NAMOI MINING PTY LTD

(ABN 24 071 158 373)

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

FOR THE

SUNNYSIDE COAL MINE (ML 1624)

01 December 2010 – 30 November 2011

Namoi Mining Pty Ltd

Annual Environmental Management Report for the Sunnyside Coal Mine (ML 1624)

MOP Commencement Date ***15-10-2008*** – MOP Completion Date ***31-09-2015***
AEMR Commencement Date ***01-12-2010*** – AEMR Completion Date ***30-11-2011***

Namoi Mining Pty Ltd

Head Office
Level 28, 259 George Street
SYDNEY NSW 2000
PO Box R1113
ROYAL EXCHANGE
NSW 1225
Phone: +61-2-8507 9700
Fax: +61-2-8507 9701

Site
Sunnyside Site Office
259 Coocooboonah Lane
Gunnedah NSW 2380
PO Box 600
GUNNEDAH NSW 2380
Phone: +61-2-6741 9200
Fax: +61-2-6741 9209

Gunnedah Office
Whitehaven CHPP
10409 Kamilaroi Highway
PO Box 600
GUNNEDAH NSW 2380
Phone: +61-2-6742 4337
Fax: +61-2-6742 3607

Reporting Officer: Danny Young

Title: Group Environmental Manager

Signature: _____

Date: _____

Distribution: Office of Environment and Heritage
Department of Planning and Infrastructure
NSW Trade and Investment, Regional Infrastructure & Services – Division of Resources and Energy
NSW Trade and Investment, Regional Infrastructure & Services – Primary Industries, Food and Water
NSW Office of Water
Gunnedah Shire Council
Sunnyside Coal Mine Community Consultative Committee

TABLE OF CONTENTS

1 INTRODUCTION AND OBJECTIVES 1
1.1 Scope 1
1.1.1 Introduction and Period of Reporting 1
1.1.2 The Company 1
1.1.3 Background and History of the Sunnyside Coal Mine 3
1.1.4 Products and Markets 4
1.1.5 Operational and Environmental Management 4
1.1.6 Corporate Occupational Health, Safety and Environmental Policy . 6
1.2 Approval Status 7
1.2.1 Leases, Licences and Approvals 7
1.2.2 Amendments to Leases, Licences and Approvals 8
1.3 Actions Requested at Previous AEMR Review 9
2 SUMMARY OF OPERATIONS 10
2.1 Exploration, Resources / Reserves and Mine Life 10
2.1.1 Exploration 10
2.1.2 Resources and Reserves 10
2.1.3 Estimated Mine Life 10
2.2 Land Preparation 11
2.3 Construction 12
2.4 Mining 12
2.4.1 Mining Method 12
2.4.2 Mining Constraints 13
2.4.3 Mining Equipment 13
2.4.4 Hours of Operations 14
2.5 Processing 15
2.5.1 Outline of Processing Activities 15
2.5.2 Changes or Additions to the Process or Facilities 16
2.6 Waste Management 16
2.6.1 Introduction 16
2.6.2 Domestic Type Wastes 16
2.6.3 Oil Containment and Disposal 17
2.6.4 Sewage Treatment and Disposal 17
2.6.5 Mine Equipment Tyres 17
2.6.6 Overburden and Interburden 17
2.6.7 Processing Plant Residues 18
2.8 Stockpile Capacity 19
2.9 Water Management 19
2.9.1 Objectives 19
2.9.2 Surface Water Management 20
2.9.3 Discharges 22
2.9.4 Water Sources, Demand and Use 23
2.9.5 Stored Water 24
2.9.6 Groundwater Management 24
2.10 Hazardous and Explosive Material Management 25
2.11 Infrastructure Management 26
2.12 Product Transport 26

3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE 27
3.1 Air Pollution 27
3.1.1 Criteria 27
3.1.2 Control Procedures 29
3.1.3 Dust Monitoring 30
3.2 Erosion and Sedimentation 32
3.2.1 Management 32
3.2.2 Performance 33
3.3 Surface Water Pollution 34
3.3.1 Management 34
3.3.2 Performance 34
3.4 Groundwater Pollution 36
3.4.1 Management 36
3.4.2 Performance 36
3.5 Contaminated or Polluted Land 39
3.6 Threatened Flora 39
3.7 Threatened Fauna 41
3.8 Weeds 42
3.8.1 Management 42
3.8.2 Performance 43
3.9 Blasting 43
3.9.1 Blast Criteria and Control Procedures 43
3.9.2 Performance 44
3.10 Operational Noise 47
3.10.1 Criteria 47
3.10.2 Control Procedures 48
3.10.3 Operational Noise Monitoring 49
3.11 Visual, Light 52
3.11.1 Management 52
3.11.2 Performance 53
3.12 Aboriginal Heritage Management 53
3.12.1 Sites Management and Performance 53
3.12.2 Consultation 55
3.13 Natural Heritage 56
3.14 Spontaneous Combustion 56
3.14.1 Management 56
3.14.2 Performance 56
3.15 Bushfire Management 56
3.15.1 Management 56
3.15.2 Performance 57
3.16 Mine Subsidence 57
3.17 Hydrocarbon Contamination 57
3.17.1 Management 57
3.17.2 Performance 57
3.17.3 Greenhouse Gas Emissions 58
3.18 Methane Drainage / Ventilation 60
3.19 Public Safety 60
3.19.1 Management 60
3.19.2 Performance 60

3.20 Feral Animal Control 60
3.21 Land Capability 61
3.22 Meteorological Monitoring 61
3.22.1 Introduction 61
3.22.2 Rainfall 62
3.22.3 Temperature 63
3.22.4 Wind Speed and Direction 64
3.22.5 Inversions 64
4 COMMUNITY RELATIONS 65
4.1 Environmental Complaints 65
4.2 Employment Status, Demography and Socio-Economic Contributions 67
4.2.1 Employment Status and Demography 67
4.2.2 Social and Economic Contributions 67
4.3 Community Liaison 68
5 REHABILITATION 69
5.1 Buildings 69
5.2 Rehabilitation of Disturbed Land 69
5.2.1 Objectives 69
5.2.2 Achievements During the Reporting Period 70
5.3 Rehabilitation Monitoring and Performance 73
6 CONTINUOUS IMPROVEMENT AND TARGET INITIATIVES 74
6.1 Objectives 74
6.2 Achievements to Date 74
6.3 Targets and Goals 75

TABLES

Table 1 - Tenements, Licences and Approvals 8
Table 2 - Production and Waste Summary 11
Table 3 - Mining Equipment 14
Table 4 - Stored Water 24
Table 5 - Deposited Dust Monitoring Data 30
Table 6 - Surface Water monitoring results 35
Table 7 - Groundwater Monitoring 37
Table 8 - Aboriginal Artefacts 54
Table 9 - GHG Emissions - Diesel Fuel 58
Table 10 - GHG Emissions Summary 59
Table 11 - Rainfall Data 62
Table 12 - Average Monthly Temperatures 63
Table 13 - Complaints Summary 66
Table 14 - Rehabilitation Summary 72
Table 15 - Maintenance Activities on Rehabilitated Land 73

FIGURES

Figure 1 - Locality Plan 2
Figure 2 - Coal Movement and Production Summary 15
Figure 3 – Monitoring Locations 28
Figure 4 – "Illili" HVAS PM_{10} Data 31
Figure 5 – "Lilydale" HVAS PM_{10} Data 32
Figure 6 - Monthly Rainfall Data 62

PLANS

Plan 3 - Land Preparation Sunnyside Coal Mine 75
Plan 4 - Mining and Rehabilitation Sunnyside Coal Mine 75

PLATES

Plate 1 – Newly constructed sediment traps 30/11/2011 34
Plate 2 - Established Pasture on upper batter of waste emplacement 71
Plate 3 – Newly constructed contours, mounds and developing pasture 71

APPENDICES

Appendix 1 PA 06_0308
Appendix 2 Environment Protection Licence 12957
Appendix 3 Compliance Review
- PA 06_0308 (Table A3-1)
- Environment Protection Licence 12957 (Table A3-2)
- ML 1624 (Table A3-3)

Appendix 4 Dust Monitoring Results
Appendix 5 Groundwater Monitoring Data
Appendix 6 Blast Monitoring Results
Appendix 7 Noise Monitoring Results
Appendix 8 Meteorological Data

1 INTRODUCTION AND OBJECTIVES

1.1 Scope

1.1.1 Introduction and Period of Reporting

This is the third Annual Environmental Management Report (AEMR) produced for the Sunnyside Coal Mine, and it has been prepared in accordance with Conditions 4 and 5 of Mining Lease (ML 1624) (Mining Act 1992) and Condition 5 (Schedule 5) of PA 06_0308. 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 1 December 2010 to 30 November 2011 (the reporting period), where relevant the AEMR provides information on historical aspects of the operation and longer term trends in environmental monitoring results.

The Sunnyside Coal Mine is located within the Gunnedah Shire, approximately 15 km west of Gunnedah (Figure 1).

1.1.2 The Company

Sunnyside Coal Mine is owned by Namoi Mining Pty Ltd (NMPL) and operated by Whitehaven Coal Mining Pty Ltd. Both companies are wholly owned subsidiaries of Whitehaven Coal Limited (WCL), a publicly listed company which has several coal mining interests in the Gunnedah region of NSW.

