galvanised burr which has been the traditional outcome across site. This particular area has also proven to have the least amount of rilling and erosional problems as compared to other rehabilitated areas due to the extent of cover that has been maintained (Plate 1).



Plate 1 - Area previously identified as having poor vegetation establishment

3. Areas of original rehabilitation are showing successional development with the extent of roly poly in those areas diminishing, with a greater coverage of native grasses now coming through (Plate 2). This was identified at the last AEMR review as a normal successional development as has been proven at Whitehaven's Canyon Mine site over a number of years.



Plate 2 - 2007 rehabilitation succession from roly poly dominance to native grasses establishment

4. The extent of bunding adjacent to the Tarrawonga fuel farm includes cover at the fuel fill point to ensure any local spillage during refuelling is captured by the bund. Light vehicle filling is carried out over the bunded area, and refuelling of the fuel farm tankers occurs with all pipe work from the tanker to the fuel cell within the bunded area.
5. Tarrawonga has a Waste Management Plan which includes segregation of wastes at the workshop. Workshop staff have been engaged in efforts to improve waste segregation with all waste receptacles appropriately marked for the various waste streams.
6. House-keeping efforts have improved significantly around the workshop area with the laydown area now better organised to segregate different materials. All IBC'S, including empty ones, are now appropriately maintained in bunded areas.

2 SUMMARY OF OPERATIONS

2.1 Exploration, Resources / Reserves and Mine Life

2.1.1 Exploration

Exploration activities during the reporting period comprised the following programs:

- 10 x exploration blast holes to further delineate the southern boundary of the open pit;
- 4 x hq core holes in front of the highwall to examine coal quality and overburden characteristics;
- 5 x open holes to determine coal seam structure (floor rolls) and thickness;
- 5 x 100mm conventional core holes to determine size fraction and washability characteristics of coal;
- 2 x HQ core holes to investigate coal quality from a coal resource south of the current opencut area; and
- Ground magnetic survey to delineate major faulting cutting through the Mining Lease.

2.1.2 Resources and Reserves

Eight coal seams are present within the Tarrawonga Open Cut and are listed below in increasing depth from the surface:

- Braymont
- Bollol Creek
- Jeralong
- Jeralong Lower
- Merriown
- Merriown Lower
- Velyama
- Nagero

The coal seams range in thickness up to 4.0 metres, but average 1.5 metres. The total thickness of the coal to be mined is approximately 15 metres, with the depth below the natural land surface varying between 20 and 180 metres. The uppermost

coal seams (Braymont and Bollol Creek) contain only limited quantities of coal but will form part of the total resource.

JORC compliant resource and reserve statements were completed for the mining lease and northern Exploration Licence 5967 during September 2009. Open cut resources total 7.0 Mt within the current consent limit. Open cut coal resources exist outside the current pit consent. An application for an extension to the consent area is actively being sought by Tarrawonga Coal for this area.

2.1.3 Estimated Mine Life

Based on the projected annual ROM coal production from the mine and the remaining reserves within the current approved area, at the end of the reporting period the Tarrawonga Coal Mine had a projected mine life of approximately 4 years.

2.2 Land Preparation

Land preparation activities undertaken at the Tarrawonga Coal Mine during the reporting period were conducted in accordance with commitments identified in Section 3 of the MOP and included:

- Vegetation removal in advance of the active pit over an area of approximately 41.8ha comprising cleared lands (Community 4), regenerating White Cypress Pine – Narrow Leaved Ironbark (Community 6), Narrow Leaved Ironbark – White Cypress Pine (Community 1) and White Box – Pilliga Grey Box – Narrow leafed Ironbark (Community 7). All clearing works were undertaken following a pre-start clearing check by Countrywide Ecological Services.
- Stripping of topsoil, subsoil and friable overburden was undertaken over that area cleared of vegetation. All soil stripped during the reporting period was classified as Soil Mapping Unit 1 from the current MOP.
- During the reporting period, a total of 200,450 m³ topsoil, subsoil and friable overburden was stripped. Existing stockpile locations are shown on Plan 3.

Table 3, the “Production and Waste Summary”, shows that at the end of the reporting period, a total of 4,310 m³ subsoil and topsoil had been replaced on reshaped areas

of the final landform. A further 989,217 m³ topsoil and subsoil remains stockpiled within the mining lease.

Table 3 - Production and Waste Summary

	Cumulative Production			
	Start of Reporting Period (up to 30/4/08)	During Reporting Period (1/5/08 to 30/4/09)	Cumulative Total at End of Reporting Period	End of next Reporting Period (estimated)
Soil Stripped (m ³)	1,034,994	204,450	1,239,444	1,325,444
Soil Used/spread (m ³)	245,917	4,310	250,227	313,227
Waste Rock (m ³)	29,024,463	13,813,374	42,837,837	60,337,837
ROM Coal (t)	3,303,194	1,707,339	5,010,533	7,010,533
Product (t)	2,859,798	1,430,455	4,290,253	5,990,253

ROM Coal is total production at the mine site. The difference between ROM Coal and final Product is related to changes in stockpile volumes both at the mine and the CHPP during the reporting period.

Soil removal activities are undertaken in up to two 50m wide strips in advance of competent overburden and coal extraction activities.

There was no coarse reject disposal to the mine during the reporting period.

2.3 Construction

No additional construction activity was undertaken during the reporting period apart from the commissioning of a batch weigh system at the ROM coal bin to improve efficiency in loading and accuracy in loading of trucks.

2.4 Mining

2.4.1 Mining Method

All mining during the reporting period was undertaken by open cut methods using the techniques identified in the MOP, namely:

- Separate topsoil and subsoil removal by open bowl scraper;
- Friable overburden removal by scraper;

- Drilling and blasting the underlying competent overburden;
- Overburden (and interburden) removal by bulldozers and/or excavator and dump trucks, with the overburden placed in and over the mined-out areas of the open cut; and
- Coal extraction by excavator loading into haul trucks for transport to the ROM stockpile.

All coal was assessed in pit and, depending on the seam, known quality and the extent of dilution, was classified into:

- “clean”- (by-pass) top seam; and
- “dirty” - (to be washed);

The in-pit classification determines the form of subsequent processing undertaken on-site or off-site.

During the reporting period, a total of 13,813,374 bcm friable and competent overburden was removed to produce 1,707,339t ROM coal at an average overburden:coal stripping ratio of 8:1 (See Table 3).

Plan 4 presents the status of mine and infrastructure development as of 30th April 2010. Plan 4 also identifies the limit of mining at the commencement of the reporting period.

During the reporting period, the mine, which was developed as a series of approximately 50 m wide strips, advanced approximately 250m to the south and east. This comprises the actual working pit area and stripping in advance of the open cut.

2.4.2 Mining Constraints

Day to day mining activities at the Tarrawonga Coal Mine are primarily constrained by economic considerations which, in turn, are determined to a large extent by factors beyond Tarrawonga Coal’s control (i.e. coal price and demand). Economic

factors determine the overburden:coal stripping ratio and hence the lateral extent of mining undertaken.

Other constraints to mining operations at the Tarrawonga Coal Mine have included or continue to include:

- The depth of weathering of the coal seams which influences the volume of overburden requiring removal to access the coal;
- The potential presence of faulting within the seam structure which may influence the sequence and possibly the method of mining;
- The potential for an uneven coal seam floor which could potentially complicate vehicular access to the coal;
- Existence of Leard State Forest to the north of the mine and requirement to avoid disturbance to this area; and
- Existence of Aboriginal Sites within the Mining Lease Area and requirement to avoid overburden emplacement on these areas.

2.4.3 Mining Equipment

Table 4 presents a list of mining equipment in use at the Tarrawonga Coal Mine at the end of the reporting period, together with its principal function(s) and frequency of use.

Table 4 - Mining Equipment

ITEM	NUMBER IN OPERATION	FUNCTION
O & K RH170 Excavator	2	Overburden excavation and loading
Hitachi EX1900 Excavator	1	Overburden / interburden / coal loading
Terex Dump Truck	7	Overburden / interburden
CAT Dump Truck 777F	3	Overburden / interburden / coal haulage
Terex SK50 Drill	1 (f/t), 1 (p/t)	Blasthole Drilling
CAT D11 Dozer	2	Clearing; interburden / coal ripping / pushing; dump maintenance
CAT D10 Dozer	2	Clearing; interburden / coal ripping / pushing; dump maintenance
CAT D11R Dozer	1	Clearing; interburden / coal ripping / pushing; dump maintenance
Water Cart	2	Dust Suppression
CAT 16M Grader	1	Road maintenance
637-2 Scraper	2	Soil removal and stockpiling
Service Truck	1	Machinery servicing
Cummins Genset	2	Power for site offices, workshop and coal loader
Mobile Crusher	1 (p/t)	Crushing
IT38G Loader	2	Loading
Lighting Plant	11	Lighting
CAT 980G Loader	1(p/t)	Coal Pad
CAT 988H Loader	1	Coal Pad

2.4.4 Hours of Operations

Open cut mining activities occurred between the hours of 7.00am and midnight Monday to Friday, between midnight and 3.30am Tuesday to Saturday, and 7.00 am to 6.00pm Saturdays.

Coal processing activities were permitted between 7.00am to 10.00pm Monday to Friday, and 7.00am to 6.00pm Saturdays, excluding public holidays.

Coal transportation from the mine site is permitted between the hours of 7:00am to 9:15pm Monday to Friday and 7:00am to 5:15pm on Saturdays. These times ensure that all coal trucks are off the public road network by 10.00pm Monday to Friday and 6:00pm Saturdays.

General maintenance activities were permitted any time Monday to Sunday.

The above hours of operation are consistent with the permitted hours of operation identified in Development Consent DA 88-4-2005.

2.5 Processing

2.5.1 Outline of Processing Activities

With the exception of coal crushing to <200 mm, no coal processing was undertaken within the DA Area.

During the reporting period, all Tarrawonga coal was transported to the Whitehaven Siding CHPP (Figure 1) where 78% was washed and 22% bypass coal (unwashed) for despatch to domestic and export markets. The Tarrawonga Coal Loader is shown in Plate 3 and Plate 4.

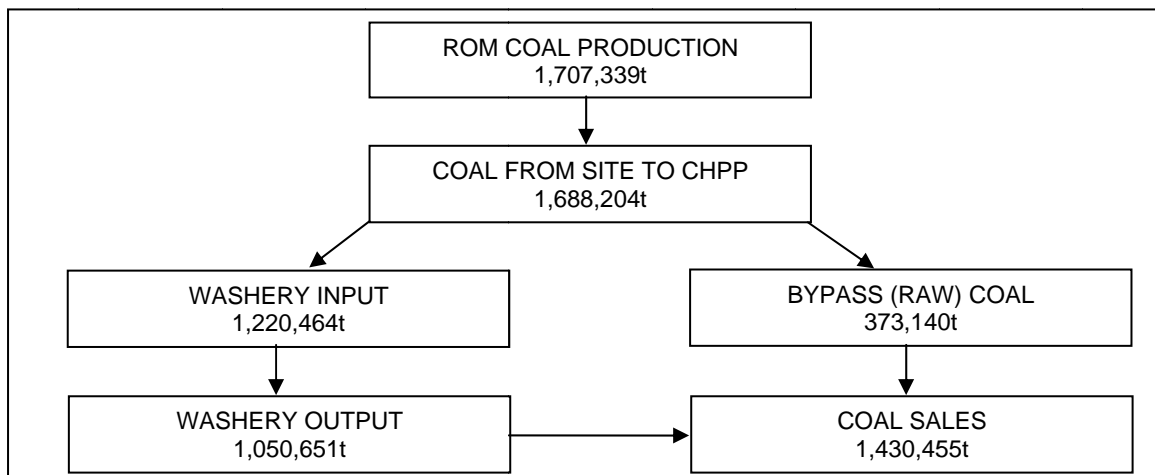


Plate 3 - Tarrawonga Coal Loader



Plate 4 - Coal Loader Fill Bin Display

Figure 2 presents a schematic of coal movements and washery inputs, outputs and yields for the reporting period. Figure 2 shows that during the reporting period, a total of 1,688,204 tonnes of coal was transported from the Tarrawonga site to the CHPP. 373,140 tonnes was direct by-pass coal (i.e. crushed product coal not requiring washing) whilst 1,220,464 tonnes was directed through the washery, producing 1,050,651 tonnes of washed product (average yield of 86%).



**Figure 2 - Coal Movement and Production Summary
(2009/2010 Reporting Period)**

2.5.2 Changes or Additions to the Process or Facilities

During the reporting period there were no significant changes or additions to processes carried out at the Tarrawonga Coal Mine.

2.6 Waste Management

2.6.1 Introduction

Wastes produced from the Tarrawonga Coal Mine during the reporting period (or at the Whitehaven Siding CHPP) remain unchanged from those identified in the previous AEMR and Mine EIS and are comprised of:

- General domestic-type wastes from on-site buildings and routine maintenance consumables;
- Oils and grease;
- Sewage;
- Overburden and interburden;
- Mine equipment tyres; and
- Coarse and fine coal rejects from any coal preparation undertaken.

The following sub-sections identify the management procedures adopted for each of these wastes throughout the reporting period. Management procedures remain unchanged from those previously identified and will be continued for the ensuing reporting period.

2.6.2 Domestic Type Wastes

All general wastes were collected on-site and placed into large storage receptacles on a daily basis. An industrial waste collector collected this waste on a fortnightly basis. Tarrawonga Coal Pty Ltd had established a recycling program for domestic type wastes which are collected in separate receptacles and delivered to the Gunnedah Waste Management Centre for recycling.

2.6.3 Oil Containment and Disposal

Waste oils from the maintenance building were pumped from machinery to bulk storage tanks bunded in accordance with EPA requirements (also see Section 2.8.2). When breakdown maintenance was undertaken away from this location, oil was pumped from the equipment to a tank on the service truck from which it was subsequently transferred to the bulk storage tank.

Waste oil stored at the maintenance building was collected and disposed of by a licensed contractor approximately once every three months.

Runoff from the concrete vehicle and equipment wash pad was directed to an oil separator and containment system for subsequent pump out and disposal.

2.6.4 Sewage Treatment and Disposal

Effluent from the sewage and ablutions facilities at the Tarrawonga Coal Mine was managed through the Council-approved septic system, with pump outs undertaken by a licensed waste disposal contractor on an as-needs-basis.

2.6.5 Mine Equipment Tyres

Mine equipment tyres are retained (stored) on site until disposal within the open cut void.

2.6.6 Overburden and Interburden

Overburden and interburden materials at the Tarrawonga Coal Mine comprise conglomerates, sandstones, shales and mudstones which are prone to various degrees of breakdown on exposure to the atmosphere. The overburden is cast into the mined-out areas by blasting or removed from above the coal seam by a combination of dozer pushing and excavator loading and hauling using dump trucks. Interburden removal to enable lower coal ply excavation is undertaken by excavator and dump truck.

During the reporting period, all overburden and interburden was blasted / pushed / dumped within areas nominated in the MOP for overburden emplacement.

2.6.7 Processing Plant Residues

2.6.7.1 Physical and Chemical Characteristics

The coarse and fine rejects produced from washing Tarrawonga coal comprise a mixture of coal and non-coal materials, e.g. sedimentary rocks such as shale, mudstone or claystone, and sand, silts and clays which either occur naturally within the coal seam or represent overburden or interburden materials which dilute the coal during its extraction.