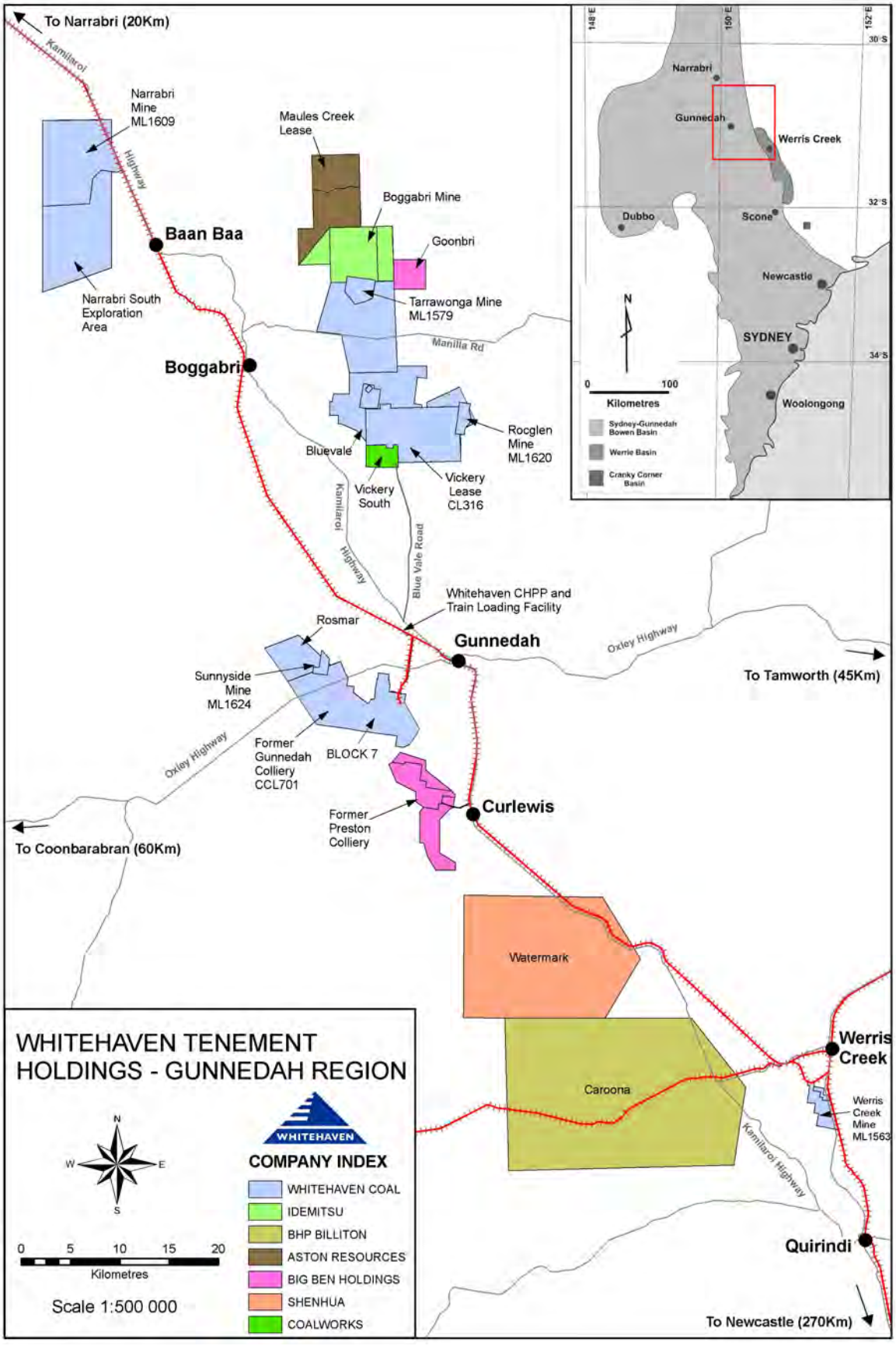

Figure 1 - Locality Plan

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. Production commenced second quarter 2010;
- Tarrawonga Coal Mine, 42km north-west of Gunnedah, owned by Tarrawonga Coal Pty Ltd which is a joint venture between WCMPL (70%) and Idemitsu Boggabri Coal (30%);
- Rocglen Coal Mine, 28km north of Gunnedah, 100% owned by WCL, which commenced July 2008;
- 100% ownership of the Bonshaw project near Ashford;
- 100% ownership of the former Gunnedah Colliery through Namoi Mining Pty Ltd; and
- 100% ownership of the former Vickery site, with environmental assessment work underway with a view to re-opening the former Vickery and adjacent deposits.

WCL is also actively pursuing other prospective tenements with a view of maintaining a long term presence within the Gunnedah Basin.

1.1.3 Background and History of the Sunnyside Coal Mine

The Sunnyside Coal Mine was developed after substantial investigations were undertaken under Exploration Licence 5831, granted in December 1996 and renewed in June 2006 and May 2008. Following completion of relevant assessments and studies, the Department of Planning provided approval to the development via Project Approval (PA) 06_0308 on the 24th September 2008. Environment Protection Licence (EPL) 12957 was granted on the 15th December 2008.

The Project Approval provided for the extraction of approximately 7 million tonnes of ROM coal, at a maximum rate of 1 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 (CHPP) near Gunnedah.

Over the life of the approved mine, a total area of approximately 116 ha will be disturbed for mining and associated activities within ML 1624.

The external boundary of ML 1624 corresponds to the area referred to in PA 06_0308 and covers an area of approximately 234 ha.

1.1.4 Products and Markets

The Hoskissons Coal Seam within the Sunnyside Mine can be described as a medium volatile bituminous coal. Overall, the coal is 9 metres thick subdivided into two run-of-mine coal plies. These plies are as follows:

- Low Ash (12%) lower section (4 metres); and
- High Ash (25 to 30%) upper section (5 metres).

The lower section of the seam is typically medium to low in ash (~12%) and is crushed and screened into two products (1/ -15mm fine fraction; 2/ +15 to -50mm coarse fraction). The coarse product is typically marketed as a domestic 'coking' coal, whereas the fine product is bypassed at the Gunnedah CHPP and combined with other Whitehaven Group coals for cargos of export thermal shipments.

The upper section of coal is high in ash and is washed at the Gunnedah CHPP to produce a 15% ash coal at good yields (70 to 75%). This coal is also combined with other Whitehaven Group coals for cargos of export thermal shipments.

1.1.5 Operational and Environmental Management

1.1.5.1 *Contacts*

The management personnel responsible for operational and environmental performance at the Sunnyside Coal Mine and their relevant contact details are as follows:

- Mr Des George, Manager Mining Engineering - retains overall responsibility for all activities and performance at the mine. Contact: 0409 600 596.
- 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, 0427 497 710.

Mining operations are undertaken by Whitehaven Coal Mining Pty Ltd personnel. The day-to-day operational responsibilities are allocated to the Acting Project Manager, Mr Craig Woodhead. Contact: (02) 6741 9200.

1.1.5.2 *Support Personnel*

In addition to the personnel identified in Section 1.1.5.1, Sunnyside Coal Mine 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:

- ALS Acirl Pty Ltd;
- Countrywide Ecological Services;
- Orica Blasting Limited;
- G&B Ward Earthmoving;
- GP Turf.

All mining and environmental management activities are undertaken generally in accordance with the MOP, management plans and procedures prepared in satisfaction of Sunnyside's Mining Lease, Environment Protection Licence (EPL 12957), Project Approval and the relevant legislation.

1.1.6 Corporate Occupational Health, Safety and Environmental Policy

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

Whitehaven intends to conduct business in a way that maintains a safe and healthy workplace for its employees, contractors, visitors and the surrounding community and will protect the environment in all stages of exploration, mining, processing and train loading.

Whitehaven aims to:

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

Whitehaven will strive to achieve these goals by:

- *Ensuring health, safety and environment is considered in all planning and work activities.*
- *Involve 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.*
- *Complying with legislative and other requirements and providing necessary training and resources.*

Whitehaven will ensure the availability of human, financial and physical resources to maintain and implement the Health and Safety Management System.

Responsibilities of people employed at Whitehaven Coal:
All persons employed by Whitehaven have a personal responsibility to comply with this policy and associated Health, Safety & Environment systems. No work is to be

undertaken without a clear understanding of a safe method that minimizes the risk of injury, equipment damage and environmental harm.

Whitehaven employees shall:

- *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 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 Sunnyside 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 PA 06_0308 (Appendix 1), EPL 12957 (Appendix 2), and ML 1624, 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 Mineral Resources*[1]	Exploration Licence (EL 5183)	23rd December 1996 (Renewed 8th June 2005 and 6th May 2008)	22nd December 2010	Application for renewal has been lodged. Awaiting approval and new expiry date.
Minister for Planning	Project Approval (PA) 06_0308 (Appendix 1)	24th September 2008	5th November 2015 (7 years from the grant of the ML)	Approval for the Mine
Department of Environment and Climate Change*[2]	Environment Protection Licence No. 12957 (Appendix 2)	20th December 2011 (Replaces EPL issued 15th December 2008)	Nil Anniversary date: 15th December Next review: 20th December 2016	Approval for Mining for Coal and Coal Works to 2 Mtpa. Inclusion of Coal Mine Particulate Matter Control Best Practice.
Department of Primary Industries (DPI) *[1]	ML 1624	5th November 2008	5th November 2029	Approval of open cut
Department of Water and Energy (DWE)*	Water Licence 90BL254961 90BL253767 90BL253768 90BL253769 90BL254686 90BL254687 90BL254688 90BL254689 90BL254690	27th April 2009 9th Feb 2007 9th Feb 2007 9th Feb 2007 26th Mar 2008 26th Mar 2008 26th Mar 2008 26th Mar 2008 26th Mar 2008	27th April 2014 Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity Perpetuity	Mining Test Test Test Monitoring Monitoring Monitoring Monitoring Monitoring

*[1] NSW Trade and Investment, Regional Infrastructure and Services (DTIRIS)
*[2] Now, Office of Environment and Heritage (OEH)
*[3] Now, NSW Office of Water (NOW)

1.2.2 Amendments to Leases, Licences and Approvals

Whilst just outside the reporting period, reference is made to the revision of the EPL in December 2011 as it affects operations for the next reporting period. The EPL requires the site to conduct a Best Practice Management (BPM) determination to identify the most practicable means to reduce particle emissions and to prepare a report with specific outcomes.

The EPL requires that the report be submitted to the Environment Protection Authority by the 29th June 2012 and be made publicly available on the Company's website by the 6th July 2012. Outcomes of the assessment will be provided in the AEMR for the next reporting period.

1.3 Actions Requested at Previous AEMR Review

The 2009-2010 AEMR was submitted to the former Industry & Investment NSW (I&I NSW – now DRE) and other relevant agencies in February 2011. Review of the document, and subsequent site inspection, have not yet been undertaken by DRE and therefore no actions have been requested.

A response was received by the former Department of Planning in March 2011 that indicated the form and content of the AEMR were acceptable. The letter did, however, note that the Department remains concerned that the mine operations have caused occasional exceedances of noise criteria at certain neighbouring residents and that the Department supports the approach taken by Whitehaven to negotiate a private agreement with the owners of "Glendower". DoP stated that Whitehaven must report the outcome of its negotiations by direct communication to the Department as soon as these negotiations have been concluded, and also in the 2011 AEMR.

Discussions were held with the owners of the "Glendower" property with a view to entering into a private agreement, however, at the time of preparing this report, the landowners had not indicated an intent or desire to consider alternate noise limits and/or noise mitigation measures at their property. As evidenced in the noise management section of the report, the "Glendower" property has not been subject to any noise exceedances during the reporting period, with no indications of ongoing noise concerns presented by the landholders during this time. As a consequence, no further actions relating to noise mitigation at the "Glendower" property is considered necessary at this time.

2 SUMMARY OF OPERATIONS

2.1 Exploration, Resources / Reserves and Mine Life

2.1.1 Exploration

Exploration in the current year has focused on the presence of intrusions/faulting in front of the current mining pit. During the reporting period 46 open holes were drilled, for a total of 2,653m of drilling on ML1624.

2.1.2 Resources and Reserves

Regionally, the Sunnyside Coal Mine lies in the Mullaley sub-basin of the central Gunnedah Coalfield. Coal extraction is from the Hoskissons Seam, part of the Late Permian Black Jack Group. Two major coal seams occur at Mining Lease 1624, namely the Hoskissons Seam and the underlying Melville Seam.

The Hoskissons Seam generally ranges in thickness from 6m to 9m and consists of two main plies. An upper high-ash ply (25 to 30% ash) and a lower low-ash ply (~12% ash). The depth of weathering extends approximately 20 to 35 metres below the surface, with the depth to the top of the Hoskissons Seam extending from the base of weathering in the north to approximately 80m below surface in the south. Seam rolls, minor faults, igneous dykes and sills also affect open cut operations.

A resource estimate in August 2009 showed there was 11.38 million tonnes of open cut coal within ML1624. In August 2011 a mineable reserve of approximately 2.5 million tonnes of recoverable coal and 2.28 million tonnes of marketable coal was estimated to exist in the current open cut consent area.

2.1.3 Estimated Mine Life

Based on the current production rate of 0.8Mtpa or below, the mine life is approximately 3 years from the end of the reporting period, as specified in the MOP (approved September 2008).

2.2 Land Preparation

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

- Mining and waste emplacement in an area formally comprising Community 1 – Cleared Cropland and Pastureland Community.
- Stripping of topsoil, subsoil and friable overburden over an area of approximately 9.7ha. Soil stripped during the reporting period comprised Soil Mapping Unit 1 (SMU 1) as described in the current MOP.
- During the reporting period, a total of 25,750m^3 topsoil and subsoil was stripped and stockpiled. Existing stockpile locations are shown on Plan 3.

Table 2, the "Production and Waste Summary", shows that at the end of the reporting period, 9,030m^3 of topsoil and subsoil had been replaced for rehabilitation purposes.

Table 2 - Production and Waste Summary

	Cumulative Production			
	Start of Reporting period (up to 01/12/10)	**During Reporting period (1/12/10 to 30/11/11)**	**Cumulative Total at End of Reporting period**	**Cumulative Total at End of next Reporting period (estimated)**
Soil Stripped (m^3)	151,536	25,750	177,286	177,286
Soil Used/spread (m^3)	12,140	9,030	21,170	30,000
Waste Rock (m^3)	3,984,865	3,651,635	7,636,500	11,288,135
ROM Coal (t)*	410,309	360,592	770,901	1,131,493
Processing Waste (t)**	51,226	28,711	79,937	108,648
Product (t)	320,653	296,831	617,484	914,315

* 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.

** Sunnyside waste produced at Whitehaven CHPP.

Soil removal activities are generally undertaken in up to 2 x 50m wide strips in advance of competent overburden and coal extraction activities.

2.3 Construction

Construction activities over the reporting period comprised of the establishment of the coal load out bin and permanent coal crushing facility. This facility became fully operational on the 21st March 2011.

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:

- 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 waste emplacements.
- Coal extraction by excavator loading into haul trucks for transport to the ROM stockpile.

All coal was assessed in pit and depending on the quality was classified into “high ash” and “low ash” for stockpiling. The in-pit classification determines the form of subsequent processing undertaken on-site or off-site.

During the reporting period, 3,651,635 bcm of friable and competent overburden was removed to produce 360,592t ROM coal at an average overburden:coal stripping ratio of 10:1 (See Table 2).

Plan 4 presents the status of mine and infrastructure development as of 30th November 2011 and includes the limit of mining at the commencement of the reporting period.

At the end of the reporting period, the open cut, which was developed as a series of approximately 8 x 50 m wide strips, covered an area of approximately 500m x 300m. Mining activities were undertaken in areas formerly identified as Community 1 – Cleared Cropland and Pastureland Community.

2.4.2 Mining Constraints

Day to day mining activities at the Sunnyside Coal Mine are primarily constrained by economic considerations which, in turn, are determined to a large extent by factors beyond the Company'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 Sunnyside Coal Mine have included or continue to include:

- The presence of a high ash ply (Ply C) within the Hoskissons Coal Seam which has to be selectively mined and placed in the waste emplacement.
- 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;
- Restricted operating hours, as per PA 06_0308.
- Major wet weather periods.

2.4.3 Mining Equipment

Table 3 presents a list of mining equipment in use at the Sunnyside Coal Mine at the end of the reporting period, together with its principal function(s).

Table 3 - Mining Equipment

Item (or equivalent)	# on site	Function
Excavator (Hitachi EX1900)	1	Overburden and coal excavation
Excavator (Liebherr 994)	1	Overburden and coal excavation
Volvo IT Front-End Loader	1	Coal excavation and loading
CAT 785 Rear Dump Truck (150t capacity)	2	Overburden and coal haulage
CAT 777 Rear Dump Truck (90t Capacity)	4	Overburden and coal haulage
Drilling rig (intermittent)	1	Overburden drilling
Blasting truck (intermittent)	1	Blasting campaigns
CAT 657 Scraper	Up to 3	Soil and overburden removal
CAT D10T and CAT D11R Bulldozer	2	Overburden removal and ancillaries
CAT 14H Grader	1	Ancillaries
16 kL Water Truck	1	Dust suppression
Lighting Plants	6	Lighting
100 kVA Diesel Generator	1	Electricity generation (for site services)
840 kVA Diesel Generator	1	Electricity generation (for crushing plant)

2.4.4 Hours of Operations

Sunnyside is permitted to undertake mining operations between 7:00am to 10:00pm each Monday to Friday and 7:00am to 6:00pm on Saturdays, with the exception of public holidays. In the initial stages of the Sunnyside Mine, one production shift was utilised on weekdays (7:00am to 5:00pm) and generally an 8 hour overtime production shift on Saturdays. Currently a split shift of day/evening is in rotation, with day shift working from 7:00am to 2:30pm and evening shift working from 2:30pm to 10pm.

Maintenance crews generally work 12 hour shifts (6:00am to 6:00pm), 5 days per week.

Coal transportation from the mine site is permitted to be undertaken between the hours of 7:00am to 6:00pm Monday to Friday (or between 7:00am to 8:00pm during Eastern Summer Time) and 7:00am to 4:00pm on Saturdays. Coal transportation is not permitted on Sundays and public holidays.

Blasting activities were carried out between 10:00am and 5:00pm Monday to Friday and 10:00am to 2:00pm on Saturdays (except public holidays).

The above hours of operation are consistent with the permitted hours of operation identified in Project Approval PA 06_0308.