Analysis of the leachate emanating from the Whitehaven Siding CHPP fine reject ponds is presented in Table 5. The leachate analysis from the finishing pond indicates that the water is of a quality suitable for general agricultural uses.

Table 5 - Whitehaven CHPP Fine Reject Leachate Analysis

Parameter	Unit	Analysis
pH		8.05
EC	µS/cm	2770
TSS	mg/L	4
Alkalinity – Bicarbonate	mg/L	218
Chloride	mg/L	342
Sulphates	mg/L	778
Calcium (tot)	mg/L	108
Magnesium (tot)	mg/L	88
Sodium	mg/L	399
Potassium	mg/L	22
Oil & Grease	mg/L	<5

2.6.7.2 Reject Handling and Disposal Procedures

Coarse Reject – As rehabilitation progresses at the Tarrawonga mine site, coarse reject produced from the Whitehaven CHPP will be backloaded to the mine for placement in the open cut prior to reshaping and rehabilitation. To date there has

been no placement of reject at the Tarrawonga site, however, an approval was obtained on the 6th January 2010 under Section 100 of the *Coal Mine Health and Safety Act 2002*, for an emplacement area which will begin to accept reject emplacement during the next AEMR period.

Fine Reject – Pumped to a series of seven fine reject ponds within the Whitehaven CHPP balloon loop and adjacent to the Whitehaven CHPP for consolidation. Reject produced throughout the reporting period was pumped to the reject ponds within the rail loop and those adjacent to the CHPP. The ponds are encircled by bunding and drains to contain fine reject in the event of a pond failure. Following consolidation, the fine rejects are excavated and transported to the former Gunnedah Colliery CHPP for use in final landform development and emplacement in the Melville and North Cut Void.

2.6.7.3 Monitoring and Management of Containment Facilities

Routine management and monitoring of reject material at the Whitehaven Siding is undertaken by Whitehaven Coal personnel under the direction of the Plant Manager. Inspections of the reject ponds at the Whitehaven CHPP are undertaken by officers of I&I NSW - Mineral Resources, the statutorily responsible Authority.

2.7 Stockpile Capacity

All ROM coal produced at the Tarrawonga Coal Mine is delivered to clean and dirty ROM stockpiles. ROM stockpile capacity at the Tarrawonga Coal Mine totals 150,000t. Average stockpile volume during the reporting period was 51,880 tonnes, with volumes ranging from 32,000 tonnes to 73,000 tonnes.

2.8 Water Management

2.8.1 Objectives

The Tarrawonga Coal Mine lies within the catchment of the Namoi River. Locally, and within proximity of the project site, Goonbri Creek, Bollol Creek and Nagero

Creek all provide flows to the Namoi River during runoff events. The design of sediment detention basins within the disturbed area of the mine limits the opportunity of discharge of runoff from mine-disturbed area, i.e. after appropriate detention time to satisfy licensed discharge criteria. Five wet weather discharge points are nominated in the current EPL 12365. These are SD-17, SD-16, SD-9, SB-14 and SD-20 (Plan 4). A variation application was made to DECCW during the reporting period to identify SD-16 as an additional wet weather discharge point. This variation application was subsequently approved.

The management of water at the Tarrawonga Coal Mine is undertaken with the following objectives:

- (i) The quantity of water exhibiting elevated suspended solids loadings is minimised;
- (ii) Erosion is minimised;
- (iii) Sediment-laden water is contained for a sufficient period that if it discharges, satisfies the discharge criteria identified in EPL 12365;
- (iv) Surface water is harvested off-site to the extent permissible, thereby minimising water extraction from bores or other sources;
- (v) Groundwater is not contaminated;
- (vi) Downstream water users are not adversely affected by the Mine's operations, either in terms of quantity or quality; and
- (vii) The water management system is consistent with planned rehabilitation objectives and long-term land use.

2.8.2 Surface Water Management

Water within the DA Area is nominally classified either as "clean", "sediment-laden" or "dirty", or "contaminated" depending on the source of the flow and its potential for physical or chemical contamination.

"Clean water" comprises water which emanates from areas undisturbed by mining activities, flows from sediment basins following its clarification in those structures or is contained within or discharges from storage dams. Within the DA Area, clean surface water flows either pass to natural drainage lines and hence off-site or are collected

by diversion banks and directed to the storage dams for use on-site. All water flowing from sediment basins ultimately flows to storage dams.

Of the storage dams, all but SD-3, SD-10, SD-11 and SD-20 (Plan 4) primarily collect flows emanating from the array of linked sediment basins and provide a final “polishing” storage prior to off-site discharge.

“Dirty water” comprises water which does or could potentially contain elevated levels of suspended solids originating from areas of mining-related disturbance, including water pumped from sumps within the active mining area.

Dirty water originating from the surface is collected by catch banks located down slope of the potential sources of pollution and directed to the sediment basins while water pumped from the open cut is piped to Void Water Dam 1 or retained in pit within managed sumps. Water collecting within the sediment basins and the pit water dam is used for dust suppression in addition to waters in the storage dams to avoid potential for off-site water discharge.

The sediment basins are either cleaned out once their capacity is reduced by 20% or supplementary structures are installed to provide the required storage volume. In the event of structure replacement, the contents of the former structure will be allowed to dry prior to being capped and rehabilitated.

The principal components of the “clean” and “dirty” water management systems in place at the end of the reporting period are shown on Plan 4.

“Contaminated Water Management”. Two 68,000L (62,000L safe fill) self bunded diesel fuel tanks are maintained adjacent to the Tarrawonga workshop area. This ensures that in the event of a leak from the tanks, there is sufficient capacity to adequately store the full complement of diesel from those tanks. Tarrawonga Coal has also installed an additional concrete bund adjacent to the fuel tanks to house other oils and lubricants in a safe and efficient manner. Any associated spills within the bund then report to an oil separating unit for disposal by an appropriately licensed contractor. Waters potentially contaminated with hydrocarbons from the workshop area are also diverted to the oil separator, with clean water used for dust suppression purposes. Spill kits are also maintained on the mine site.

The likelihood of localised spills of fuel or oil external to bunded areas is kept to a minimum by the adoption of the above practice. In the event that localised spills do occur, immediate action would be undertaken to ensure appropriate clean-up and minimisation of harm.

2.8.3 Discharges

A total of four discharge events occurred at Tarrawonga during the reporting period, as detailed below:

4th January 2010 – SD-16

The event on the 4th of January followed the receipt of 123.2mm of rainfall during December 2009, of which 117.6mm fell between December 22nd and December 31st, at which time the site was not operational due to Christmas period shutdown. A further 55.6mm fell between the 1st January and the 4th January 2010, again whilst the site was not operating thereby not allowing for water use or pumping of water through the sediment chain to avoid discharge.

8th February 2010 – SD-16

The event on the 8th of February occurred after almost 51mm of rain fell between the 5th and 8th February 2010 with site storage dams already at capacity

15th February 2010 – SD17, SD-9 and SD-16

The discharge event on the 15th February followed a further 84mm of rain from the period of the 14th and 15th February at which time discharge could not be avoided.

31st March 2010 – SD-16

The discharge on the 31st March followed 29mm of rain the previous day.

Each discharge occurred due to significant rainfall events over a relatively short period of time during which sufficient storage capacity could not be maintained on site. Over the summer period (December – March) a total of 418.8 mm of rainfall was recorded on site. Analysis of the discharges and the comparative up and downstream flows in Bollol Creek and Nagero Creek are presented and discussed in Section 3.3.2.

2.8.4 Water Sources, Demand and Use

Within the DA Area and immediate vicinity of Tarrawonga Coal Mine, surface water resources are limited to a number of ephemeral drainage lines which flow for a short period after substantial rainfall, farm dams, water storage dams and a series of interlinked sediment basins within the DA Area as shown on Plans 3 and 4.

Water is required on the mine site primarily for dust suppression purposes, with minor quantities required for potable, toilet and ablutions purposes. Where practicable, water collected on-site is retained or reused, with water for dust suppression sourced from a combination of on-site water harvesting, inflows from the exposed coal seam, overburden and interburden, and groundwater extraction. Water for potable, toilet and ablutions purposes is trucked to the site from Gunnedah or Boggabri.

During the reporting period, a total of approximately 160ML was used for mine site and processing facility dust suppression purposes, all of which was sourced within the DA Area. The volumes obtained from the various sources are as follows:

- 69 ML from groundwater/surface water inflows to the open cut;
- 90 ML from Surface flows to sediment basins and storage dams within the DA area; and
- 1ML from the licensed groundwater bore to nearby storage dam.

During the reporting period the surface flow volume extracted from the storage dams and sediment basins was additional to the open cut inflows which were also routinely pumped to sumps within the void as well as the designated Pit Water Dam PW1 prior to collection by water carts. Pumping from the licensed bore commenced in mid December 2009 at the height of the dry period but was ceased following rainfall at the end of December. In total approximately 1ML of water was pumped from the bore to an adjoining dam (pre-existing farm dam).

The above water use is higher than predictions made in the EIS for the project which indicated a water requirement of approximately 89ML per year for dust suppression and processing requirements. It is also higher than water use as compared to last year. The expanding nature of the pit, coupled with a reduction in rehabilitation over the period due to pending modifications to consent contributed to the additional water

use requirement. Similarly, dry conditions from May through to December 2009 exacerbated dust generation on site requiring additional water use. Above average rainfall from December 2009 through to March 2010 required additional water use on site to minimise potential for offsite water discharge. The storage capacity on site was sufficient to meet water requirements, albeit surface storages were almost empty prior to the rainfall in December 2009, at which time consideration was being given to trucking water into site. Management of pit water direct from sumps within the pit and via the pit water dam also played a significant role in the provision of adequate water in dust suppression.

An update to the Site Water Management Plan (SWMP) has been pending over the last 6 months, with the Department of Planning suggesting the SWMP be held in abeyance to enable inclusion of relevant information from a recently completed independent audit into surface and groundwater monitoring results, as well as the current pending modification application. Upon approval of the modification application, a revised SWMP will be developed, which will also be the catalyst for a variation to the site's Environment Protection Licence, whereby the license will identify available storage on site meets the 90%ile 5 day event criteria, and will nominate the rainfall volume applicable to the wet weather discharge criteria.

2.8.5 Stored Water

Table 6 presents an estimate of the volume of stored water at the beginning and end of the reporting period.

Table 6 - Stored Water

	Volumes Held (m ³)		Storage Capacity at the end of the Reporting Period (m ³)
	Start of Reporting Period	At end of Reporting Period	
Clean Water (in Storage Dams)	31,501	58,000	73,496
Dirty Water (in Sediment Basins)	43,124	48,000	59,452
Controlled Discharge Water (salinity trading schemes)	N/A*	N/A*	N/A*
Pit Water	4,596	8,000	10,000 + void sumps
* N/A = Not applicable for the Tarrawonga Coal Mine			

2.8.6 Groundwater Management

Inflows into the open cut are irregular and result from a combination of:

- Direct rainfall runoff and infiltration through the emplaced overburden which flows down-dip to the open cut sumps;
- Where the open cut workings expose water stored within fractures in the rock mass or coal seams; and/or
- From areas where weakly cemented gravel overburden has been encountered.

As noted in Section 2.8.4, during the reporting period, a total of 69 ML was pumped from the open cut sump(s). This water comprised a combination of groundwater inflows as well as surface flows from within the open cut void. All of this water was used for dust suppression purposes. Inflows not reporting to the sump(s) within the open cut either evaporate or are incorporated within the coal or replaced overburden.

Contamination of groundwater is controlled by the management of chemical, oil and grease spills and storage, with:

- Vehicle maintenance carried out in designated areas;
- Any spills being cleaned up; and
- Fuels, oil and greases being stored within a bunded area, constructed in accordance with AS 1240-2004 (also see Section 2.8.2) and/or DECCW requirements.

Groundwater from surrounding bores, as well as the mine production bore, is monitored on a regular basis to detect and assess any changes in groundwater quality or level that may be attributable to the mine (see Section 3.4.2).

2.9 Hazardous and Explosive Material Management

No explosive materials are retained within the Tarrawonga Mine Site. Orica Mining Services has a storage facility located between the Tarrawonga and Canyon sites to remove the requirement for on-site storage.

Mixing of nitropril with distillate to produce an explosive is undertaken on the day of each blast using a purpose built explosives mixer and in a quantity adequate only for that particular blast.

Materials Safety Data Sheets (MSDS) are retained on-site for all hazardous materials, independent of the quantity. Additionally, all contractors are required to supply MSDS sheets for any hazardous goods they may bring onto the site.

2.10 Infrastructure Management

Management of infrastructure (e.g. buildings, roads, generators and pumps) and other facilities not specified elsewhere within this AEMR, is undertaken on an as-needs basis or in accordance with Statutory requirements in order to maintain them in an operationally efficient, safe, neat and tidy condition, and one which does not result in the direct or indirect generation of unacceptable environmental impacts.

2.11 Product Transport

During the reporting period, all sized (<200 mm) ROM coal from the Tarrawonga Mine was delivered directly to the Whitehaven CHPP, with all product coal destined for the export market transported by train to the Port Waratah or Kooragang Island ship loaders at the Port of Newcastle. 1,688,204 tonnes of coal was transported from the mine over the reporting period. This equated to an average of 132 truckloads of coal being transported per haulage day from the mine to the Whitehaven CHPP.

3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

The following sub-sections document the implementation and effectiveness of the various control strategies adopted at the Tarrawonga Coal Mine, together with monitoring data for the reporting period. Existing monitoring sites are shown in Figure 3. Where relevant, life of mine monitoring data is also included as a basis for discussion on longer-term trends. A risk identification matrix and the relevant Environmental Management procedures are identified in the Tarrawonga Coal Mine MOP.