2.5 Processing

2.5.1 Outline of Processing Activities

With the exception of coal crushing to <150 mm, no coal processing was undertaken within the DA Area.

During the reporting period, Sunnyside coal was transported to the Whitehaven Siding CHPP (Figure 2) where 35% was washed and 65% was by-passed (unwashed) for despatch to domestic and export markets.

Figure 2 presents a schematic of coal movements and washery inputs, outputs and yields for the reporting period. The figure shows that during the reporting period, a total of 360,592 tonnes of ROM coal was produced at the Sunnyside site, producing 235,091 tonnes by-pass coal (i.e. crushed product coal not requiring washing), and 116,889 tonnes of washed product (at an average yield of 75% from the plant).

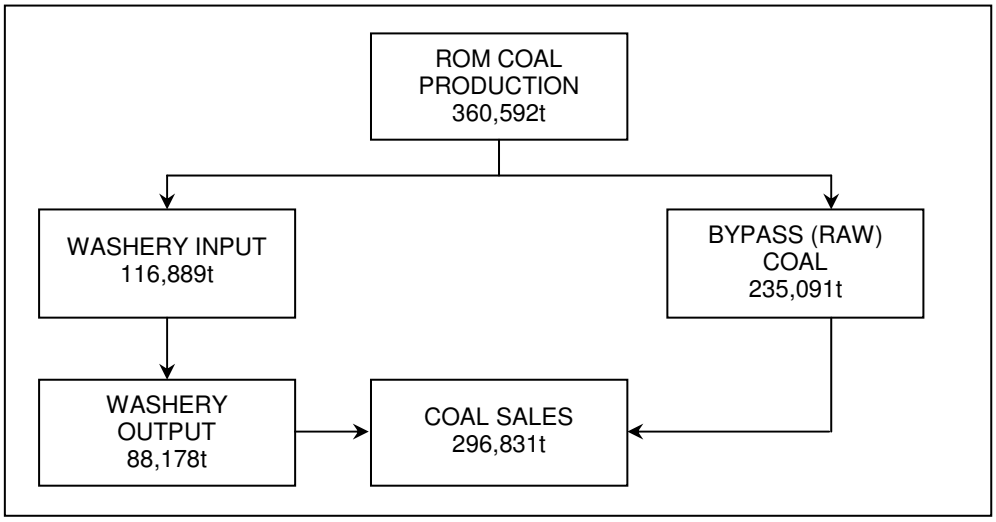

Figure 2 - Coal Movement and Production Summary
(2010/2011 Reporting Period)

2.5.2 Changes or Additions to the Process or Facilities

The only addition to site facilities was the establishment of the coal bin, and crushing plant for loading purposes.

2.6 Waste Management

2.6.1 Introduction

Wastes produced from the Sunnyside Coal Mine during the reporting period remain unchanged from those identified in the original 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 (at the Whitehaven CHPP).

The following sub-sections identify the management procedures adopted for each of these wastes throughout the 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. Sunnyside maintains a recycling program for office and general recyclables (paper, cardboard, bottles, cans etc) at the site office and crib room, as well as scrap steel, timber and waste oils from the workshop.

2.6.3 Oil Containment and Disposal

Waste oils from maintenance activities were pumped from equipment to bulk storage tanks contained within a bunded area (also see Section 2.9.2). 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 workshop was collected and disposed of by a licensed contractor on an intermittent basis, 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 Sunnyside 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

On the 22nd July 2011, 20 heavy earthmoving tyres were disposed of within the current waste emplacement. The precise location of the disposal site was surveyed and based on the current height of the waste emplacement the tyres are buried approximately 20 meters below surface.

2.6.6 Overburden and Interburden

Overburden materials at the Sunnyside Coal Mine comprise weathered conglomerates and siltstone with some fracturing. 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.

2.6.7 Processing Plant Residues

2.6.7.1 *Physical and Chemical Characteristics*

The coarse and fine rejects produced from washing Sunnyside 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.

2.6.7.2 *Reject Handling and Disposal Procedures*

Coarse Reject – No coarse reject produced at the Whitehaven CHPP was disposed of at the Sunnyside Mine during the reporting period. Reject is currently being disposed of at Tarrawonga Mine, which is owned by Whitehaven.

Fine Reject – Pumped to a series of five fine reject ponds within the Whitehaven CHPP balloon loop and a further 2 ponds on the eastern side of the CHPP for consolidation. The ponds are encircled by bunding and drains to contain fine reject in the event of a pond failure. Following consolidation, the fine reject is excavated and transported to the former Gunnedah Colliery for use in final landform development and emplacement in the former Melville Pit 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 DRE, the statutorily responsible Authority.

2.8 Stockpile Capacity

All ROM coal produced at the Sunnyside Coal Mine is delivered to high ash or low ash ROM stockpiles. ROM stockpile capacity at the Sunnyside Coal Mine totals 100,000t. The average stockpile volume during the reporting period was 33,350t with volumes ranging from 10,161t to 72,289t.

2.9 Water Management

2.9.1 Objectives

The Sunnyside Coal Mine lies within the catchment of the Namoi River. The majority of the surface water runoff flows northwards across the mine site. It then flows into Coocooboonah Creek which flows north-west within a constructed waterway paralleling Coocooboonah Lane. From there, it flows into Rock Well Creek then into Native Cat Creek which continues to flow north-west for 6km. Runoff then flows northwards within Collygra Creek where it flows across a floodplain area before flowing into the Namoi River some 25km north of the Mine Site. The remainder of the mine's surface water flows south into Coocooboonah Creek ultimately flowing into the Namoi River to the north. The design of sediment detention basins within the disturbed area of the mine limits the opportunity for discharge of runoff from mine-disturbed area, i.e. after appropriate detention time to satisfy licensed discharge criteria.

Two wet weather discharge points are nominated in the current EPL 12957. These are Storage Dam 3 (EPL ID No. 9) and Storage Dam 4 (EPL ID No. 10). Two ambient monitoring points are also nominated on the EPL for water quality monitoring during discharge events. These are Coocooboonah Creek Upstream (CCUS – EPL ID No. 11) and Coocooboonah Creek Downstream (CCDS – EPL ID No. 12).

The management of water at the Sunnyside Coal Mine is undertaken with the following objectives.

i. To ensure sufficient quantities of water can be obtained through the capture of "dirty" water, harvesting of "clean" water, and extraction/harvesting of groundwater to meet the requirements of dust suppression on the mine site.

ii. To ensure the segregation of “dirty” water from “clean” water, with “dirty” water directed to and detained in sediment basins which, on discharge, flow to storage dams. “Clean” water, comprising clarified water originating from the sediment basins and run-on water collected in accordance with the Company’s harvestable right, will be directed to and/or collected in storage dams.
iii. To ensure the treatment and separation of “contaminated” water from the workshop and wash bay area by diversion to an oil separating unit, with clarified water reporting to sediment basins.
iv. To ensure segregation of “pit” water from surface flows by collection in isolated pit dewatering dams.
v. To maximise the use of “dirty” and “pit” water for dust suppression purposes and minimise the necessity to harvest “clean” run-on water.
vi. To minimise the volume of water discharged from the mine site, but, should the discharge of water prove necessary, ensure sufficient settlement time is provided prior to discharge such that suspended sediment within the water meets the water quality criteria as specified in the EPL 12957.
vii. To minimise erosion and sedimentation from all active and rehabilitated areas of the mine site.
viii. To monitor the effectiveness of surface water controls and ensure all relevant surface and groundwater quality criteria are met.
ix. To monitor the impact on groundwater level, quality and availability.
x. To minimise any impacts on the availability of surface water or groundwater to surrounding residents and landholders.
xi. To establish a method of assessing the level of impact on groundwater supply attributable to the mine.

2.9.2 Surface Water Management

Water within the Project Approval area is nominally classified either as “clean”, “dirty”, “contaminated” or “pit water” depending on the source of the flow and it’s potential for physical or chemical contamination.

All sediment basins, storage dams and associated banks and drains have been designed and constructed by Department of Lands – Soil Services personnel.

*"**Clean water**"* comprises surface runoff from catchments undisturbed or relatively undisturbed by mining or related activities and rehabilitated catchments. Within the Project Approval area, clean surface water flows either flow 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 to provide a final "polishing" storage prior to potential off-site discharge.

*"**Dirty water**"* comprises surface runoff from disturbed catchments such as the active mine area and overburden emplacement, ROM and product coal stockpiles, soil and subsoil stockpiles and rehabilitated areas (until stabilised), all of which could contain sediments.

Dirty water originating from surface runoff is collected by catch banks located down slope of the potential sources of pollution and directed to the sediment basins. Water collecting within the sediment basins is used for dust suppression in addition to waters in the storage dams to avoid potential for off-site water discharge.

Sediment basins have been designed to meet the requirements of the 90% 5 day event of the Urban Stormwater Guide. The Site Water Management Plan provides further details regarding storage capacity. Sediment levels in all sediment basins generally remain low due to the high vegetation cover and water management structures existing on rehabilitated areas which assist in reducing sediment load of waters during runoff. This is reflected by the results of the one wet weather discharge event, where sediment levels were below EPL criteria.

Sediment basins are either cleaned out once their capacity is reduced by 25% 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***" comprises runoff water which could potentially contain hydrocarbons. One 68,000 L self bunded diesel fuel tank is maintained

adjacent to the Sunnyside 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. An additional concrete bund has been installed adjacent to the workshop 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.

"***Pit Water***" comprises water contained within the open cut sump or pumped to the void water dam for containment and use for dust suppression across the site.

2.9.3 Discharges

During the reporting period, one wet weather discharge has occurred. The wet weather discharge occurred after 64.8mm of rain on the 10th December 2010, from storage dams SD3 and SD4 (both licensed discharge point). Both SD3 and SD4 recorded results which were compliant with EPL thresholds, with SD4 recording a total suspended solid (TSS) of 50mg/L, equalling the limit of 50mg/L and SD3 recording a TSS of 44mg/L. Electrical Conductivity (EC), oil and grease and pH recorded acceptable levels.

Coocooboonah Creek upstream (CCUS) and downstream (CCDS) samples were also taken at the time of discharge. High TSS was recorded at both locations, being 646mg/L at CCUS and 2030mg/L at CCDS. These high results are likely to be associated with the high amount of rainfall received in the 24 hours leading up to the event, causing significant flows across the area.

2.9.4 Water Sources, Demand and Use

Within the Project Approval Area and immediate vicinity of Sunnyside 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 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.

During the reporting period, a total of approximately 45 ML was used on the mine site and at the processing facility, generally for dust suppression purposes. The approximate volumes obtained from the various sources are as follows:

- 38.58 ML from groundwater sourced under licence from the production bore located on the "Werona" property; and
- 7 ML from surface water storages.

During the reporting period:

(i) 38.58 ML of water was pumped from the licensed bore;

(ii) There was negligible groundwater seepage into the pit; and

(iii) All surface water utilised was from onsite sediment basins and storage dams.

The above water use is approximately half of the use predicted in the EA for the mine which indicated a water requirement of approximately 75-100ML per year for dust suppression and processing requirements. A slightly higher volume of water was used compared to the previous AEMR period. This is attributable to higher production levels this year as compared to last year. The volume of water used is substantially less than that predicted in the EA for the site on the basis that the site is not producing at the nominated production level of up to 1mtpa as assessed during the EA process.

A slightly higher volume of water was used compared to the previous AEMR period. This is attributable to an increase in production levels since the previous period as well as dry periods experienced over the reporting period.

2.9.5 Stored Water

Table 4 presents an estimate of the volume of stored water at the beginning and end of the reporting period.

Table 4 - 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)	6,300	3,890	26,210
Dirty Water (in Sediment Basins)	10,700	23,200	8,000
Controlled Discharge Water (salinity trading schemes)	N/A*	N/A*	N/A*
Pit Water	0	0	29,200
* N/A = Not applicable for the Sunnyside Coal Mine			

2.9.6 Groundwater Management

Inflows into the open cut result from a combination of:

- Direct rainfall runoff and infiltration through the emplaced overburden which flows down-dip to the open cut sump(s); and
- Inflows from the exposed coal seam.

As noted in Section 2.9.4, during the reporting period, a negligible amount of water was produced in the pit from rainfall and groundwater seepage. Any water produced was used for dust suppression purposes.

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 grease being stored within a bunded area, constructed in accordance with AS 1240-2004 (also see Section 2.9.2) and/or OEH 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).

2.10 Hazardous and Explosive Material Management

No explosive materials are retained within the Sunnyside Mine Site. Orica Mining Services has a storage facility located between the Tarrawonga and Canyon sites which 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.

2.11 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.

2.12 Product Transport

Approximately 361,485 tonnes of coal was transported from the mine over the reporting period. Throughout the reporting period an average of 32 truck loads per day was transported to the CHPP. Product coal from the CHPP is transported by train to the Port of Newcastle.

3 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

The following sub-sections document the implementation and effectiveness of the various control strategies adopted at the Sunnyside Coal Mine, together with monitoring data for the reporting period. Existing monitoring sites are shown in Figure 3. Life of mine monitoring data will be included in future AEMRs, where relevant, to allow for discussion on longer-term trends. A risk identification matrix and the relevant Environmental Management procedures are identified in the Sunnyside Coal Mine MOP.

3.1 Air Pollution

3.1.1 Criteria

The air quality criteria applicable to the Sunnyside Coal Mine are specified in PA 06_0308 Schedule 3, Tables 7, 8 & 9 (Appendix 1), which is summarised below.

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

Notwithstanding the diversity of the criteria identified above, routine air quality monitoring at the Sunnyside 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.

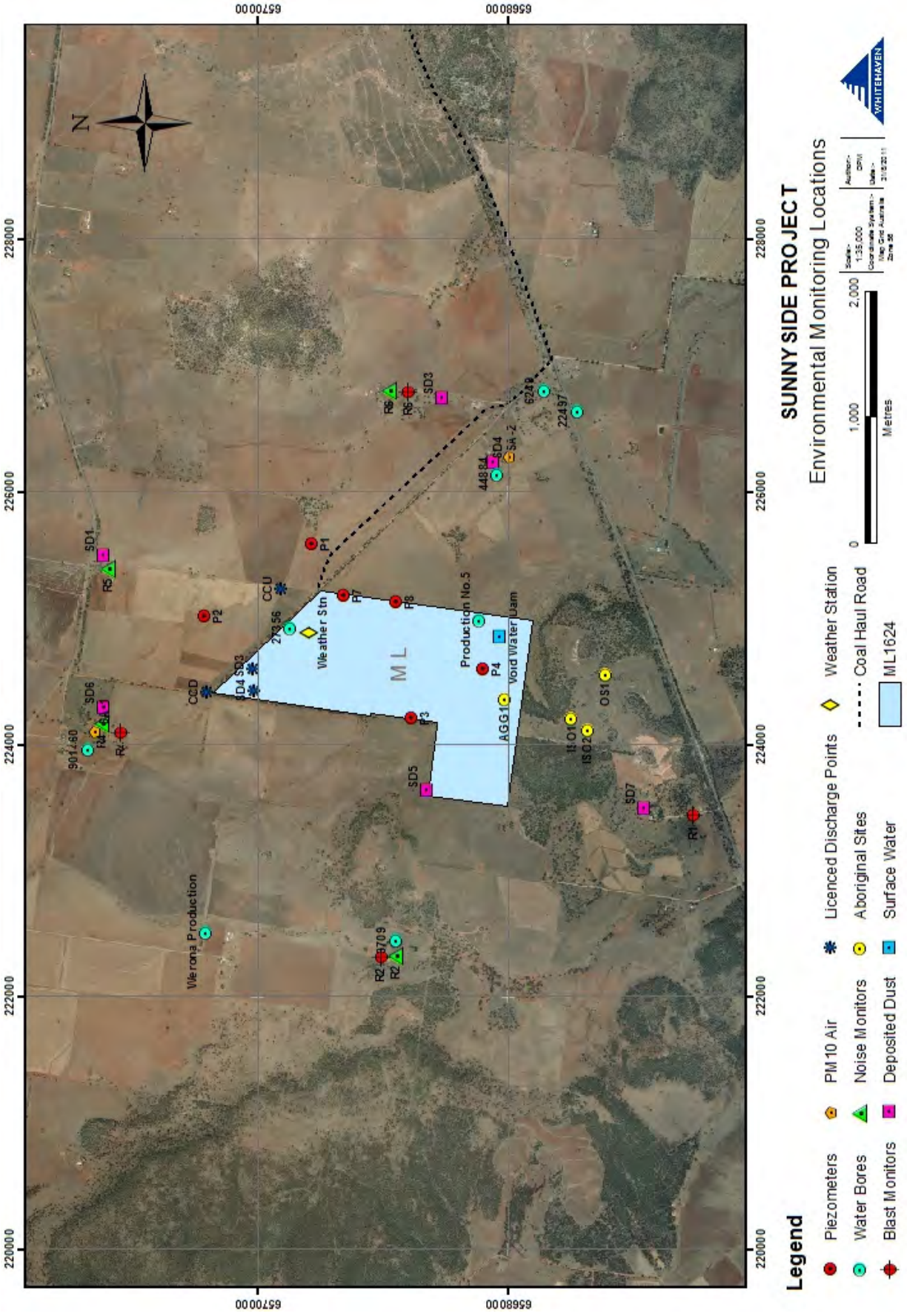

Figure 3 – Monitoring Locations

3.1.2 Control Procedures

In order to satisfy the criteria identified above, Sunnyside Coal Mine 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;
- 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 Sunnyside 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 5 presents a summary of the deposited dust monitoring data presented in Appendix 4. 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. Figure 3 identifies the locations of the various deposited dust gauges maintained during the reporting period.

Table 5 - Deposited Dust Monitoring Data (December 2010 to November 2011)

Site (see Figure 3)	Property Name	Mean Total Insoluble Solids (g/m^2/month)	Mean Ash (g/m^2/month)
SD-1	FERNDALE	2.4	1.3
SD-3	PLAINVIEW	1.2	0.9
SD-4	LILYDALE	1.0	2.1
SD-5	IVANHOE	1.9	1.1
SD-6	ILLILI	0.9	0.5
SD-7	INNISVALE	1.8	1.3
SD-8	WOODLAWN	0.8	0.5

A review of Table 5 and Appendix 4 shows that;

- The mean annual total insoluble solids (deposited dust) criterion was satisfied at all monitoring locations during the reporting period. Two outlying results were recorded at SD-4 Lilydale, which is owned by Whitehaven. This monitor returned elevated results in December 2010 and January 2011, where 33.0g/m²/month and 18.0g/m²/month was recorded. These two results have been excluded from the period's annual average, but are recorded in Appendix 4. Since these two outlying results, compliance has been met throughout the reporting period at SD-4, with the sites annual average for the period being 1.0 g/m^2/month when excluding the anomalous results.