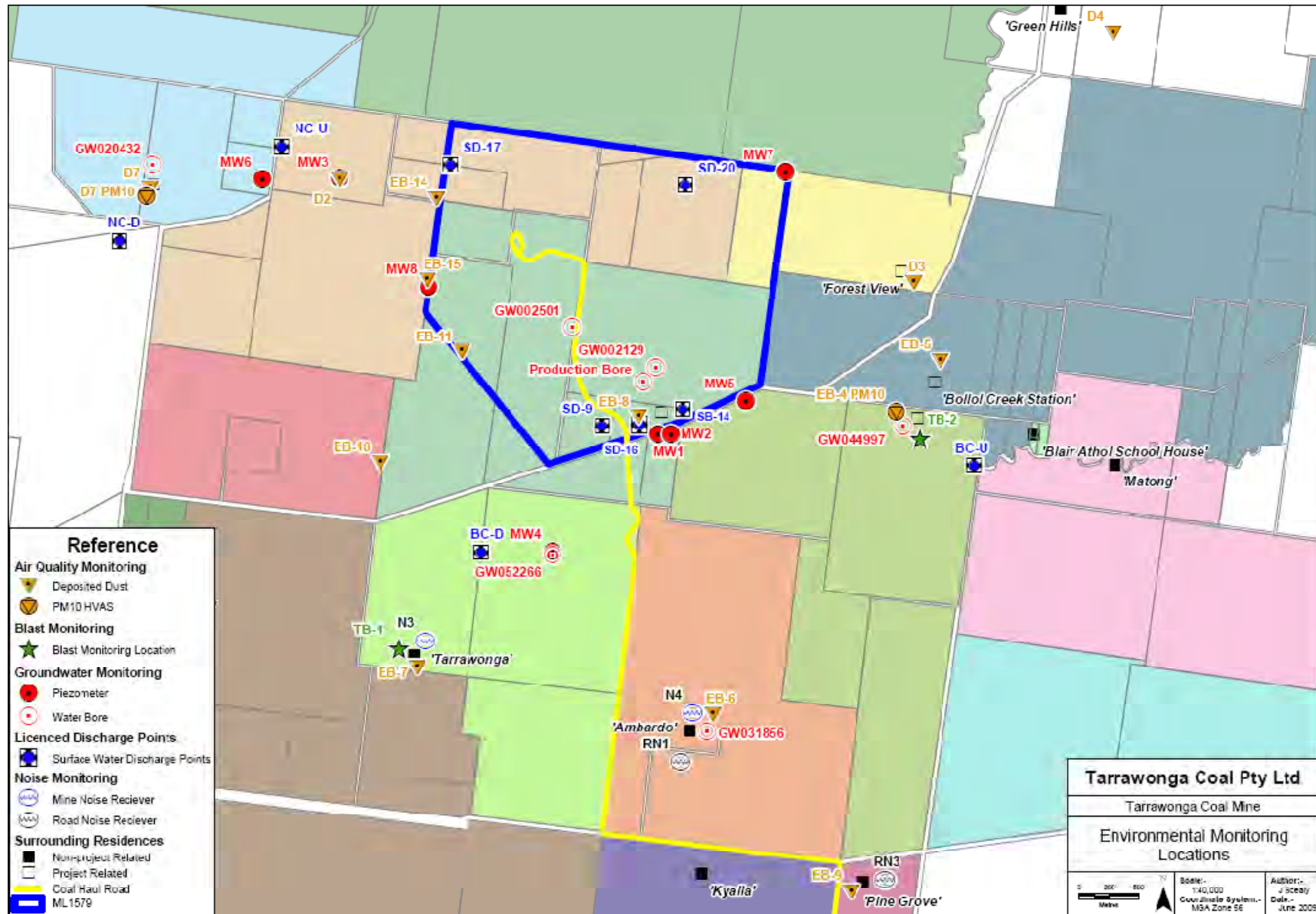


Figure 3 - Environmental Monitoring Locations

3.1 Air Pollution

3.1.1 Criteria

The air quality criteria applicable to the Tarrawonga Coal Mine are specified in DA 88-4-2005 Schedule 3, Tables 1, 2 & 3 (Appendix 1), which is summarised below:

- Acceptable mean annual increase in deposited dust – $2\text{g}/\text{m}^2/\text{month}$.
- Mean annual dust deposition (all sources) – $4\text{g}/\text{m}^2/\text{month}$.
- Mean annual TSP (all sources) concentration – $90\ \mu\text{g}/\text{m}^3$.
- Mean annual PM_{10} particulate level – $30\ \mu\text{g}/\text{m}^3$.
- 24 hour average PM_{10} particulate level – $50\ \mu\text{g}/\text{m}^3$.

Additionally, exhaust gases on earthmoving / mining equipment should not be visible for more than 10 seconds continuously.

Notwithstanding the diversity of the criteria identified above, routine air quality monitoring at the Tarrawonga Coal Mine is required for deposited dust and PM_{10} particulates. Monitoring of deposited dust is undertaken on a monthly basis whilst PM_{10} levels are monitored every 6 days.

3.1.2 Control Procedures

In order to satisfy the criteria identified above, Tarrawonga Coal employs a range of air pollution control measures including:

- Use of trunks, branches and litter from clearing for mine site rehabilitation. No materials are burnt;
- Limiting groundcover removal in advance of mining consistent with operational requirements. Under normal operational circumstances, a maximum of 100 m is prepared in advance of mining;
- Groundcover removal as part of the topsoil removal activities, rather than prior to topsoil removal;

- Where practicable, limiting soil stripping activities to periods when there is sufficient soil moisture to prevent significant dust lift-off and avoiding periods of high winds;
- Soil stripping using open bowl scrapers, thereby eliminating the dust generated from elevated scrapers;
- Application of water to exposed surfaces, with emphasis on those areas subject to frequent vehicle / equipment movements which may cause dust generation and dispersal;
- Use of water injection on the drilling rig;
- Use of imported aggregates for blast hole stemming;
- Water application at the crusher and on the conveyor discharge point to the coal bin;
- Cessation of coal processing activities during periods of concurrent high winds and temperatures which cause coal dust dispersal, independent of water applications. This situation did not arise during the reporting period;
- ROM coal pad watering;
- Progressive shaping and rehabilitation of areas once they are no longer required for mining purposes;
- Speed limit restrictions on all vehicles and equipment on the mine site;
- Equipment exhaust positioning to avoid exhausts impinging on the ground and causing dust lift-off; and
- Use of covers on all product coal trucks. Toll is the principal contractor engaged in the haulage of coal from the Tarrawonga Mine to the CHPP. All Toll vehicles and those operated by its contractors are fitted with roll-over tarpaulins.

3.1.3 Dust Monitoring

Table 7 presents a summary of the deposited dust monitoring data for the reporting period while Appendix 4 presents the results of all dust monitoring over the life of the mine to date. A graphical representation of the total insoluble solids and ash content data for each of the sites monitored during the reporting period is also included in Appendix 4.

It should be noted that the deposited dust result recorded for September 2009 (October 2009 for Idemitsu monitors) has been excluded from the annual average for each site. Dry conditions prevailed over the latter part of 2009 which contributed to severe dust storms around late September 2009. The results during the period do not represent normal deposited dust levels. The highly anomalous result of 254g/m²/month recorded in October 2009 at D-15 Forest View has also been excluded from the long term average.

Figure 3 identifies the locations of the various deposited dust gauges maintained during the reporting period.

**Table 7 - Deposited Dust Monitoring Data
(May 2009 - April 2010)**

Site (see Figure 3)	Property Name	Mean Annual Total Insoluble Solids* ¹ (g/m ² /month)	Mean Ash* ¹ (g/m ² /month)	Long Term Mean Total Insoluble Solids (g/m ² /month)
EB-4	TEMPLEMORE	3.0	1.4	2.0
EB-5	BOLLOL CREEK STATION	4.4	3.0	2.8
EB-6	AMBARDO	2.3	1.0	1.5
EB-7	TARRAWONGA	1.4	1.0	1.5
EB-8	THUIN	2.0	1.5	2.0
EB-9	PINE GROVE	1.5	1.2	1.3
EB-10	TARRAWONGA MINE	1.6	1.0	2.3
EB-11	TARRAWONGA MINE	1.9	1.2	2.1
EB-14	WESTERN BOUNDARY OF ML	4.8	2.5	4.1
EB-15	WESTERN BOUNDARY OF ML	4.0	2.0	5.0
D-2* ²	NAGERO	1.2	0.9	2.1
D-3* ²	FOREST VIEW	7.3	2.3	6.6
D-4* ²	GREEN HILLS	2.9	1.2	3.3
D-7* ²	MERRIOWN	1.0	0.6	1.8
D-15* ²	FOREST VIEW	1.3	0.9	1.2
* ¹ At end of reporting period				
* ² Site is monitored and maintained by Idemitsu Boggabri Coal				

A review of Table 7 and Appendix 4 shows that:

- The mean annual total insoluble solids (deposited dust) criterion was satisfied at all monitoring locations, except for EB-5 “Bollol Creek Station”, EB-14 “Western Boundary of ML”, D-3 “Forest View”;
- All sites where the mean annual deposited dust criteria exceeded the $4\text{g}/\text{m}^2/\text{month}$ criteria are on project related property;
- EB-5, at “Bollol Creek Station”, returned elevated results during August 2009, September 2009 and January 2010. These elevated results skewed the annual average, however, the long term average dust level at “Bollol Creek Station” remains at $2.8\text{g}/\text{m}^2/\text{month}$;
- EB-14 and EB-15 are located on the lease boundary between Tarrawonga Coal and Idemitsu Boggabri Coal, and generally provides data associated with cumulative dust impacts from both operations, in close proximity to ROM coal pads and access routes. Elevated dust levels at these locations is not unexpected, with the monitors nearby (EB-10, EB-11 and D2) all indicating significant reductions in dust levels at these locations; and
- D-3 is a shared monitor maintained and sampled by Idemitsu Boggabri Coal (IBC). The monitor has consistently shown elevated dust levels which are believed to be associated with the adjacent gravel road. An additional monitor (D-15) has been placed at the “Forest View” property in an area in closer proximity to the mine sites and further from the gravel road. Results had confirmed a consistent trend of lower dust levels at EB-15, however, a result obtained in October 2009 (during the dust storm events) of $254\text{g}/\text{m}^2/\text{month}$ skewed the annual and long term average. With this result excluded, the annual result for D-15 is significantly lower than D-3, with an average result of $1.3\text{g}/\text{m}^2/\text{month}$. This result is indicative of the adjacent gravel road causing the exceedances in dust levels at D-3.

Tarrawonga Coal Pty Ltd has a High Volume Air Sampler (PM_{10}) located at the property “Templemore”, to the south-east of the mine site. There is another PM_{10} monitor located on the “Merriown” property, to the west of the mine site which is operated by IBC and is used as a cumulative impact monitor for the Boggabri and Tarrawonga Mines. Each sampler runs for 24 hours every 6 days, with filter papers sent to an accredited laboratory for analysis.

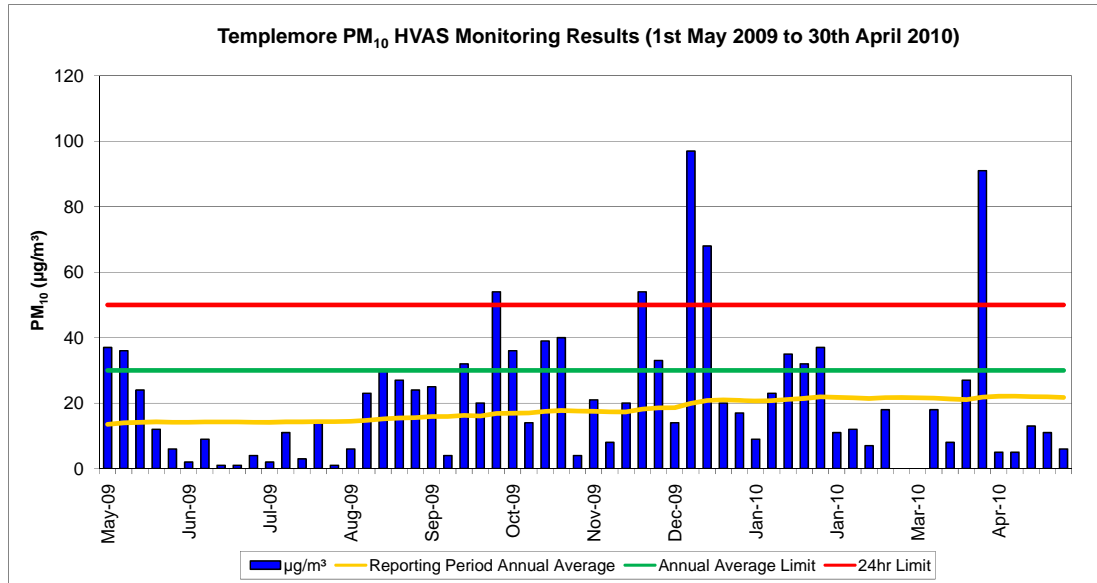
Throughout the reporting period, the PM₁₀ results at the “Templemore” monitor have indicated compliance with the 24 hour criteria with the exception of the results shown in Table 8.

Table 8 – “Templemore” PM₁₀ Exceedances

Date	PM₁₀ Level
27 th September 2009	54µg/m ³
20 th November 2009	54µg/m ³
8 th December 2009	97µg/m ³
14 th December 2009	68µg/m ³
26 th March 2010	91µg/m ³

The “Templemore” monitor remains within the annual average compliance criteria of 30 µg/m³, with the running annual average currently on 21.74 µg/m³.

The exceedances in the 24hr criteria were reviewed in terms of available weather conditions and regional conditions on the day. The event of the 27th September 2009 was influenced by regional dust storms in the locality. The event of the 20th November 2009 was not characterised by any significant event in the locality, albeit westerly and south-westerly winds were predominant at the time of the sampling event which is indicative of other factors influencing PM10 levels. The exceedances on the 8th and 14th December 2009 related to bushfires in the locality, with significant smoke haze present on a regional basis. It is also noteworthy that the PM₁₀ unit in Tamworth operated by the DECCW experienced an increase in PM₁₀ over the period 8th – 14th December with PM₁₀ levels ranging from 24 µg/m³ to 325 µg/m³, which indicates general regional conditions were responsible for the higher concentrations recorded at the Templemore monitor. The exceedance of the 26th March 2010 occurred with winds predominantly from the north east and south west, indicative of other non mine-related influences on PM₁₀ levels.



**Figure 4 - Templemore HVAS PM10 Data
May 2009 – April 2010**

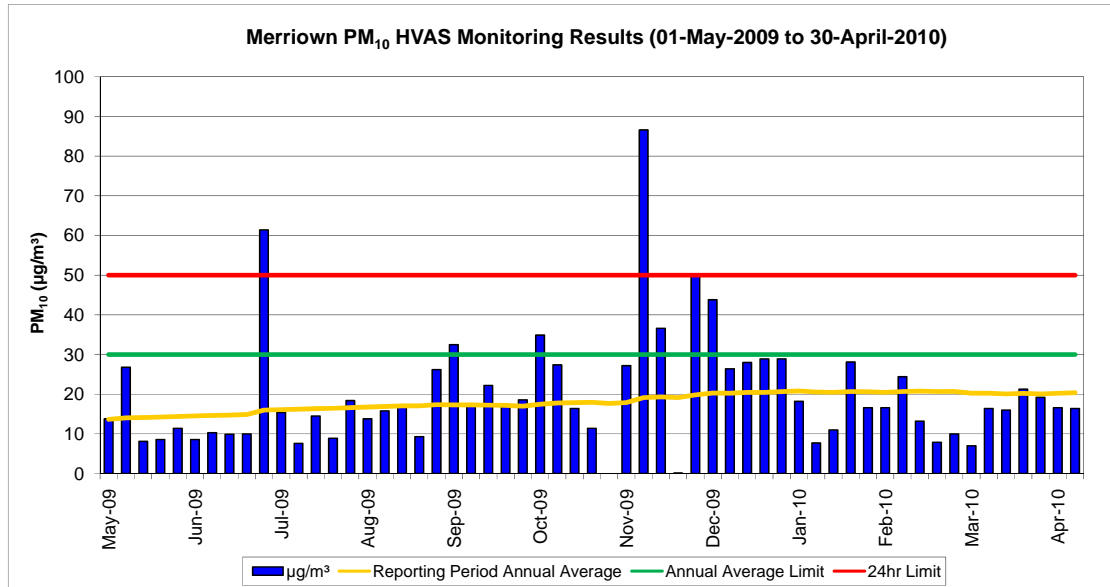
Throughout the reporting period, the PM₁₀ results at the “Merriown” monitor have indicated compliance with the 24hr criteria, apart from the following days:-

Table 9 - “Merriown” PM₁₀ Exceedances

Date	PM ₁₀ Levels
30 th June 2009	61.4µg/m ³
19 th June 2009	86.6µg/m ³

The “Merriown” monitor remains within the annual average compliance criteria of 30 µg/m³, with the running annual average currently on 20.26 µg/m³. This result is consistent with the “Templemore” result.