- The additional monitor that was installed at "Woodlawn" at the end of the last period, following a request from the landholder, shows results well below the criteria.
- The mean ash content (i.e. the mineralogical component of the total deposited dust measured and that component possibly attributable to mining-related activities) percentage across the sites was as follows: SD-1 (54%), SD-3 (75%), SD-4 (41%), SD-5 (58%), SD-6 (55%), SD-7 (72%) and SD-8 (62%).

Sunnyside Coal Mine has one High Volume Air Sampler (HVAS - PM_{10}) located at the property "Illili", to the north-west of the mine site, and one HVAS unit on the "Lilydale" property, to the east of the mine site. Each sampler runs for 24 hours every 6 days, with filter papers sent to an accredited laboratory for analysis.

Overall, the PM_{10} results have indicated compliance with the annual average criteria for both sites, as indicated in Figure 4 and Figure 5. Since the last reporting period, results have shown a decrease in the running annual average which has been below 10 µg/m^3. No 24hr exceedances have been recorded since December 2009. The full data set for PM_{10} monitoring is contained within Appendix 4.

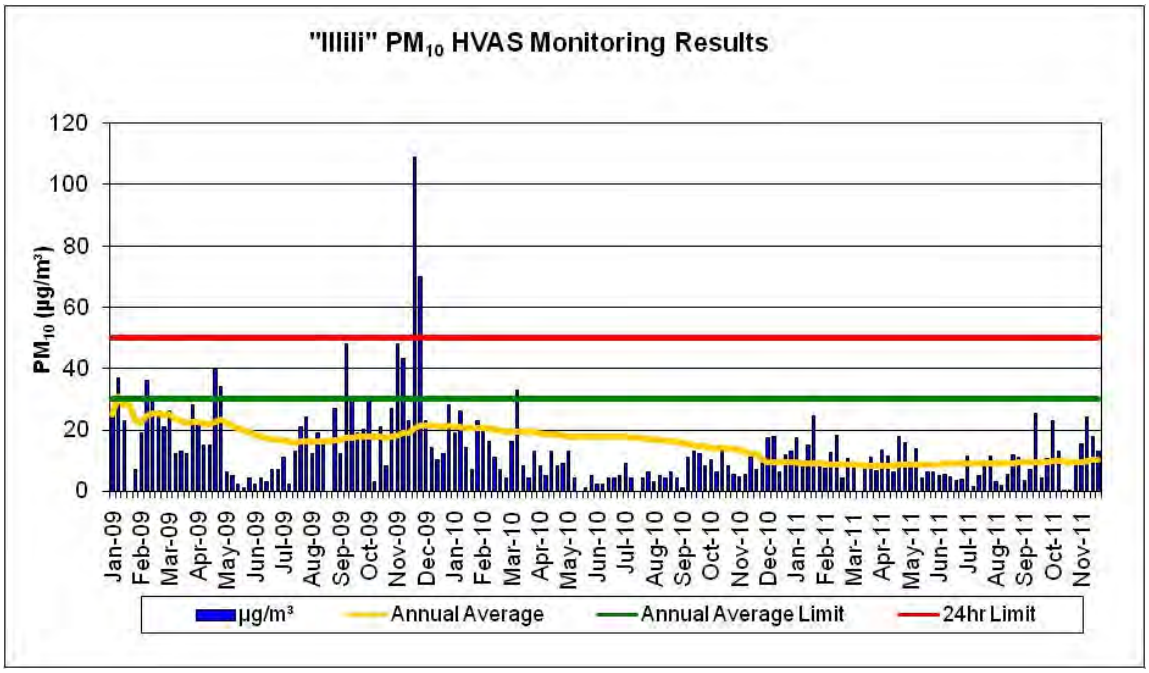

Figure 4 – "Illili" HVAS PM_{10} Data
January 2009 – November 2011

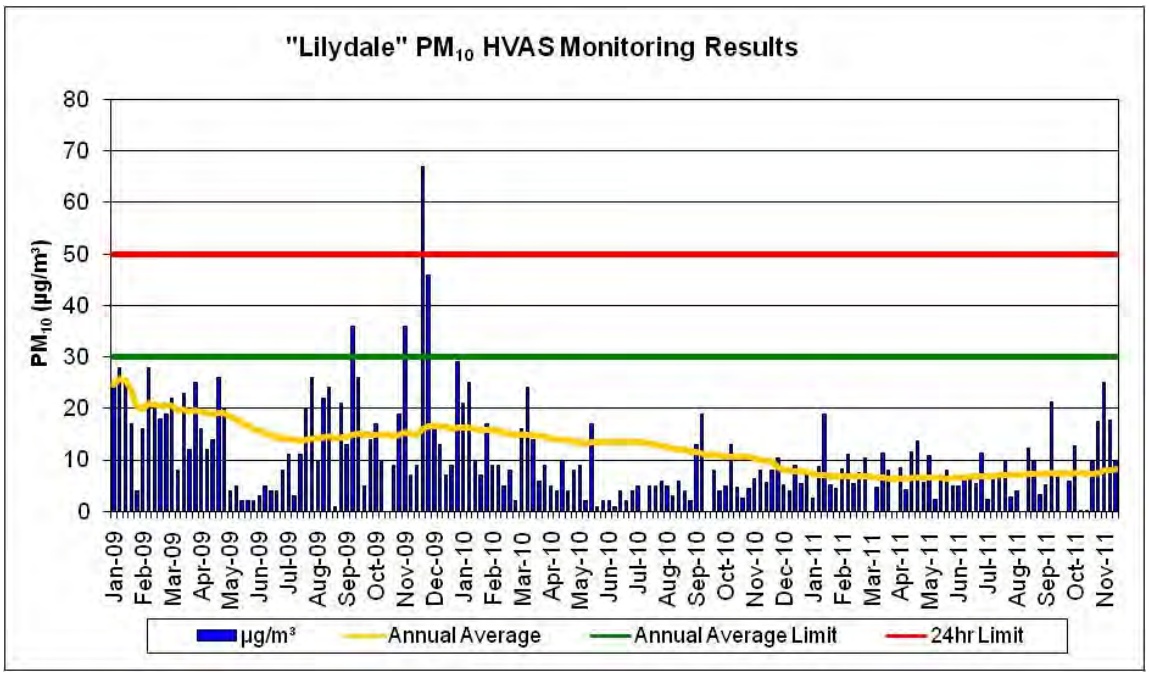

Figure 5 – "Lilydale" HVAS PM_{10} Data
January 2009 – November 2011

3.2 Erosion and Sedimentation

3.2.1 Management

Methods for the management of erosion and sediment control at the Sunnyside Coal Mine are presented in the MOP and Site Water Management Plan prepared in accordance with PA 06_0308.

Control of erosion and sediment generation is achieved primarily through the implementation of water management controls identified in Section 2.9.2 and shown on Plan 4 as well as 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. Where possible, a maximum of 2 x 50 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 sediment ponds/weirs 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, NMPL is aware of the potential for stockpile erosion and are monitored accordingly to minimise impacts as required over the remaining life of the mine. All soil stockpiles on the Sunnyside site have, or will be, sown to cover crops on completion (and when weather conditions permit) to aid in stabilisation.

3.2.2 Performance

The effectiveness of the procedures for erosion and sedimentation management are assessed as part of routine monthly environmental inspections, undertaken by the Sunnyside Coal Mine Environmental Officer. Items such as water management structures, vegetation cover and sediment basins are inspected, with any ameliorative works initiated as and when required.

During the reporting period, to assist with the capture of sediment, a series of sediment traps were installed between the eastern amenity bund and the north eastern emplacement (see Plate 1). This drainage line carried a large amount of dirty water during wet weather events, which drains from the active emplacement and production areas. These traps have proved successful through their overflow system in reducing velocity of this water and capturing sediment which would usually drain directly into sediment basin 3 (SB3) which may cause erosion and sedimentation problems. The installation of contour banks on the northern emplacement has ensured correct drainage occurs on the rehabilitated slopes. These were installed with the intention of draining water from rehabilitated areas through the dirty water system at a low velocity. Sufficient vegetation cover on slopes has also reduced the amount of erosion and sedimentation of water storages.

As described above, all necessary controls were in place and operating as per design. This ensured the correct drainage of water through the dirty water system which reduces potential erosion and sediment load in storages.

Plate 1 – Newly constructed sediment traps 30/11/2011

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 2.9.2.

3.3.2 Performance

Surface water management controls have operated well throughout the reporting period, with all water being contained onsite.

Sunnyside Coal Mine has a schedule to undertake surface water monitoring on a quarterly basis, in addition to any wet weather discharge monitoring. Above average

rainfall during this reporting period has provided adequate storage of water to undertake quarterly surface water monitoring, as required. Quarterly surface water results are shown below in Table 6.