The exceedances in 24hr criteria were assessed against the available weather conditions on the day and overall regional conditions. The exceedance of the 30th June was characterised by wind direction predominantly from the west which would indicate other factors impacting on PM₁₀ levels. The event of the 19th November was also characterised by westerly or south easterly winds which is also indicative of other factors impacting on PM₁₀ levels on that day.



**Figure 5 - Merriown HVAS PM10 Data
May 2009 – April 2010**

The full data set for the PM₁₀ monitoring over the life of the mine is contained within Appendix 4.

3.2 Erosion and Sedimentation

3.2.1 Management

Methods for the management of erosion and sediment control at the Tarrawonga Coal Mine are presented in the MOP, the Soil Stripping Management and Erosion and Sediment Control Plans and Site Water Management Plan prepared in accordance with DA 88-4-2005.

Control of erosion and sediment generation is achieved primarily through the implementation of water management controls identified in Section 2.8.2 and shown on Plan 4 and water usage for dust suppression which ensures adequate storage capacity is available within the various water containment structures to receive inflows. Additional measures which assist in the control of erosion and sedimentation include:

- Minimising the extent of disturbance consistent with operational requirements. A maximum of 100 m is generally disturbed in advance of mining;

- Revegetation of long-term subsoil and topsoil stockpiles, areas shaped to their final landform and areas no longer required for mining-related purposes;
- Undertaking soil management activities generally in accordance with the soil stripping and stockpiling recommendations from Geoff Cunningham Natural Resource Consultants; and
- Installation of contour banks and rock-lined waterways on the final landform following soil application.

Soil stockpiles have been placed in gently sloping or near flat areas surrounded by grassland which effectively reduces the runoff velocity, and hence erosive potential, from any run-on waters. However, Tarrawonga Coal is aware of the potential for stockpile erosion and will adopt stockpile protective procedures to minimise impacts as required over the remaining life of the mine. All soil stockpiles on the Tarrawonga site have been sown to cover crops on completion to aid in stabilisation.

3.2.2 Performance

The effectiveness of the procedures for erosion and sedimentation management are assessed visually as part of routine mine operations and supervision undertaken by Tarrawonga Coal, with any ameliorative works initiated as and when required.

During the reporting period, all necessary controls were in place and operating as per design. Significant rainfall received over the December 2009 to March 2010 period resulted in only minor scouring of contour structures on the existing rehabilitated landform which will be repaired in conjunction with the next phase of rehabilitation works.

3.3 Surface Water Pollution

3.3.1 Management

The prevention of surface water pollution is achieved through the management of surface water as presented in Section 2.8.2.

3.3.2 Performance

Surface water management controls have operated well throughout the reporting period, however, 4 discharges occurred over the period January 2010 – March 2010 following a total of 418mm of rain over that period.

The event on the 4th of January 2010 followed the receipt of 123.2mm of rainfall during December 2009, of which 117.6mm fell between December 22nd and December 31st, at which time the site was not operational due to Christmas period shutdown. A further 55.6mm fell between the 1st January and the 4th January 2010, again whilst the site was not operating thereby not allowing for water use or pumping of water through the sediment chain to avoid discharge. The discharge was sampled at the discharge location, with analytical results from SD16 (discharge location), upstream and downstream locations on Nagero Creek, and the downstream location on Bollol Creek presented in Appendix 5. A sample was not obtained from the upstream location on Bollol Creek due to insufficient flows. The results show that the discharge sample exceeded the Total Suspended Sediment (TSS) criteria by 1mg/L, but was generally comparable with the creek samples and lower in sediment load as compared to the Nagero Creek upstream sample. All other parameters from this discharge were in the normal range, albeit EC levels were marginally elevated. This was initially thought to be the result of bore water that was pumped to a pre-existing stock dam during the period prior to end of December 2009, with the stock dam overtopping during the rain event and flowing into SD16. Subsequent discharges, however, have continued to indicate higher than expected EC levels which has resulted in additional surface water sampling from adjacent areas to determine if EC is being impacted through water flows within the overburden emplacement mobilising salts, or other sources.

The event on the 8th of February 2010 occurred after almost 51mm of rain fell between the 5th and 8th February 2010 with site storage dams already at capacity after 83.4mm of rain during January 2010. As a result of the rainfall over this period, there remained insufficient capacity to pump water from SD16 back through the sediment chain to avoid discharge. Whilst SD16 was targeted as a water cart fill point, it was insufficient to avoid flows off site. The rainfall preceding this discharge event peaked in intensity at 198mm/hr which caused a significant volume of overland flow, and given the volume already held in storage, did not allow for any settling time

to remove suspended sediment from the water. As a consequence, the TSS level in the discharge was measured at 242mg/L. There were insufficient flows in Nagero and Bollol Creeks to sample during this event.

The discharge event on the 15th February 2010 followed a further 84mm of rain over the period of the 14th and 15th February at which time discharge could not be avoided. On this occasion, discharge also occurred from SD17 into the adjoining Idemitsu Boggabri Coal operation with very high TSS levels recorded (1020mg/L). The TSS levels of other discharge waters were recorded as 75mg/L (SD9) and 263mg/L (SD16). The elevated TSS levels are considered to be attributed to the rainfall intensity experienced at the time, and the lack of settling time available in the already full storages prior to discharge. Following this event, water levels in SD17 were reduced as volume became available in adjacent storages to reduce the potential for further discharge. The conditions experienced over the December 2009 – March 2010 period were in stark contrast to the period up to December 2009, at which time the Tarrawonga site was almost to the point of needing to cart water from off-site for dust suppression purposes as on site storages were almost dry. These dry conditions, followed by intense rainfall would have resulted in the storages receiving sediment laden waters for which there was insufficient settling time prior to further rainfall causing discharge. During this event, samples were also obtained upstream and downstream in Nagero and Bollol Creeks with results contained within Appendix 5.

A further discharge occurred on the 31st March 2010 from SD16, however, on this occasion, adequate settling time had reduced the Total Suspended Sediment concentration back to 23mg/L. SD16 has since remained the targeted storage for pumping to water carts to avoid potential for further discharge occurring. As soon as additional capacity is available in the upstream storages, pumping to these storages will also be undertaken in an effort to reduce discharge potential from SD16.

Tarrawonga Coal has, at all times, made every effort practically possible to avoid discharge. Circumstances over this period, however, prevented discharge from being avoided. Whitehaven has undertaken a trial use of Flocculant Blocks at its Rocglen mine site to assist in reducing sediment loads within its sediment dams, which has proved successful. This application may be applied at the Tarrawonga

site, particularly at SD17, however, the size of SD16 would restrict the cost effectiveness of this approach.

In addition to monitoring of surface water discharge events, Tarrawonga Coal Pty Ltd undertakes quarterly sampling of surface waters, with samples during the reporting period referred to ALS Acire Pty Ltd for analysis. The results of analysis are presented in Appendix 5. Whilst there are no criteria or concentration limits specified for the quarterly surface water samples, the results do provide an indication as to the quality of waters on-site.

3.4 Groundwater Pollution

3.4.1 Management

With the exception of fuels and oils, no materials occur, or are retained on the mine site which are likely to be a source of groundwater pollution.

The methods for management of potential pollutants are summarised in Section 2.8.6. Ongoing monitoring to assess trends in groundwater chemistry will enable assessment of potential contaminants to groundwater, with particular emphasis on Total Petroleum Hydrocarbons, Heavy Metals, and major cations and anions. Groundwater monitoring requirements are identified in Table 10.

3.4.2 Performance

Throughout the life of the mine to date, Tarrawonga Coal's performance with respect to groundwater management, the prevention of pollution and the assessment of impacts on groundwater availability to other surrounding users, has been assessed through groundwater level and chemistry monitoring undertaken at a series of operating and abandoned bores within ML 1579 and extending to distances of up to 3km from the mining activities, where practicable, at the frequency and for the parameters identified in Table 10.

Table 10 - Groundwater Monitoring

Site (see Figure 3)	Registered Bore No.	Licence Number	Property	Frequency			Hours Pumped / Extraction Rate Volume	Purpose
				SWL *2	E.C. pH, Lead*3	Na, Ca, K, Mg, Fe, Mn, Al, As, Cl, SO ₄ , HCO ₃ , NO ₃ and NO ₂ (as N)		
MW-1 ¹	GW967848	90BL253276	"Thuin"	Quarterly *4	Six monthly *4	Annually	-	To determine existing status and any impacts
MW-2 ¹	GW967849	90BL253278	"Thuin"	Quarterly *4	Six monthly *4	Annually	-	To determine existing status and any impacts
MW-3 *1	GW967860	90BL253841	"Nagero"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
MW-4 ¹	GW967850	90BL253279	"Tarrawonga"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
MW-5 ¹	GW967851	90BL253280	"Templemore"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
MW-6 *1	GW967881	90BL254255	"Merriown"	Quarterly	Six Monthly	Annually	-	To determine existing status and any impacts
MW-7 ¹	GW967883	90BL254254	"Mine Site"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
MW-8 ¹	GW976882	90BL254253	"Mine Site"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
GW02501	GW02501		"Mine Site"	Quarterly	Six monthly	Annually	Annually	To determine existing status and any impacts
GW02129	GW02129		"Mine Site"	Quarterly	Six monthly	Annually	Annually	To determine existing status and any impacts
GW044997*	GW044997	90BL102564	"Templemore"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
GW031856*	GW031856	90WA809087	"Ambardo"	Quarterly	Six monthly	Annually	-	To determine existing status and any impacts
GW052266 ⁶	GW052266	90BL116929	"Tarrawonga"	Quarterly	Six monthly* ⁶	Annually	-	To determine existing status and any impacts
GW020432	GW020432		"Merriown"	Quarterly	Six monthly* ⁶	Annually	-	To determine existing status and any impacts

*1 Non-Company owned bore
*2 SWL – Standing Water Level

*3 EC = Electrical Conductivity
*4 Subject to Access

*5 Company production bore
*6 Following mining through of GW-12

During the reporting period, Tarrawonga ceased additional groundwater level monitoring at several sites upstream of the mine along Bollol Creek. Monitoring was initially implemented following requests from landholders to determine whether the loss of groundwater in several wells was a result of the mine's activities. Monitoring was ceased on the basis that fluctuations in SWL at these sites appears to be affected by seasonal conditions rather than mining operations.

Appendix 6 presents the results of the groundwater monitoring undertaken since the commencement of mining at the Tarrawonga Coal Mine. Monitoring sites are shown on Figure 3.

Groundwater sampling and analysis was conducted by ALS Acirl Pty Ltd during the reporting period.

A review of the groundwater monitoring results presented in Appendix 6 shows the following trends:

Groundwater levels

- Groundwater levels within the bores and piezometers closest to the mining operations (refer to Figure 3), and therefore most susceptible to any mine-induced drawdown effect, have generally remained at a consistent level with only minor seasonal fluctuations. Some monitoring locations, in particular MW2 and MW5, have shown recharge following significant rainfall over the December 2009/January 2010 period.
- The fluctuation in water level at Templemore B is likely associated with farming activity on the property, rather than any impact from mining operations. The bore has shown significant recovery in SWL following the significant rainfall over the December 2009/January 2010 period.
- The water level in MW-7 (on the north-eastern corner of the ML) has continued to drop since monitoring began in 2006. The water level has dropped a further 3m during the reporting period which contributed to an overall drop in SWL from 74.3m in 2006 to 90.7m in February 2010. An independent review of groundwater monitoring data over the life of the mine to date has identified the drop in standing water level at MW-7 as being the result of a reduction in groundwater pressure due to excavation of both the Tarrawonga and Boggabri Coal open cut pits. As MW-7 is located on mine

owned property, there has been no requirement to activate the groundwater contingency plan for the site.

Groundwater quality

- The water in most bores is generally neutral in pH to mildly alkaline.
- The water in all bores can be described as fresh to brackish.
- Concentrations of heavy metals remained relatively consistent at all sites. During the last AEMR period, increases in concentrations of lead, zinc, copper and nickel were identified at MW1. Ongoing monitoring throughout this reporting period has confirmed concentrations of these elements are back within the range previously identified over the life of monitoring. The lead concentration, which was previously identified as exceeding the ANZECC guideline trigger value for livestock drinking water is now back within guideline levels, and has been within that guideline value since the anomalous result in October 2008.

An independent review of the surface and groundwater monitoring program and analytical results obtained to date was undertaken by Geoterra Pty Ltd at the end of November 2009. The review was initiated in accordance with the requirements of the Development Consent, which requires an independent review of monitoring results every 3 years. A copy of the Independent Review is attached in Appendix 7.

The main conclusions of the review were as follows:

- >15% decline in Standing Water Level and Saturated Thickness of MW7;
- >15% long term rise in salinity and exceedance of ANZECC trigger level for lead in MW1;
- >15% rise in salinity level in MW5 and GW44997, with ongoing monitoring to assess any long term trend; and
- One reading in October 2008 whereby GW52266 exceeded the pH trigger of 8.5.

The main recommendations from the review were as follows:

- No further investigation of the cause of groundwater level reduction or groundwater/surface water quantity or quality exceedances required at this stage;
- Annual analysis of total nitrogen, nitrate nitrogen, total phosphorous and total reactive phosphorous to be conducted in MW1, MW2, MW3, MW4, MW7, MW8, GW2129 and GW2501;
- Re-installation of water level transducers/loggers in MW1 and MW2; and
- Electrical Conductivity monitoring to be conducted in MW3 and GW20432.

Tarrawonga Coal has committed to implementing the recommendations made over the next AEMR period.

3.5 Contaminated or Polluted Land

Prior to mining, the DA Area was a greenfields site. Discussion with landowners during the preparation of the EIS revealed that no environmentally harmful products had been used on their landholding nor had there been any disposal of potential environmental contaminants. This situation has remained unchanged throughout the life of the mine to-date and consequently there is no reason to expect that contaminated lands would be present within the DA Area.

3.6 Threatened Flora

Investigations undertaken by Geoff Cunningham Natural Resource Consultants Pty Ltd as part of the Mine EIS identified no significant impact on threatened flora species, endangered ecological communities, endangered flora populations or critical habitat as a consequence of the development.

Notwithstanding the findings of the initial flora investigations, procedures are identified in the Flora and Fauna Management Plan for ongoing monitoring, specifically through the establishment of flora monitoring quadrats for use in future rehabilitation of the mine site.

The initial flora quadrat establishment and monitoring identified in the Flora and Fauna Management Plan was undertaken in April 2007, with control quadrats established in each of the potentially affected vegetation communities identified by Geoff Cunningham Natural Resource Consultants (GCNRC) in the flora and fauna management plan, i.e. Vegetation Community 1 (Narrow-leaf Ironbark – White Cypress Pine Community), Vegetation Community 2 (White Box – Blakely's Red Gum – White Cypress Pine Community), Vegetation Community 4 (Cleared lands used for grazing/cultivation), Vegetation Community 6 (Regenerating White Cypress Pine – Narrow-leaf Ironbark – Wattle Community), Vegetation Community 7 (White Box – Pilliga Grey Box – Narrow-leaf Ironbark Community), Vegetation Community 8 (Shrubby White Box Woodland Community), as identified on Plan 4. Control plots within these communities will provide the basis for future rehabilitation efforts over that area of the mine site to be returned to native vegetation.

An additional quadrat (Quadrat 8) was established on the 19th May 2007 on former cultivation land (Community 4).

The second flora monitoring event following the initial establishment report was conducted in May 2008. The monitoring event included the establishment of two new quadrats, monitoring Quadrats 9 and 10 on the western rehabilitation area, as well as the establishment of Quadrat 11 in Leard State Forest to monitor shrubby White Box woodland. Findings of the 2008 monitoring event identified that in Quadrat 1 and 2, actual living cover decreased since the previous monitoring event, generally due to prolonged drought conditions. Living cover increased on Quadrat 3 on the basis that it was previously part of a cultivation paddock that is no longer utilised for that purpose. Living cover on Quadrats 4, 5 and 6 increased which is likely the result of grazing exclusion across these sites. Living cover decreased slightly in Quadrat 7 and increased in Quadrat 8. No comments or comparison for Quadrats 9, 10 and 11 could be made as they were only established during this monitoring event.

The third flora monitoring event occurred during March 2009. Findings of the 2009 monitoring event identified total living cover on Quadrats 1, 2 and 3 increased over the previous 12 months whilst there was a slight reduction in total cover on Quadrat 4. This reduction in cover was explained as a significant reduction in annual species with a significant increase in perennial species. Quadrat 5 experienced a slight increase in cover over the last 12 months whilst Quadrat 6 has seen a slight

decrease in cover for reasons unknown. Quadrat 7 has had a marginal increase in living cover whilst Quadrat 8 saw a decrease in cover. Quadrat 9, had a decrease in total living cover over the previous 12 months, which was expected following the finishing of the annual cover crop initially established across the site. The same outcome was identified on Quadrat 10. Quadrat 11 has also seen a marginal increase in total living cover.

The fourth flora monitoring event was undertaken during March 2010, however, at the time of preparing the AEMR, the formal report was unavailable from the consultant who was overseas at the time. The results of the report will be made available in next year's AEMR. General observations of the plots are indicative of continued improvement in native flora recovery in the rehabilitated areas. No new monitoring plots were established during the 2009-2010 period.

3.7 Threatened Fauna

Investigations into the occurrence of threatened fauna within the DA Area were undertaken by Countrywide Ecological Service as part of the EIS preparation phase. Those investigations identified that the proposed development was unlikely to significantly affect threatened species found or likely to occur in or around the mine site.

Notwithstanding these findings, the Flora and Fauna Management Plan requires ongoing monitoring to establish impacts on native fauna diversity. This is assessed using the control quadrats established for flora monitoring purposes, the re-establishing of native vegetation community quadrats, the re-establishing of pasture land monitoring quadrats, the enrichment planting area quadrats, and will also involve additional sampling for amphibians, mammals and birds external to these quadrats to gain an appreciation of any significant changes to the native fauna assemblage in the presence of mining and absence of grazing.

The annual fauna monitoring program was undertaken in October 2009 by Countrywide Ecological Services. A copy of the report is attached in Appendix 8. Generally, the annual survey found a reduction in fauna richness as compared to the previous year's survey. Whilst the reason for the reduction is unknown at this time, and will be subject to ongoing annual inspection to verify any ongoing trend, the specialist consultant has suggested that temporary seasonal conditions may have

impacted on the number of species present at the time of the survey. In addition, it was suggested that the cumulative impact of expanding operations at both Tarrawonga and Boggabri mines may be influencing the number of species in the area. Ongoing annual surveys will be used to determine if this trend continues.

As a means of improving capacity to monitor for reptiles on site, the annual survey report recommended the random placement of roof tiles within a number of monitoring plots to allow ease of identification of species without requiring significant disturbance within the plot. Roof tiles have subsequently been placed randomly within the plots to facilitate this outcome in next year's monitoring.

In addition to the annual survey, Countrywide Ecological Services provided pre-start clearance surveys prior to clearing events during the reporting period which occurred during December 2009 and January 2010. The pre-clearance surveys (Appendix 8) did not identify any impediment to clearing activities proceeding. Clearing of larger Eucalypts was monitored by the consultant to verify no fauna was disturbed or injured during clearing events.

3.8 Weeds

3.8.1 Management

Weed management within the DA Area involves general observations as well as six-monthly targeted inspections to determine levels of weed infestation. Weed control is undertaken by contractors or Tarrawonga's Field Officer. All persons involved with weed control hold required chemical handling certificates.

3.8.2 Performance

Ongoing weed management during the reporting period comprised:

- Spot spraying of African Boxthorn within the ML and along the haul road between the mine site and Orica;
- Spot Spraying of general weeds and grasses around the administration office and workshops;
- Spot spraying of Prickly Pear within the ML;
- Spot Spraying of Bathurst Burr within the ML;

- Spot spraying of Noogoora Burr within the ML; and
- Spraying of grasses along rip lines and mounded areas to reduce competition with planted tubestock in rehabilitation areas.

Infestations of roly poly and galvanised burr had previously been identified on the rehabilitated western face of the northern emplacement area. Control measures were not recommended at the time on the basis of the infestations being part of successional development, with native grasses expected to develop over time to eventually outcompete the dominance of the roly poly and galvanised burr. The extent of roly poly and galvanised burr cover has decreased significantly over the last 12 months with a much greater proportion of native groundcovers becoming established. Tarrawonga Coal will continue to monitor for the presence of weed or invasive species to ensure conditions remain suitable to native grasses re-establishing across the site.

3.9 Blasting

3.9.1 Blast Criteria and Control Procedures

3.9.1.1 *Blast Criteria*

Blasting criteria for the Tarrawonga Coal Mine are nominated in Development Consent 88-4-2005, and Condition L7 of Environment Protection Licence 12365 (Appendix 2) and specify that:

- Blasting must only be carried out between 9.00 am and 5.00 pm, Monday to Friday and must not take place on Saturday's, Sundays or Public Holidays without the prior approval of the EPA.
- The overpressure level from blasting operations must not:
 - (a) exceed 115dB (Lin Peak) for more than 5% of the total number of blasts over each reporting period; and
 - (b) exceed 120dB (Lin Peak) at any time.

at any point within 30 metres of any non-project related residential building or other noise sensitive location.

- Ground vibration peak particle velocity from the blasting operations must not:
 - (a) exceed 5mm/s for more than 5% of the total number of blasts during each reporting period; and
 - (b) exceed 10mm/s at any time,at any point within 3.5 metres of any affected non-project related residence or other noise sensitive location.

Licence No. 12365 does, however, note that the hours of blasting operations may be varied with the written consent of the EPA.

Licence No. 12365 also limits the number of blasts to one per day without the written approval of the DECC (EPA).

3.9.1.2 Control Procedures

Flyrock, air vibration, ground vibration and dust from blasting are controlled using a combination of design and operational methods which are detailed in the MOP and/or documented blasting procedures.

3.9.2 Performance

During the reporting period, a total of 48 blasts were initiated (all of which were monitored). There were no instances of peak overpressure exceeding 115.0 dBL.

The maximum recorded ground vibration during the reporting period was 2.41 mm/s recorded at "Templemore" on the 30th October 2009. This is well inside the consent criteria of 5 mm/s. The highest peak overpressure during the reporting period was 114.9 dBL at "Templemore" on the 4th December 2009. This is compliant with the 115 dBL consent criteria. All blast monitoring results for the reporting period, including the time of initiation has been included in Appendix 9.

3.10 Operational Noise

3.10.1 Criteria

3.10.1.1 EPA Criteria

The EPA-nominated noise emission criteria, identified in Environment Protection Licence 12365 as applicable to the Tarrawonga Coal Mine, are as follows.

L6.1 *“Noise from the premises must not exceed:*

- (a) an $L_{Aeq}(15\text{minute})$ noise emission criterion of 40 dB(A) during initial construction period;*
- (b) an $L_{Aeq}(15\text{minute})$ noise emission criteria of 35 dB(A) during the operational stages of the mine; and*
- (c) an $LA1(1\text{ minute})$ noise emission criteria of 45 dB(A) at night.*

L6.2 *Noise from the premises is to be measured at any residence not on the premises to determine compliance with this condition.”*

L6.3 *The noise emission limits identified in this licence apply under all meteorological conditions except:*

- (a) during rain and wind speeds (at 10m height) greater than 3m/s; and*
- (b) under "non-significant weather conditions".*

L6.4 *Noise impacts where wind speed exceeds 3 metres per second at 10 metres above the ground must be addressed by:*

- a) documenting noise complaints received to identify any higher level of impacts or wind patterns;*

Where levels of noise complaints indicate a higher level of impact then actions to quantify and ameliorate any enhanced impacts where wind speed exceeds 3 metres per second at 10 metres above the ground should be developed and implemented.

L6.5 *The noise limits set by condition L6.1 of the licence do not apply where a current legally binding agreement exists between the licensee and the occupant of a residential property that:*

- a) agrees to an alternative noise limit for that property; or*
- b) provides an alternative means of compensation to address noise impacts from the premises.*

A copy of any agreement must be provided to the EPA before the licensee can take advantage of the agreement.

L6.6 *The noise limits set by condition L6.1 of this licence apply to noise generated solely from the premises. Where the limits are exceeded solely due to cumulative noise impacts from the premises and off premise operations (not under control of the licensee), the licensee must:*

- a) Identify significant contributing noise sources and/or meteorological conditions on the premises contributing to the cumulative noise impacts;*
- b) Liaise with the occupier(s) of all off premise operations contributing to the cumulative noise impact to identify the source(s) and/or cause(s) of cumulative noise impacts causing the exceedance;*
- c) Develop a joint noise reduction strategy in conjunction with all off site contributors to the cumulative noise impacts; and*
- d) Implement all noise mitigation measures that relate solely to the premises identified in the joint noise reduction strategy.*

A copy of the joint noise reduction strategy must be provided to the DEC's Armidale office within 30 days of any cumulative noise impacts exceeding the limits set by conditions L6.1 of this licence."

3.10.1.2 Consent Criteria

Noise emission criteria nominated in Development Consent DA-88-4-2005 (Condition Schedule 4(6) and Schedule 4(7)) are as follows:

4(6) "The Applicant shall ensure that the noise generated by the development, including the noise generated on the private sections of transport route, does not exceed the noise impact assessment criteria presented in Table 7 at any residence on privately owned land.

Day (Construction Stage) <i>L_{A10(15 minute)}</i>	Day (Operational Stage) <i>L_{Aeq(15 minute)}</i>	Evening <i>L_{Aeq(15 minute)}</i>	Night <i>L_{Aeq(15 minute)}</i>	Night <i>L_{A1(1 minute)}</i>
40	35	35	35	45

Table 7: Noise Impact Assessment Criteria dB(A)

4(7) The Applicant shall ensure that the noise generated by the development on public roads does not exceed the criteria in Table 8.

Day/Evening <i>L_{Aeq(1 hour)}</i>	Night <i>L_{Aeq(1 hour)}</i>	Property
60	55	Any residence on privately owned land

Table 8: Road Traffic Noise Criteria dB(A)

3.10.2 Control Procedures

Control of noise generation and propagation on the Tarrawonga Coal Mine site is by a combination of general source and propagation path methods including:

- Installation and maintenance of appropriate mufflers on plant and equipment;
- Where operationally feasible, scheduling activities to minimise operation of equipment in exposed locations when winds are blowing towards residences;
- Equipment removal or replacement;
- Changing operational procedures;
- Restricting hours of operations;
- Enclosure of fixed items of plant, eg generators;
- Bunding close to noise sources to create obstructions to the propagation path;
- On-going site road maintenance using the mine-based grader; and
- Regular equipment maintenance.

Tarrawonga Coal also regularly liaises with the majority of surrounding neighbours to seek feedback not only on noise, but on all mining activities. Any issues raised are investigated and appropriate measures are implemented to alleviate further impacts.

3.10.3 Operational Noise Monitoring

3.10.3.1 Introduction

In order to indicate to mine management the need, or otherwise, to further address noise-related matters, routine attended noise monitoring programs were undertaken quarterly by Spectrum Acoustics. Unattended noise monitoring is no longer undertaken following agreement with the DECCW. The noise monitoring sites are identified on Figure 3. Measurements from “Pine Grove” relate to road transport noise only.

A copy of all the attended noise monitoring reports is presented in Appendix 10.

In addition to the operational noise requirements, Tarrawonga Coal monitors road transport noise along both private and public sections of the coal haulage route. The results of this noise monitoring is also contained within Appendix 10. As reported in previous AEMRs, Tarrawonga Coal has experienced difficulties in complying with the noise criteria (35dB(A)) along the private sections of the haul route, particularly during the winter period when inversions are most prevalent. Despite application of a range of measures to reduce road transport noise (removal of ramps, improved road surface, separation distances for trucks), it became apparent that achievement of the compliance criteria of 35dB(A) was going to remain problematic at the “Ambardo”, “Kyalla” and “Pine Gove” residences. As a consequence, private agreements were sought with those property owners, and achieved in the period October to December 2009. The outcome of these agreements removed the consent requirement of 35dB(A) from road transport noise from private sections of the haul route at those residences. The applicable noise criteria is now 45dB(A) at “Ambardo” and 50dB(A) at both “Kyalla” and “Pine Grove”.

The following sub-sections present a summary of the outcomes of noise monitoring over the reporting period.

3.10.3.2 June 2009 Noise Monitoring – Attended

On the 15th and 16^h June 2009 attended noise monitoring programmes were undertaken at “Bollol Creek Station” (N2), “Pine Grove”, “Tarrawonga” (N3) and “Ambardo” (N4). Spectrum Acoustics reported that:

- L_{Aeq} noise levels (all sources) ranged from 41 dB(A) to 49 dB(A) during the day on the 16th June 2009. Mine noise was 28 dB at “Bollol Creek Station” (26dB estimated from Tarrawonga mine), inaudible at “Tarrawonga”, however the noise criterion of 35 dB(A) was exceeded at “Pine Grove”, and “Ambardo” (41 dB, and 40 dB respectively). The noise exceedances were attributed to coal truck movements on the private section of the haul road during the presence of a temperature inversion, with weather station data confirming a 1 degree temperature differential between the 2.5m and 10m temperature sensors on the Tarrawonga weather station.

Tarrawonga trucks on the Manilla Road section (public road) of the haul route were recorded at 30 dB at “Pine Grove” which does not exceed the criterion of 60 dB for this section of the haul route.

- L_{Aeq} noise levels (all sources) ranged between 30.0 dB(A) and 42.0 dB(A) during the evening of the 15th June 2009. Mine noise was 35 dB(A) at “Bollol Creek Station”, of which 33 dB(A) was attributed to Tarrawonga operations, <25 dB(A) at “Tarrawonga”, and 40 dB(A) at “Ambardo”. Again, truck haulage on the private section of the haul road and the presence of a temperature inversion (0.6 deg temperature differential) were identified as causing the exceedance.
- L_{Aeq} noise levels (all sources) ranged from 25.0 dB(A) to 33.0 dB(A) during the night of the 15th June 2009. Mine noise was below the noise criterion with 31 dB(A) recorded at “Bollol Creek Station”, <25 dB(A) recorded at “Tarrawonga” and inaudible at “Ambardo”.