Table 6 - Surface Water monitoring results

Date	Location	pH	Electrical Conductivity (µS/cm)	Total Suspended Solids (mg/L)	Total Organic Carbon (TOC) (mg/L)	Grease & Oil (mg/L)
10 August 2011	SB1	9.07	536	46	47	<5
22 November 2011	SB1	9.22	486	208	73	<5
5 May 2011	SB2	8.85	663	233	9	<1
10 August 2011	SB2	8.2	513	82	11	<5
22 November 2011	SB2	9.24	389	64	5	<5
8 March 2011	SB3	8.49	1300	20	<1	<5
5 May 2011	SB3	8.3	3020	147	6	<5
10 August 2011	SB3	8.35	1800	82	12	<5
18 October 2011	SB3	7.84	267	91	4	<5
22 November 2011	SB3	8.26	283	79	3	<5
9 May 2011	SB4	8.65	512	32	14	<5
10 August 2011	SB4	8.36	474	62	8	<5
22 November 2011	SB4	8.95	286	40	4	<5
5 May 2011	SB5	8.93	759	36	4	<5
10 August 2011	SB5	8.9	768	88	24	<5
22 November 2011	SB5	8.65	504	352	43	<5
8 March 2011	SD4	8.72	271	15	2	<5
9 May 2011	SD4	8.43	394	62	5	<5
10 August 2011	SD4	8.17	313	13	10	<5
11 August 2011	SD4	7.82	312	26	<1	<5
22 November 2011	SD4	8.74	299	19	8	<5
8 March 2011	Void	7.68	4220	23	<1	<5
9 May 2011	Void	8.3	4550	6	58	<5
10 August 2011	Void	8.3	4050	10	5	<5

The quarterly monitoring results show that water quality within onsite storages of the Sunnyside mine site was generally good, with the exception of marginally elevated Total Suspended Solids within the site's sediment basins, which is expected with the higher than average rainfall experienced at site. The elevated suspended solids did not impact on any downstream water bodies, with sediment settling prior to discharges from two licenced discharge points during a storm event. (see section 2.9.3).

Elevated electrical conductivity was detected in sediment basin 3 (SB3) early in the reporting period, with results in the latest sampling confirming levels lowering to acceptable limits. EC levels in SB3 will be monitored closely over the coming months to confirm EC levels remain consistent with EC levels in adjacent storages.

Void water revealed expected electrical conductivity levels, with little to no water available in the latest monitoring.

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 is likely to be a source of groundwater pollution.

The methods for management of potential pollutants are summarised in Section 2.9.6. Ongoing monitoring to assess trends in groundwater chemistry will enable assessment of potential contaminants to groundwater, with particular emphasis on heavy metals, and major cations and anions. Groundwater monitoring requirements are identified in Table 7.

3.4.2 Performance

Throughout the life of the mine to date, Sunnyside Mine'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 piezometers and bores within ML 1624 and extending to adjacent properties, where practicable, at the frequency and for the parameters identified in Table 7.

Table 7 - Groundwater Monitoring

Site (see Figure 3)	Registered Bore No. & Licence No	Property/ Location	Frequency		Purpose
			SWL*[2], EC*[3] and pH	Representative Metals and Ions	
P1*[1]	GW968386 90BL253767	"Plainview"	Quarterly	Annually	To determine existing status and any impacts
P2*[1]	GW968387 90BL253768	"Ferndale"	Quarterly	Annually	To determine existing status and any impacts
P3	GW968388 90BL253769	"Sunnyside"	Quarterly	Annually	To determine existing status and any impacts
P4	GW968389 90BL254686	"Sunnyside"	Destroyed by mining		
P5	GW968390 90BL254687	"Sunnyside"	Destroyed by mining		
P6	GW968391 90BL254688	"Sunnyside"	Destroyed by mining		
P7	GW968392 90BL254689	"Sunnyside"	Quarterly	Annually	To determine existing status and any impacts
P8	GW968393 90BL254690	"Sunnyside"	Quarterly	Annually	To determine existing status and any impacts
3709*[1]		"Ivanhoe"	Quarterly	Annually	To determine existing status and any impacts
22497*[1]		"Coocooboonah"	Quarterly	Annually	To determine existing status and any impacts
44677*[1]		"Werona"	Quarterly	Annually	To determine existing status and any impacts
44884*[1]		"Lilydale"	Quarterly	Annually	To determine existing status and any impacts
6249*[1]		"Lilydale"	Quarterly	Annually	To determine existing status and any impacts
No 5 Entry*[4]	90BL254691	"Sunnyside"	Quarterly	Annually	To determine existing status and any impacts
901460	GW901460 90BL249138	"Illiili"	Quarterly	-	To determine existing status and any impacts
27356	GW027356 90BL020042	"Sunnyside"	Quarterly	Annually	To determine existing status and any impacts
Werona Production	90BL255246	Werona	Quarterly	Annually	To determine existing status and any impacts

*[1] Non-Company owned bore *[2] SWL – Standing Water Level *[3] EC = Electrical Conductivity
*[4] Company production bore

Appendix 5 presents the results of the groundwater monitoring undertaken prior to commencement of mining and throughout the reporting period. Monitoring sites are shown on Figure 3. Below are some points to note regarding monitoring locations and frequencies:

- P4 is now located within the active pit area and will no longer be monitored. It's close proximity to mining operations explains the gradual drop of in standing water level over time.
- Monitoring site 3709 is now being monitored to gain water quality data. The standing water level of this bore cannot be measured as the bore is covered by a pump which services the property.

- Monitoring site 44677 is now being sampled for water quality, with standing water levels inaccessible due to the covered bore.
- SWL results were unavailable at sites 27356 and Werona during monitoring events due to the bore holes being covered by pumps.
- 901460 is now having standing water levels measured, as it was not accessible due to it been equipped with a windmill during the last reporting period.
- Water level data loggers, which store SWL data at 12 hourly intervals, have remained in P2 and P3 during the reporting period, and are monitored by Geoterra Pty Ltd.

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 5 shows the following trends:

Groundwater levels

- Groundwater levels have remained relatively consistent at all monitoring locations with the exception of P4 which has showed a 7m drop in SWL since monitoring commenced, which is expected due to its close proximity to the pit. It has now been destroyed by mining.
- 44884 has shown a considerable drop in standing water level, due to the addition of a pumping windmill for stock purposes on the property.
- Continual monitoring will provide stronger data in standing water level of surrounding bores over time.
- No. 5 bore has recorded a dry standing water level since June 2011. This may be due to the volatility of underground workings as a water source. No water has been extracted from the No. 5 workings since 2009.

Groundwater quality

- The water in most bores is generally neutral in pH.
- The water in all bores can be described as fresh to brackish.
- During the September 2011 sampling, P7 recorded an elevated result in Ammonia as Nitrogen (224mg/L), with the sample value confirmed upon re-

analysis. The piezometer is located on the eastern boundary of the mining lease, in close proximity to the "Lilydale" property. Upon inspection of the site, it appears the casing of the piezometer had been broken off at ground level. The lease holder of "Lilydale" carries out rotational cropping in the area adjacent to P7. A possible source of the Ammonia is agricultural fertilizers used on "Lilydale", in close proximity to P7, with runoff possibly entering the piezometer at ground level. The stand pipe will be repaired in the immediate future to eliminate surface water entering the piezometer. P7 will then be closely monitored to confirm any more high Ammonia results, which would trigger a full investigation of possible sources.

- Water quality has been compared to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) (ANZECC) guidelines. Water quality at all other monitoring points is generally within the guidelines for stock watering purposes.
- Based on the monitoring data available to date, water quality at all other monitoring points appears relatively consistent since monitoring commenced.

3.5 Contaminated or Polluted Land

Prior to mining, the Project Approval Area was a greenfields site. Discussion with landowners during the preparation of the EA 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 Project Approval Area.

3.6 Threatened Flora

Investigations into the occurrence of threatened flora within the Project Approval Area were undertaken as part of the Environmental Assessment by Geoff Cunningham Natural Resource Consultants Pty Ltd in 2007 following field surveys in October and December 2006. The investigation identified no significant impact on threatened flora species, endangered ecological communities, endangered flora

populations or critical habitat as a consequence of the development, either because they do not exist in the area or avoidance is possible due to project design.

Investigations identified a remnant of the White Box Yellow Box Blakely's Red Gum Woodland endangered ecological community within the study area but concluded that it would not be affected in any significant manner by the mine.

A remnant of the Native Vegetation on Cracking Clay Soils of the Liverpool Plains endangered ecological community was also identified within the study area. It was noted that a small section of this community would be temporarily affected by the Coocooboonah Lane re-alignment but the community would be rehabilitated and enhanced following rehabilitation after mining ceases. It was assessed that this action, due to its temporary impact and final environmental enhancement, would not require approval under the Commonwealth EPBC Act.

Much of the area has been cleared in the past and most of this cleared area has been cultivated. The vegetation on the cleared areas has been invaded by introduced species. The establishment of the mine site does not involve clearing of native vegetation and as such no biodiversity offsets are required.