3.10.3.3 September 2009 Noise Monitoring – Attended

On the 9th and 10th September 2009 attended monitoring programmes were undertaken at, “Pine Grove”, “Bollol Creek” (N2) “Tarrawonga” (N3) and “Ambardo” (N4). Spectrum Acoustics reported that:

- L_{Aeq} noise levels (all sources) ranged from 39 dB(A) to 48 dB(A) during the day on the both the 9th and 10th September 2009. Mine noise was 30 dB(A) at

“Bollol Creek Station”, 37 dB(A) at “Tarrawonga” and “Ambardo” and 36 dB(A) at “Pine Grove”. The 1 dB exceedance in criteria at “Pine Grove” was related to road transport noise from private sections of the haul road. At the time of monitoring a temperature inversion was present with a 1.3 degree temperature difference between the 2.5m and 10m temperature sensors at the Tarrawonga weather station. The 2dB exceedance at “Ambardo” was also related to the road transport noise as well as open cut operations, with the inversion also present at the time of monitoring. The 2dB exceedance at “Tarrawonga” was identified as being from open cut operations, with the inversion having subsided by the time of monitoring at that location.

- L_{Aeq} noise levels (all sources) ranged from 25 dB(A) to 37 dB(A) during the evening of the 9th September 2009. Mine noise was within the noise criterion at the three locations (“Ambardo”, “Tarrawonga” and “Bollol Creek”).
- L_{Aeq} noise levels (all sources) ranged from 23 dB(A) to 34 dB(A) during the night of the 9th September 2009. Mine noise was inaudible at “Ambardo” and “Tarrawonga” and 33 dB(A) at “Bollol Creek”.

3.10.3.4 December 2009 Noise Monitoring – Attended

On the 7th and 8th December 2009 attended monitoring programmes were undertaken at “Bollol Creek” (N2), “Pine Grove”, “Tarrawonga” (N3) and “Ambardo” (N4). Spectrum Acoustics reported that:

- L_{Aeq} noise levels (all sources) ranged from 38.0 dB (A) to 56.0 dB (A) during the day on both the 7th and 8th December 2009. Mine noise was inaudible at “Tarrawonga”, 30 dB(A) at “Bollol Creek Station”, 34 dB(A) at “Ambardo” and 36 dB(A) at Pine Grove”. The 1 dB(A) exceedance at “Pine Grove” related to road traffic noise from private sections of the haul route. As the private agreement with Pine Grove was established prior to this monitoring event, the recording of 36 dB(A) is no longer a non compliance with regard to road traffic noise.
- L_{Aeq} noise levels (all sources) ranged from 36.0 dB (A) to 49.0 dB (A) during the evening of the 7th December 2009. Mine noise was within the 35 dB(A) criterion at “Ambardo”, “Tarrawonga” and “Bollol Creek”.
- L_{Aeq} noise levels (all sources) ranged from 28.0 dB(A) to 32.0 dB(A) during the night of the 7th December 2009. Mine noise was <20 dB(A) at “Ambardo”, 20 dB(A) at “Bollol Creek Station” and inaudible at “Tarrawonga”.

3.10.3.5 March 2010 Noise Monitoring – Attended

On the 25th and 26th March 2010 attended monitoring programmes were undertaken at “Bollol Creek Station” (N2), “Tarrawonga” (N3), “Ambardo” (N4) and “Pine Grove”. Spectrum Acoustics reported that:

- L_{Aeq} noise levels (all sources) ranged from 33.0 dB(A) to 51.0 dB(A) during the day on the 25th and 26th March 2010. Mine noise was 29 dB(A) at “Bollol Creek Station”, <20 dB(A) at “Tarrawonga”, 43 dB(A) at “Ambardo” and 38 dB(A) at “Pine Grove”. The noise levels from road transport noise on private sections of the haul route experienced at “Ambardo” and “Pine Grove” were both within the noise criteria of the private agreements and not considered as exceedances.
- L_{Aeq} noise levels (all sources) ranged from 43.0 dB(A) to 48.0 dB(A) during the evening of the 25th March 2010. Mine noise was 29 dB(A) at “Bollol Creek Station”, 22 dB(A) at “Tarrawonga” and 37 dB(A) at “Ambardo”. The noise level at “Ambardo”, attributed to road traffic noise on the private section of the haul route was within the noise levels identified within the private agreement and not considered as an exceedance.
- L_{Aeq} noise levels (all sources) ranged from 37.0 dB(A) to 43.0 dB(A) during the night of the 25th March 2010. Mine noise was 33 dB(A) at “Bollol Creek Station” and <20 dB(A) at “Tarrawonga” and “Ambardo”.
- Additional attended noise monitoring was conducted at the residence at the location of the old Blair Athol School House to the south east of the Tarrawonga site during June 2009, September 2009, and March 2010. The monitoring was conducted to assess potential noise impacts during future development of the mine. Noise levels were compliant with criteria on all occasions apart from the morning of 10th September 2009, where it was recorded at 38 dB(A). WCL has since purchased the property and it is now project related.
- Road haulage monitoring along public sections of the haul route to the CHPP was undertaken during June 2009, December 2009 and April 2010. At all times road noise was compliant with the public road criteria. These reports are included in Appendix 10.

The exceedances in noise criteria over the reporting period have predominantly related to truck movements on private sections of the haul road. The commencement

of private agreements during December 2009 has resolved those non-compliance issues at the residences of “Ambardo”, “Kyalla” and “Pine Grove”. Ongoing monitoring will continue to assess performance of the mine against both road noise and operational noise criteria.

3.11 Visual, Light

3.11.1 Management

Tarrawonga Coal Mine is generally well positioned with respect to visual aspects, with views of the mining operations and/or areas of mine-related disturbance limited to those from the project related residence “Thuin” located adjacent to the mine site and from the Idemitsu Boggabri operation to the west. Night lights from the mine site are also visible from Goonbri Road to the south of the mine, and Maules Creek Road to the west of the mine. In all cases, views are partially obstructed by vegetation adjacent to the residences or road or between the vantage point and the mining activities. With the continued south-easterly progression of the mine it is considered unlikely that this will impact on additional non-project related residences or adjacent roadways.

Management / minimisation of local and more distant visual impacts are achieved by:

- Undertaking activities in accordance with the various management plans applicable to the mine, all of which incorporate safeguards which indirectly reduce visual impact;
- Minimising the extent of land disturbance / clearing in advance of mining;
- Progressive rehabilitation of disturbed areas; and
- Sympathetic positioning and direction of lights to avoid them impacting on local residences.

3.11.2 Performance

With the progressive development of the mine in a south-easterly direction and the rehabilitation of previously-exposed western slopes of the northern spoil dump, and part of the southern spoil dump, Tarrawonga Coal has minimised the visual impact of

its activities to the extent practicable. The most visible aspect of the operation is from the west, and is directly adjacent to the Idemitsu Boggabri operation, so in this regard, visual impact is less significant. Tarrawonga has been mindful of the visibility of the western emplacement from the Boggabri road, and as a consequence has undertaken rehabilitation treatment of the entire western batter which now comprises good groundcover, with the tubestock planted now starting to become visible from distant vantage points.

At the end of the 2009/2010 reporting period, a total of 27.5 ha had been rehabilitated at the Tarrawonga Coal Mine.

3.12 Aboriginal Heritage Management

3.12.1 Sites Management and Performance

An investigation of Aboriginal cultural heritage was undertaken as part of the EIS for the Tarrawonga Coal Mine and identified 4 sites of significance within the project site and 4 sites within the proposed transport route as shown on Plan 3, and listed below:

- NST 1 – a scarred tree (3 scars – 1 on fallen trunk, and 2 on tree stump);
- NAS01 – Artefact scatter – 2 flake scars, core and scraper/adze;
- NAS02 – Artefact scatter – Flake and scraper/adze, flaked piece scraper;
- NIS01 – Isolated Artefact – Probable hand-axe or hatchet;
- GG051 – Open Scatter – 15-20 artefacts in an area approximately 60m (N-S) by 45m (E-W);
- GG052 – Open Scatter – 20-25 artefacts in an area approximately 60m (N-S) by 45m (E-W);
- GG053 – Open Scatter – 8-10 artefacts in an area of approximately 15m diameter; and
- GG054 – Open Scatter – 5 artefacts in an erosion feature of an area approximately 3m (N-S) by 9m (E-W).

Following a cultural heritage significance assessment by Red Chief Local Aboriginal Land Council and Bigundi Biame Gunnedarr Traditional People, the following recommendations were made:

Red Chief LALC

- NAS02, GG051, GG052, GG053, GG054 & NST 1 remain in-situ and re-evaluated if they are likely to be affected by future mining or related activities.
- Applications for a permit under Section 90 of the National Parks and Wildlife Act 1974 for “salvage purposes” be lodged with DECC for sites NAS01 and NISO1.
- The salvaged artefacts should be relocated to the Cumbo Gunerah Keeping Place.
- All sites be registered on the Aboriginal Heritage Information Management System (DECC).
- Monitors should be on site for all turf (soil) stripping on the Project Site and along Sections 1, 3 and 4 of the proposed transport route and for any other ground disturbing work.

Bigundi Biame Gunnedarr Traditional People

- Applications for a permit under Section 90 of the National Parks and Wildlife Act 1974, for “salvage purposes” be lodged with DECC for sites NAS01 and NISO1.
- Salvaged artefacts be relocated to Cumbo Gunerah Keeping Place.
- All sites be registered on the Aboriginal Heritage Information Management system (DECC).
- Monitors should be on site for all soil stripping on the Project Site and along the proposed transport route.
- Bigundi Biame be notified of any future changes to the proposed transport route.

The development required only the salvage of NAS01 and NISO1 and relocation to Cumbo Gunerah Keeping Place. No other sites were impacted by the development. Scarred tree NST1 has been fenced within a 20 metre radius of the tree and clearly marked.

3.12.2 Consultation

Tarrawonga Coal, through the soil stripping contractor, regularly consults with Red Chief Local Aboriginal Land Council (LALC). In accordance with the agreement with the Red Chief LALC, notification of planned topsoil stripping is provided by the soil stripping contractor directly to the Red Chief LALC site monitors approximately 2 to 3 days in advance of planned activities.

Given that pre-stripping (separate stripping of topsoil, subsoil and friable overburden) is undertaken well in advance of mining and the soil stripping contractor is also engaged in other activities on the mine site, the flexibility exists to delay topsoil stripping activities should the situation ever arise in the future where monitors are temporarily unavailable.

During the reporting period, no cultural material of significance was identified during soil stripping activity. To date, the measures in place to protect Aboriginal Cultural Heritage are considered satisfactory, with all measures identified in the EIS and consent criteria in place. No additional Aboriginal Cultural Heritage items have been discovered during the operation of the mine over the reporting period.

3.13 Natural Heritage

There are no features of Natural Heritage within the DA Area and hence, no specific management procedures are required.

3.14 Spontaneous Combustion

3.14.1 Management

Tarrawonga Coal has a low percentage of inorganic sulphur and hence a low potential for exothermic oxidation reactions. The short residence time of ROM coal stockpiles at the mine also minimises the potential for spontaneous combustion incidents.

In the event of spontaneous combustion Tarrawonga Coal personnel are present within the area of the ROM coal stockpiles during work hours and are trained to

watch for indications of spontaneous combustion. Any incident would be followed by excavation to identify the source and extinguishment through water saturation.

3.14.2 Performance

There were no incidents of spontaneous combustion during the reporting period.

3.15 Bushfire Management

3.15.1 Management

A Bushfire Management Plan which identifies policies, procedures, responsibilities, equipment and equipment maintenance schedules, emergency response procedures and contact details is in place for the Tarrawonga Coal Mine. Tarrawonga Coal management also regularly liaise with the local (Nandewar) Bush Fire Brigade.

Tarrawonga Coal maintains firebreaks around both its landholding and the mine area and maintains fire fighting equipment as well as earthmoving equipment, a water truck etc which would be used in the control of fires.

3.15.2 Performance

There were no bushfire incidents on or adjacent to the DA Area during the 2009/2010 reporting period.

3.16 Mine Subsidence

Mine subsidence is not an issue with open cut mines and hence it is not an issue with the Tarrawonga Coal Mine.

3.17 Hydrocarbon Contamination

3.17.1 Management

It is Tarrawonga Coal's objective that:

- All bulk hydrocarbons, i.e. fuel, oils, grease etc (both new and waste) retained at the Tarrawonga Coal Mine be contained within bunded areas within the contained water management system as described in Section 2.8.2;
- All fixed or portable equipment incorporate self-contained bunding;
- Hydrocarbon-contaminated materials be disposed of appropriately; and
- Minor spillages, if occurring, are cleaned up and the contaminated soil either bio-remediated or transferred off-site to an appropriately licensed waste disposal area.

Major spillages, if occurring, would be treated in accordance with the three-phase system identified in the relevant management plan required under the Consent.

3.17.2 Performance

Tarrawonga Coal's procedures for hydrocarbon management have been effective throughout the reporting period with:

- No surface or groundwater contamination evident or reported by landowners;
and
- No requirement for off-site disposal of contaminated materials.

A concrete apron has been constructed at the refuelling area to contain any spillages and prevent soil contamination.

3.17.3 Greenhouse Gas Emissions

Diesel Consumption

During the reporting period, a total of 9,816,266 litres of diesel fuel was used on site for mining related activity. Assuming an energy content of diesel fuel of 38.6MJ/L, and using Table 3 of the "National Greenhouse Accounts (NGA) Factors" – November 2008, the estimated direct – scope 1, Greenhouse Gas Emissions including all CO₂ and non CO₂ gases are as follows.

Table 11 - GHG Emissions - Diesel Fuel

	Diesel Fuel Usage kL	Emission Factor T CO_{2-e}/kL	Equivalent Tonnes
GHG 2009/10	9,816	2.7	26,503

The Tarrawonga site does not utilise electricity from the power grid, but via a number of diesel powered gensets. The emissions associated with diesel consumption by the gensets are included in the table above.

Explosives

During the reporting period, a total of 8675 t of explosives was used at Tarrawonga Coal Mine. Assuming a conversion factor of 0.1778, it is estimated that blasting at the mine yielded 1542 equivalent tonnes of CO₂.

Fugitive Emissions

ROM coal production is used to estimate fugitive emission factors. Based on 1,707,339 tonnes of ROM coal production during the reporting period and a conversion factor of 0.045 (from Table 8 of the “National Greenhouse Accounts (NGA) Factors” – November 2008) , it is estimated that 76,830 tonnes of CO₂ were emitted during the reporting period.

Summary

A summary of calculated total CO₂ equivalent tonnes/year for the reporting period is provided in Table 12.

Table 12 - GHG Emissions Summary

Source	Calculated Total CO₂ Equivalent tonnes/year
Diesel	26,503
Explosives	1,542
Fugitive Emissions	76,830
TOTAL	104,875

The potential for reducing greenhouse gas emissions at Tarrawonga is related predominantly to consumption of diesel use by plant and equipment. Methods are in place at site to maximise efficiency from the mining fleet through regular

maintenance scheduling and, where possible, minimising the gradient and length of loaded haul runs for the operating dump trucks.

Tarrawonga Coal remains committed to a reduction in emission levels as a result of operations at the mine site. As part of this process, Tarrawonga Coal continues to run a fleet of Terex dump trucks (electric drive) which have proven to burn less diesel fuel as compared to the standard mechanical drive fleet at our Rocglen site. Initial comparisons indicate a diesel saving of 0.23 litres/bcm/truck using the Terex partial electric drive, which, whilst only a modest saving, does represent real savings in terms of fuel burn and emission levels. Fuel burn has remained relatively consistent over the last 12 months with an average rate of 5.74litres/tonne of ROM coal. This compares to 6.45litres/tonne ROM coal in the 2007/2008 AEMR reporting period and 5.43litres/tonne ROM coal in the 2008/2009 AEMR reporting period. The slight increase from last year's result is likely attributable to the increased haul distance for both ROM coal and overburden as the pit has developed.

In addition to this, the coal haulage contractor, Toll Resources continues to utilise a fleet of purpose built B-Doubles with the Prime Mover's specifically engineered to comply with emission and noise criteria. This includes being speed limited to 93km/hr which has been determined as the optimum operating speed in terms of operational and fuel efficiency.

Tarrawonga Coal is also a member of the Federal Government's Greenhouse Challenge Plus Program which will be used as a guide to improving efficiencies across the site wherever possible. It is also noted that fugitive emissions have been based on the default factors for mines in NSW. This default factor is likely to be above actual emission levels from the Tarrawonga site. Tarrawonga Coal is currently investigating undertaking its own sampling to determine an appropriate emissions factor applicable to the Tarrawonga operation which can then also be applied to future NGER's reporting.

3.18 Methane Drainage / Ventilation

Methane drainage / ventilation are not of relevance to open cut mines and hence are not an issue at Tarrawonga Coal Mine.

3.19 Public Safety

3.19.1 Management

The Tarrawonga Coal Mine is located wholly on WCL and Idemitsu Boggabri owned land in a relatively remote area, in excess of 1 km from any public road and accessible only by a single access road which is locked when no mine-related personnel are at the mine. The site is fenced and appropriate signs installed.

Visitors to the mine are required to report to the mine office and unauthorised personnel are not permitted to move around the mine area unaccompanied. Procedures are in place with respect to blasting to ensure the area around each blast site is clear of personnel and that all surrounding residents are advised in advance of proposed blasts.

3.19.2 Performance

The procedures in place have been effective throughout the reporting period.

3.20 Feral Animal Control

Feral animals are not a significant land management issue on Tarrawonga Coal Mine's landholding and are limited to isolated occurrences of foxes, hares and rabbits.

In view of the low frequency of occurrence, and in the absence of an extensive programme by all surrounding landowners, no broad scale feral animal control programme was considered warranted during the reporting period.

In accordance with prior commitments, Tarrawonga Coal will continue to monitor feral animal occurrences and implement necessary control programmes if and when necessary.

3.21 Land Capability

All land currently disturbed by mining is classified as Land Capability Class III, IV, VI and VII with the remaining areas to be disturbed over the life of the approved mine primarily comprising Class III, IV & VI. All mining during the reporting period was undertaken on Class III, VI and VII land.

On completion of all mining activities, the successful rehabilitation of areas of disturbance and the relinquishment of the mining leases, the land affected by mining within the DA Area will, in the main, be returned to a classification similar to that prior to mining.

3.22 Meteorological Monitoring

3.22.1 Introduction

In August 2006, a meteorological station was commissioned at the mine site office. The station, shown on Plan 4, has been operating continuously since that time recording 15 minute wind speed, wind direction, temperatures, humidity and rainfall.

Daily meteorological data for the reporting period is presented in Appendix 11.

3.22.2 Rainfall

Rainfall data for the reporting period recorded from the Tarrawonga Coal Mine Meteorological Station is presented in Table 13 and Figure 6. Full station data is presented in Appendix 11.

**Table 13 - Rainfall Data
(1 May 2009 – 30 April 2010)**

Month	Monthly Rainfall Reporting Period	Long Term Average Rainfall* ¹	Raindays Reporting Period (>1mm)	Long Term Average Raindays* ¹ (≥1mm)
May 2009	31.0	42.4	2	4.1
June 2009	18.8	43.9	3	4.8
July 2009	20.4	42.2	6	4.8
August 2009	3.6	41.3	2	4.7
September 2009	47.2	39.8	5	4.5
October 2009	59.0	55.2	4	5.4
November 2009	15.4	60.9	4	5.7
December 2009	123.2	68.6	7	5.9
January 2010	83.4	71.3	7	5.6
February 2010	159.0	66.5	6	5.1
March 2010	53.2	48.1	2	3.9
April 2010	16.6	37.7	3	3.4
TOTAL	630.8	617.9	51	57.9

*¹ Gunnedah Pool (Station 055 023) Averages from 1876-2010.

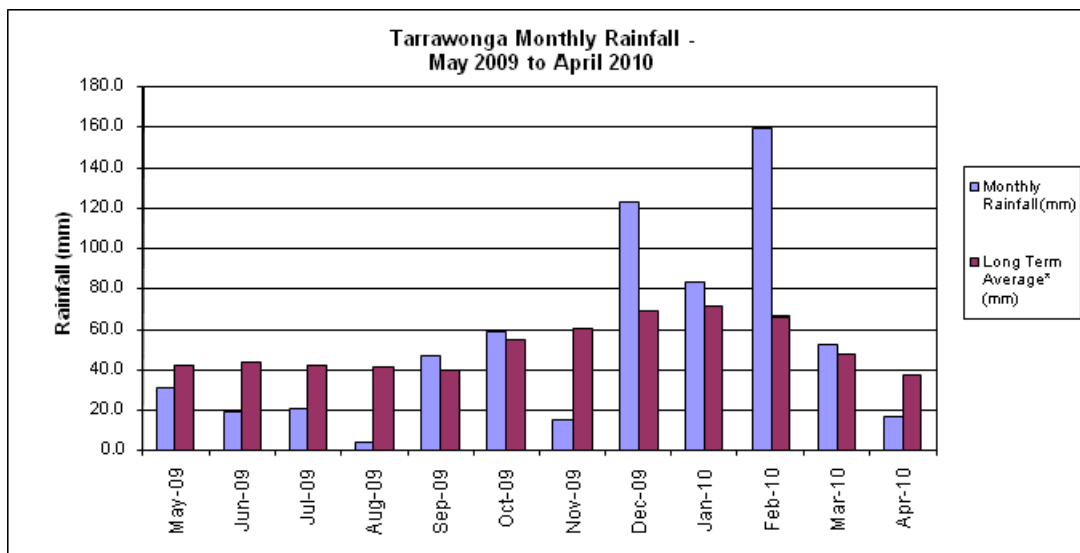


Figure 6 – Monthly Rainfall Data

A review of Table 13 and Figure 6 shows that the total rainfall at the mine during the reporting period was 630.8mm. The total rainfall at the site was 12.9mm higher than the annual average rainfall for Gunnedah and 48mm lower than the mine's total rainfall for the 2008/2009 AEMR reporting period. Below average rainfall was

experienced for 6 months of the year, with above average falls occurring during 4 months and average falls during 2 months.

The majority of rainfall occurred during the months of December 2009, January 2010 and February 2010. Conditions during the latter part of 2009 were particularly hot and dry, as evidenced by the dusty conditions experienced throughout September and October. Site water storages were almost dry in December 2009 prior to over 170mm of rainfall during the period 22nd December 2009 – 3rd January 2010. This significant amount of rainfall resulted in discharges as discussed in Section 3.3.2.

3.22.3 Temperature

Average maximum and minimum temperatures for the reporting period are presented in Table 14 together with long-term monthly averages for Gunnedah Pool (Bureau of Meteorology Station 055023).

**Table 14 - Average Monthly Temperatures
(May 2009 – April 2010)**

Month	Average Daily Temperature			
	Reporting Period (°C)		Station 055023 (Gunnedah Pool)* (°C)	
	Min	Max	Min	Max
May 2009	7.9	21.1	7.1	21.3
June 2009	6.9	16.9	4.3	17.6
July 2009	4.2	16.5	3.0	16.9
August 2009	5.8	22.1	4.1	18.9
September 2009	8.7	23.7	6.9	22.8
October 2009	11.2	26.5	10.7	26.7
November 2009	18.9	33.8	14.1	30.3
December 2009	18.5	32.3	16.8	33.0
January 2010	19.2	33.2	18.3	34.0
February 2010	19.7	30.8	18.1	32.9
March 2010	15.9	29.2	15.8	30.7
April 2010	12.2	25.6	11.4	26.4
Annual Average	12.4	26.0	10.9	26.0

* Averages from 1876-2010

Table 14 shows that:

- Average minimum temperatures at the mine site were above the Gunnedah average for the majority of the reporting year, except March 2010 which was consistent with the annual average; and
- Average maximum temperatures fluctuated between below average, average and above average for the period May to November 2009. Lower than average maximum temperatures were recorded between December 2009 and April 2010 which correlates with the wetter conditions experienced during this time.

3.22.4 Wind Speed and Direction

Fifteen minute average wind speed and direction data is collected from the Tarrawonga meteorological station, as it, together with operational records and environmental monitoring results, can be used to assess the environmental effects or consequences of specific activities undertaken at the mine or in surrounding areas.

Wind roses for Autumn 09 (March - May 09), Winter 09 (June - August 09), Spring 09 (September - November 09) and Summer 09/10 (December 09-February 10) are presented in Appendix 11, and show the following:

- During Autumn 09, the predominant wind direction was from the north-east to south-easterly direction with speeds generally below 5 m/s;
- During Winter 09, the predominant wind direction was from the west north-west , with speeds predominantly between 1-5 m/s;
- During Spring 09, the predominant wind direction was from the west, with speeds generally in the range of 1-5 m/s;
- During Summer 09/10, the predominant wind direction varied between north-easterly, south-westerly and north, north-westerly with speeds predominantly between 1-5 m/s, although there were occasions where winds gusted at speeds greater than 5 m/s; and
- The annual wind rose demonstrates that predominant wind direction for the period was from the west and west north-west and north-west. Winds from the south-east, east and north-east were generally at greater speeds as compared to winds from the west. This is consistent with monitoring results from the previous reporting period.

3.22.5 Inversions

The meteorological station at Tarrawonga is fitted with temperature sensors at 2m and 10m intervals to assist in the determination of inversion conditions. Section 3.10 provides details on the assessment of inversion conditions at the time of noise exceedances.

4 COMMUNITY RELATIONS

4.1 Environmental Complaints

Tarrawonga Coal maintains a designated complaints line, with messages checked on a daily basis (seven days / week) by the Environmental Manager. In the event of a complaint, details pertaining to the complainant, complaint and action taken are recorded on a "Complaints Form".

During the reporting period, nine complaints were received either via the designated complaints line, or through direct contact with Tarrawonga Coal personnel. The nature of the complaints, details and responses to each complaint are presented in Table 16. The number of complaints has reduced since the previous reporting period (10 recorded during 2008/2009 AEMR). Table 15 provides a comparison of complaints received over the past four AEMR reporting periods. The number of complaints associated with dust, noise and blasting impacts have reduced since a peak in the 2007/2008 AEMR period. The most common complaints over the last two AEMR periods relate to issues associated with coal haulage.

Table 15 – 4 Year Complaints Comparison

AEMR period	Issue										Total
	Noise	Driver behaviour – coal trucks	Blasting	General impacts (dust, noise, blasting)	Other traffic issues	Load coverage – coal trucks	Compliance with haulage hours	No monitoring results supplied	Ground-water	Dust	
2006-2007			1		1				1		3
2007-2008		2	2	2			2		2	4	14
2008-2009		5					4	1			10
2009-2010	1	2	1	1	1	2	1				9

Table 16 - Complaints Summary (2009/2010 Reporting Period)

Date/Time of Complaint	Complainant	Nature of Complaint	Investigation	Action Taken / Follow-up
12/06/2009 11:00am	David Wellwood "Ambardo"	Complaint in relation to noise monitoring undertaken and concerns that consultants do not monitor in appropriate location, are likely to produce monitor results that benefit the mine as they are engaged by the mine, and that he has not received copies of unattended monitor results.	Advised Mr Wellwood that engaged consultants are required to monitor in accordance with set guidelines and rules and that any deviation from this risks their credibility and licence to continue to work in the industry. Also advised that monitor results do not impact on ongoing requirement to monitor so there would be no advantage to consultants in misrepresenting the truth. Advised Mr Wellwood that copies of the unattended monitoring reports would be provided, but reiterated it would be of little value as it does not disseminate the noise source.	Nil at this time. Mr Wellwood was advised to contact DECC if he had ongoing concerns in relation to monitoring processes.
25/06/2009 9:15am	Sandy Bull "Pine Grove"	Contract coal haul trucks travelling out to Tarrawonga using exhaust brakes at Manilla Road intersection.	Advised Mr Bull that the matter would be raised with Toll so that it is raised with the contract truck operators. Signage is already in place at the intersection to limit use of exhaust brakes so the matter needs to be further addressed through communication with the contract operators.	Nil at this time. Mr Bull was satisfied with the approach and understood the difficulties of policing this problem. Suggested to Mr Bull that identification of the truck number would assist in the matter being able to be directly handled.

Date/Time of Complaint	Complainant	Nature of Complaint	Investigation	Action Taken / Follow-up
31/07/2009 1:30pm	Bart Crosby "Kyalla"	Toll coal haul trucks travelling out to Tarrawonga at 6:15am as opposed to agreed 6:30am start.	Matter referred to Whitehaven Management due to continual breach of agreed commencement time by Toll and inadequate response to Environmental Manager.	Toll instructed to revert to agreed protocol whereby trucks would depart from the Canyon Coal Bin to ensure travelling onto Manilla road would be after 6:30am.
21/08/2009 12:23pm	Bart Crosby "Kyalla"	Toll B-Double turned into incorrect lane on Manilla Road on entry from the Tarrawonga haul route and on intent to obtain Toll Truck number noted that the truck was not labelled. On making the complaint Mr Crosby referred to a letter from Tony Bracken of Toll indicating that operators who do not ensure appropriate labelling would be immediately dismissed as would repeat offenders who continue to cross centre line.	Matter referred to John Molloy of Toll with reiteration of the seriousness of the complaint, particularly in view of the letter from Mr Bracken. Toll asked to immediately take action to label trucks and counsel the offending operator. Complaint also referred through Whitehaven Management.	At meeting with Mr Crosby he was advised that the matter would be investigated with Toll to ensure corrective action.
7/09/2009 11:30am	Pam Crosby "Northam"	Blast shook windows and house – generally concerned that some blasts seem to have significant impact on their property.	Environmental Manager contacted Mrs Crosby to discuss blast. Advised that conditions at the time of the blast were not ideal due to low cloud cover and moisture in air but that the blast went ahead to avoid safety issues associated with wet blast area and a need to disconnect charges if blast didn't proceed. No monitor results available at time of complaint. Offered to set up blast monitor at residence for future blasts but not accepted at the time. Committed to checking with the Geologist to determine if strata has connection back to Northam property which may be influencing blast impacts.	No determination as to strata connection back to Northam. Complainant advised of blasts from other sites have occasionally impacted on their house. Offer of blast monitoring at residence not taken up.
8/10/2009 12:20pm	DECC on behalf of Matt Tremain "Greenhills"	Dust and noise from the Tarrawonga mine.	Environmental Manager contacted DECC to discuss. Advised that wind direction on the day was a south-easterly that would not direct dust or noise to the Greenhills property. Also informed DECC that Idemitsu Coal was undertaking a clearing campaign in Leard State Forest which was generating dust and may be contributing to Mr Tremain's concerns. It was also advised that as of the previous day Whitehaven had made an offer to purchase the property "Greenhills" which to our knowledge had been accepted.	No further action required at this time.

Date/Time of Complaint	Complainant	Nature of Complaint	Investigation	Action Taken / Follow-up
7/01/2010 9:25am	Bart Crosby "Kyalla"	Orica Blasting Truck crossing onto incorrect side of road on exit from the Tarrawonga haul road onto Manilla Road at 9:25am.	Environmental Manager contacted Orica supervisor to ensure that all personnel with Orica are advised to follow appropriate road rules and to ensure all vehicles abide for road laws.	Mr Crosby was advised that the matter would be followed up with Orica.
19/03/2010 9:25am	Bart Crosby "Kyalla"	Coal trucks spilling coal onto road, specifically T31 operated by Toll Resources and 2 contract trucks, all of which were travelling along the haul route.	Environmental Manager contacted Toll to investigate T31 claims. Environmental Manager contacted Jason Conomos – Project Manager at Tarrawonga to discuss contract trucks. Jason Conomos confirmed that Toll was undertaking an audit of truck loading on that day and he would be surprised if significant coal spillage would be occurring from Toll trucks. Similarly, domestic loads are managed carefully with personnel specifically tasked to check loads from elevated platform to ensure loads are covered and no coal is positioned above the edge of trailers. Jason Conomos subsequently contacted Mr Crosby to discuss the complaint and seek verification as to location of coal spillage. At the time the complainant suggested it was small pieces of coal only but were still an issue for local traffic. Both Jason Conomos and Jill Scealy (Environmental Officer) travelled the haul route and could not find any significant coal spillage on the roadway.	No further contact required. Spillage may have occurred however the volume of spillage was such that it could not be located.
7/04/2010 2:00pm	Bart Crosby "Kyalla"	Coal Truck (Toll T08) exited Tarrawonga coal haul road onto Manilla Road with tarp not covering rear trailer and coal sitting above side of trailer with potential to spill. The truck was sighted by Mr Crosby as it passed his "Kyalla" property entrance.	Immediately following the phone call, Danny Young travelled out Bluevale Road to identify Toll Truck T08 on its way into town to verify complainants claims. Truck T08 was identified south of the Rocglen turn off and was followed by D. Young back to Gunnedah. It was identified that the rear trailer was fully enclosed by the tarp and no coal was identified sitting above the side of the trailer. The truck was then observed to travel to the Toll Depot rather than turn into the CHPP. On return to the office, D. Young contacted Leigh Lamey of Toll (acting Project Manager) to verify actions of T08 and specifically ask if the tarpaulin was fully extended throughout the trip from Tarrawonga to the Toll Depot. Mr Lamey advised that T08 experienced a fault with the roll over tarpaulin with the switch coming free from the console and for this reason (in conjunction with shift changeover), the truck travelled to the Depot for correction of the fault before proceeding to unload at the CHPP. However when questioned on the complaint, the driver explained that the roll over tarpaulin was manually extended across the trailer prior to exit from the Tarrawonga site and he was unaware of any problem with the tarpaulin during the trip back to Gunnedah. D. Young's view of the truck on Blue Vale Road confirmed the trailer was fully covered.	No further contact required. This matter was followed up with Toll with a request that all drivers be informed of their duty to ensure loads are fully covered at all times, and that all actions are taken to minimise the risk of spillage on the trip to the CHPP.

Any complaints that are made are reported to the Community Consultative Committee and documented in the AEMR.

4.2 Employment Status, Demography and Socio-Economic Contributions

4.2.1 Employment Status and Demography

During the reporting period, the mine had an average of 67 Tarrawonga personnel and 7 contractors. Additional personnel were employed by contractors in the haulage of coal from the mine site back to the Whitehaven CHPP.

Approximately 50% of mine related employees reside in the Gunnedah / Boggabri area with the remainder residing in adjoining areas of Narrabri, Manilla and Curlewis.

4.2.2 Social and Economic Contributions

In addition to direct and indirect employment, and the purchase of goods and services from local suppliers, the Whitehaven Group continues to support the local community.

Tarrawonga Coal has also contributed to the provision of cadetships to two young local students, Mr Duncan McGregor and Mr Chris Thomas. Duncan is undertaking undergraduate studies in environmental management through the University of Newcastle and will be working with Whitehaven Coal Limited during the second half of 2010. Chris has recently completed his Natural Resource Management degree through UNE and began graduate work as an Environmental Officer with Whitehaven in January 2010.

As members of the Gunnedah / Boggabri area community, mine-related employees also contribute socially and economically through their involvement in community sporting, educational and social organisations and expenditure of a component of their disposable income.

4.3 Community Liaison

In accordance with Condition 8 of Schedule 6 of DA 88-4-2005 a Community Consultative Committee (CCC) was formed prior to the commencement of mine operations. The committee comprises representatives of Narrabri and Gunnedah Shire Councils, Tarrawonga Coal and the community and is chaired by Narrabri Shire Councillor, Clr Ken Bates.

Since its inception, the CCC has met on a regular basis, meeting 4 times per year in accordance with the condition of consent. During the reporting period meetings were held on the 21st May 2009, 6th August 2009, 11th November 2009 and 10th February 2010.

Tarrawonga Coal representatives continue to maintain regular personal contact with the neighbours in the vicinity of the mine and CHPP. These contacts not only provide a means of information dissemination, but also enable Tarrawonga Coal to ascertain and address any potential issues which may arise from time to time.

Community organisations and other local business and institutions regularly identify an interest with activities occurring at the mine site. In this regard, and to maintain links with those business and community members, information is provided as required, and on occasion, guided tours of the facility have been undertaken. A number of tours have been undertaken during the reporting period with groups such as institutional bankers, Mine related Council committees, shareholders and potential customers.

Tarrawonga Coal also employs a Community Liaison Officer, Mr Tony Jones who is a long time resident of Gunnedah and a former Gunnedah Councillor. Mr Tim Muldoon has recently been appointed to the role of Community Liaison Officer to take over the role when Tony Jones retires. Tim also has a long term association with Gunnedah and was formerly employed with Gunnedah Shire Council.

5 REHABILITATION

5.1 Buildings

No buildings were renovated or removed during the reporting period.

5.2 Rehabilitation of Disturbed Land

5.2.1 Objectives

Tarrawonga Coal's rehabilitation / land use objectives for the DA Area, i.e the area within the boundary of ML 1579 are as follows:

(a) Areas affected by mining – short term

- (i) Stabilise all earthworks, drainage lines and disturbed areas that are no longer required for mine related activities.
- (ii) Reduce the visibility of mining activities from adjacent properties and the local road network.

(b) Areas affected by mining – long term

- (i) Provide a low maintenance, geotechnically stable and safe landform which is commensurate with a variety of agricultural land uses and/or nature conservation.
- (ii) Blend created landforms with the surrounding land fabric.
- (iii) Revegetate the majority of the post mining landform to communities which emulate the existing vegetative communities or those that occurred prior to agricultural related disturbance.

(c) Areas to be unaffected by mining

- (i) Remove grazing pressure from areas of relatively intact native tree, shrub and grassland communities and thereby encourage the extension / diversification of those communities.
- (ii) Undertake enrichment plantings as a means of extending or encouraging the development of native bushland communities. Grazing exclusion and enrichment plantings were part of the offset strategies approved under 88-4-2005 and are detailed in the MOP.

5.2.2 Achievements During the Reporting Period

Table 17 and Table 18 present a Rehabilitation Summary and listing of maintenance activities as required in the DMR Guidelines. Rehabilitation of disturbed land undertaken during the reporting period comprised reshaping and topsoiling of an area of 4.1ha of the waste emplacement located on the western boundary of the Mining Lease, with a further 9.4ha established to pasture and grasses. A further 27.5ha is now considered rehabilitated to native woodland, being those areas planted out to native tubestock. Cover crop establishment over the summer period comprised Japanese Millet with panics, purple pigeon and Rhodes grass. Establishment during the winter comprised Rye Corn with medics and lucerne.

In addition to the above works, construction of a rock lined waterway was completed on the bottom tier of the rehabilitated southern waste emplacement following design works by Soil Services personnel. Constructed banks were established on the lower tier of the southern emplacement directing surface flows to the waterway which then flows into SB16.

Over the reporting period approximately 2,700 tubestock were planted on the western emplacement at the northern and southern ends of the rehabilitated area. The extent of tubestock planting over the period was less than the previous year on the basis of pending modifications to disturbance areas. It is expected a similar number of seedlings will be planted over the next AEMR period.

Seed collection programmes were undertaken through Bilby Blooms who supply Whitehaven with significant quantities of understorey and overstorey species each year. Discussions were held with the Red Chief Local Aboriginal Land Council to determine their interest in seed collection, however, this failed to eventuate. Additional seed collection contractors will be sourced over the next reporting period. Seeds will continue to be propagated at our Whitehaven CHPP propagation unit as well as off-site by local contractors. Tarrawonga Coal continues to utilise the services of Red Chief Local Aboriginal Land Council, Bilby Blooms, and Gwydir Valley Trees, Turf and Erosion Control. The species collected are based on the vegetation communities disturbed over the life of the mine.

Other rehabilitation activities during the reporting period were limited to the application of pasture species to soil stockpiles, and placement of felled timber on rehabilitated areas of the western and southern emplacements.



Plate 5 - 12 month old rehabilitation in background, with new cover crop establishment on new rehabilitation in foreground



Plate 6 – Rehabilitation at north-west corner of northern emplacement



Plate 7 – Tubestock planting in mounds

Table 17 - Rehabilitation Summary

	Area Affected (hectares)		
	This Report Period (as of 30.04.10)	Last Report Period (as of 30.04.09)	Next Report Period (estimated)
A: MINE LEASE AREA			
A1 Mine Lease(s) Area			
B: DISTURBED AREAS			
B1 Infrastructure area (other disturbed areas to be rehabilitated at closure including facilities, roads)	14.87	14.87	15.1
B2: Active Mining Area (excluding items B3 - B5 below)	39.64	32.79	48
B3 Waste emplacements, (active/unshaped/in or out-of-pit)	111.8	84.09	104
B4 Tailings emplacements, (active/unshaped/uncapped)	N/A	N/A	1.0
B5 Shaped waste emplacement (awaits final vegetation)	4.1	24.33	20
ALL DISTURBED AREAS	170.4	156.1	188.1
C REHABILITATION PROGRESS			
C1 Total Rehabilitated area* (except for maintenance)	27.5	10.87	32
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	9.4	7.4	16.8
E2 Native forest/ecosystems*	27.5	10.87	32
E3 Plantations and crops	0	0	0
E4 Other (include non vegetative outcomes)			

F1

F2

* Areas with established tube stock are considered to be "native forest/ecosystem" and contribute to the Total Rehabilitated Area. "Pasture and Grasses" includes areas with recently planted tube stock that are not yet established.

Table 18 - Maintenance Activities on Rehabilitated Land

NATURE OF TREATMENT	Area Treated (ha)		Comment/control strategies/ treatment detail
	Report period	Next period	
Additional erosion control works (drains re-contouring, rock protection)	2	2	Bank restoration
Re-covering (detail - further topsoil, subsoil sealing etc)	Nil	Nil	
Soil treatment (detail - fertilizer, lime, gypsum etc)	Nil	Nil	
Treatment/Management (detail - grazing, cropping, slashing etc)	Nil	Nil	
Re-seeding/Replanting (detail - species density, season etc)	Nil	Nil	
Adversely Affected by Weeds (detail - type and treatment)	5	5	Treatment for African Boxthorn, Galvanised Burr and Bathurst Burr etc
Feral animal control (detail - additional fencing, trapping, baiting etc)	*	Nil	* See Section 3.20

5.3 Rehabilitation Monitoring and Performance

Rehabilitation/revegetation monitoring has been confined to inspections of water management structures, soil stockpiles and seeded/planted areas for evidence of instability or poor germination. Results over the reporting period were positive in terms of areas seeded with excellent cover crop establishment achieved on rehabilitated slopes. In addition, planted seedlings continue to develop with an estimated 75% success rate from plantings undertaken the previous year.

Drip irrigation was not undertaken in planted areas over the reporting period. As a trial, Tarrawonga Coal arranged for mounding instead of ripping in preparation for tubestock planting at the northern and southern ends of the western emplacement. The use of mounds has appeared to provide improved moisture retention and to benefit the planted tubestock. It also provides the additional advantage of reducing slope length between contours for surface flows to cause active rilling on rehabilitated slopes. Given the success from this treatment, mounding will be the preferred preparation for tubestock planting into the future, particularly on the slopes.

In assessment of rehabilitation undertaken to date with commitments made in the MOP, Tarrawonga Coal is generally compliant with the extent of rehabilitation undertaken to date.

6 CONTINUOUS IMPROVEMENT AND TARGET INITIATIVES

6.1 Objectives

Tarrawonga Coal Pty Ltd has an ongoing commitment to environmental management and aims to minimise any adverse impacts on the physical, biological, cultural and socio-economic environment in the area of the mine and in surrounding areas.

Improvements in environmental management will be achieved through the effective implementation of the operational and monitoring aspects of the Mining Operations Plan, which in turn, will incorporate relevant aspects of various management plans and monitoring programs prepared in accordance with the Mine's relevant Development Consent.

6.2 Achievements to Date

Achievements at the mine over its Fourth year of operation have included:

- Ongoing awareness and culture amongst operators on site as to the operating environmental management plans and general environmental awareness / responsibility within all levels of the workforce;
- Routine implementation of all relevant aspects of approved management plans;
- Completion of updated management plans for Air Quality Monitoring, Environmental Management Strategy and Environmental Monitoring Program;
- Completion of required Independent Environmental Audit during the reporting period, including provision of an Action Plan relevant to the outcomes of the audit and completion of the majority of actions required;
- Completion of Independent Audit into surface and groundwater monitoring results, and the identification that the site has not had any significant impact on groundwater availability and quality and surface water quality;
- Ongoing relationship with local community, neighbours and community groups. Tarrawonga Coal recognises its role in the local community and that its activities have the potential to create benefits which extend beyond the life of the mine;

- Progressive shaping and rehabilitation of the post mining landform. At the end of the reporting period, rehabilitated areas constituted approximately 22% of the total area of disturbance at the mine in its fourth year of operation;
- Provision of an updated dust factsheet and distribution to surrounding landholders in accordance with the requirements of the consent;
- Completion of independent review of sediment storage capacity on site by Soil Services, with confirmation that constructed sediment basins adequately supply sufficient storage to meet the 90%ile 5 day event criteria; and
- Regular meetings with IBC to discuss mine development, performance and improvement opportunities for each site.

6.3 Targets and Goals

Targets and goals for the 2010 / 2011 Reporting Period include:

- The rehabilitation of a further 16 hectares no longer required for mining related activities to pasture and grasses, and an additional 5 hectares to native vegetation establishment;
- Adoption of new flora and fauna monitoring plots on the southern emplacement area to commence data collection for comparison with control plots;
- Improvement in noise management and a reduction in non-compliance, particularly given the private agreements in place along the haul route;
- Continued community liaison, support and involvement / education in the mines activities;
- Compliance with all relevant conditions of the lease, licences and consents;
- Approval to the proposed Section 75W modification application and subsequent approval to a MOP amendment;
- Finalisation of the Biodiversity Offset criteria and security in consultation with DECCW and DoP based on the outcomes of the Section 75W determination;
- Development of a new Site Water Management Plan based on the determination of the Section 75W modification determination and the independent audit into surface and groundwater monitoring results.