The initial flora quadrat establishment and monitoring was undertaken in June 2010 by Geoff Cunningham Natural Resource Consultants Pty Ltd. This monitoring will become more refined during the reporting period as the Rehabilitation and Landscape Management Plan has now been approved by DoPI. The vegetation communities present at Sunnyside include:

- **Community 1** – Cleared Cropland and Pastureland Community;
- **Community 2** – Regenerating Grasslands Community;
- **Community 3** – Bare Disturbed Land with Minimal Vegetation Cover;
- **Community 4** – *Atalaya hemiglauca* [Whitewood] Community;
- **Community 5** – Dry Scrub Community of the Rocky Scarp;
- **Community 6** – *Eucalyptus dealbata* [Tumbledown Gum] – *Geijera* parviflora [Wilga] – *Callitris glaucophylla* [White Cypress Pine] Community;
- **Community 7** – *Eucalyptus albens* [White Box] Community;

- **Community 8** – *Eucalyptus populnea* subsp. *bimbil* [Bimble Box] – *Eucalyptus melliodora* [Yellow Box] - *Eucalyptus albens* [White Box] Woodland Community; and
- **Community 9** - Degraded *Austrostipa aristiglumis* [Plains Grass] Grassland.

The mine is located wholly within Community 1 and therefore two quadrats are established within the mine site to monitor ground cover and other vegetation changes in the area. Quadrat 1 is located in the north-eastern corner of the site and Quadrat 2 is located western corner of the site.

Additional quadrats will be established on the mined area once rehabilitation is complete. Once these plots are established, monitoring campaigns may be carried out to measure the performance of rehabilitation on a progressive basis.

3.7 Threatened Fauna

Investigations into the occurrence of threatened fauna within the Project Approval Area were undertaken by Kevin Mills and Associates as part of the Environment Assessment, following surveys conducted in September 2006. These investigations identified that the proposed development was unlikely to significantly affect any of the threatened species, fauna populations or communities listed under the *Threatened Species Conservation Act 1995*, or their habitats.

It was also concluded that development of the mine was not likely to have a significant impact on any matter of national environmental significance listed under the *Environment Protection and Biodiversity Conservation Act 1999*. Referral to the Commonwealth Minister for the Environment for assessment and approval was therefore not warranted.

The area surrounding the mine site supports a viable Koala population. NMPL has committed to a number of measures to minimise the impacts on this population, including:

- Relocating the southern section of Coocooboonah Lane to avoid disturbing remnant Koala habitat;
- Erecting a Koala-proof fence around the active mine area;

- Minimising clearing and utilising local tree species for revegetation with an emphasis on Koala feed trees. This has continued since the last reporting period with 760 Koala feed trees planted, consisting of White Box, Yellow Box, Bimble Box and Kurrajong species planted in the koala corridor enhancement area on the mine site.

The initial fauna quadrat establishment was undertaken in November 2010 by Dr Leong Lim (Countrywide Ecological Services), where two grassland monitoring plots were established. Since establishment, roof tiles have been scattered throughout the quadrats to enhance the ground habitat structure and provide refuges for the ground fauna. The establishment of two woodland plots to the south of the active mining area occurred in February 2011, during a monitoring campaign. These plots are placed in open woodland, and open woodland with grassy understory communities.

During the February 2011 monitoring event the four established plots were monitored with a follow up monitoring campaign occurring in April 2011. The two campaigns recorded a number of Birds, Mammals, Amphibians and Reptiles in close proximity to the Sunnyside mine, confirming the Sunnyside has not had any major impact on the surrounding fauna populations to date. A spring monitoring campaign is scheduled for the next reporting period.

Two rehabilitation plots will be established once rehabilitation areas are further developed, with further detail on the success of rehabilitation will be provided in subsequent AEMRs.

3.8 Weeds

3.8.1 Management

Weed management within the ML area involves targeted monthly inspections to determine levels of weed infestation. Weed control is undertaken by contractors or Whitehaven's own qualified personnel. All persons involved with weed control hold required chemical handling certificates.

3.8.2 Performance

Sunnyside Coal Mine has not experienced any major weed issues during the reporting period. Minor ongoing weed management comprised spot spraying of Bathurst Burr, Galvanised Burr, Mexican Poppy and general weeds along the haul road and around the office facilities. Slashing was undertaken between planted tube stock in the eastern koala corridor, for the control of Flaxleaf Fleabane.

3.9 Blasting

3.9.1 Blast Criteria and Control Procedures

3.9.1.1 *Blast Criteria*

Blasting criteria for the Sunnyside Coal Mine is nominated in Project Approval PA 06_0308 (Appendix 1), and Condition L5 of Environment Protection Licence 12957 (Appendix 2) and specify that:

- Blasting must only be carried out between 10:00 am and 5:00 pm, Monday to Friday, 10:00am to 2:00pm on Saturdays and at no time on Sundays or Public Holidays.
- 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 residence on privately-owned land.
- 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 residence on privately-owned land.

PA 06_0308 also specifies that the mine shall not carry out more than:

(a) 2 blasts a day; and

(b) 5 blasts a week, averaged over a 12 month period.

3.9.1.2 *Control Procedures*

Flyrock, air vibration, ground vibration and dust from blasting are controlled using a combination of blast 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 18 blasts were initiated. Of the 18 blasts initiated, 3 of the blasts did not perform as expected, exceeding the overpressure criteria of 115.0dBL on each occasion. These blasts are detailed below:

3rd May 2011

On the 3rd May 2011, during blast 28, an exceedance of the overpressure criteria of 115.0dBL was recorded at monitoring points "Innisvale" (128.8dBL), "Plain View" (120.6dBL) and "Illili" (120.3dBL). The nearby property "Ferndale" was also monitored due to landholder concern and recorded 124.0 dBL. A full investigation into the cause of the overpressure exceedance was carried out by the blasting contractor Orica, and identified a design fault to be the cause in the overpressure exceedance. Three main factors were identified in the blast design that was found to be the cause of the overpressure exceedance. These included:

- Holes having a lower than recommended stemming height and pocket charges which was done in an attempt to reduce oversize;
- The row in which the ejection occurred had groups of 2 holes initiating very close together in time and space;
- The area in which the ejection occurred was double stitched, giving a high powder factor close to the surface where the holes converge.

25th June 2011

On the 25th June 2011, during blast 31, a minor exceedance of the overpressure criteria of 115.0dBL was recorded at monitoring point "Plain View", recording 115.9dBL. An investigation into the cause of the overpressure exceedance was carried out by the blasting contractor Orica.

It was identified though the blast video and an analysis of blast monitor data, that there was no stemming ejection or face burst, and that the cause of the overpressure exceedance was face movement. The following recommendations were made by Orica:

- Future designs where stand up blasts are to occur should be vertical holes, with the initiation through the centre of the blast
- If initiation is through the free face then avoid the use of fast timing that promotes forward movement of the blast
- Consideration of using soft start or deliberate slowing of lead holes when initiating through the free face

25th October 2011

On the 25th October 2011, during blast 38, a minor exceedance of the overpressure criteria (115.0dBL) was recorded at monitoring point "Plain View" (115.1dBL). An investigation into the cause of the overpressure exceedance was carried out by the blasting contractor Orica.

It was identified though the blast video that a series of cratering events (blow-outs) starting near the point of initiation was the root cause of the overpressure exceedance. These cratering events were caused by high energy, and low burden at the point of initiation. Some blast holes had inadequate stemming. The following recommendations were made by Orica:

- Train Technical Services Engineers in the use of the face profile and blasthole measurement holes as well as loading of face holes so that each blast is designed with appropriate charges to control overpressure.

- Increase the stemming length in holes to 3.8m and ensure adequate burden is present, which should control the overpressure from ejection and cratering.

- Use end blast initiation when blasting in circumstances (environmentally) where overpressure is likely to be a problem.

All parties, including DoPI, OEH and affected landholders have been notified of these exceedances.

Two nearby properties – "Illili" and "Ferndale" have had structural engineering assessments in October 2011, in a response to landholder concern. These assessments were carried out by a qualified structural engineer to investigate the possibility of blasting impacts on the dwellings since mining has commenced, including cracking defects. Both properties had initial pre-blast inspections in November 2008. Upon completion of these inspections in October 2011, it was found that defects present in both dwellings were not considered to be caused by blasting at the Sunnyside Mine.

Whitehaven are working closely with the blasting contractor Orica on the improvement of future blasts at Sunnyside. Orica have committed to additional blast design procedures to ensure correct blast design reduces the likelihood of future overpressure exceedances. Whitehaven continually liaise with all affected landholders in relation to blast impacts and concern.

The maximum recorded peak overpressure recorded during the reporting period was 128.8 dBL at "Innisvale" on the 3rd May 2011.

The maximum recorded ground vibration during the Reporting period was 1.92 mm/s recorded at "Plain View" on the 25th June 2011. This is well inside the consent criteria of 5 mm/s.

All blast monitoring results for the reporting period, including the time of initiation has been included in Appendix 6.

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 12957 as applicable to the Sunnyside Coal Mine, are as follows.

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

(a) an $L_{10(15minute)}$ noise emission criterion of 40 dB(A) during initial construction period; and

(b) an $L_{Aeq(15\ minute)}$ noise emission criterion of 35 dB(A) at all times (day, evening and night time periods).

L6.2 (Provides definitions)

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 *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.

3.10.1.2 *Consent Criteria*

Noise emission criteria nominated in Project Approval PA 06_0308 (Condition Schedule 3(2) and Schedule 3(3)) is as follows:

3(2) The Proponent shall ensure that the noise generated during the construction of the project does not exceed the level set out in Table 1.

Table 1: Construction noise impact assessment criterion dB(A)

Day/Evening $L_{A10(15\ minute)}$	***Land***
40	*Any residence on, or more than 25% of, any privately owned land (except at "Lilydale")*

3(3) The Proponent shall ensure that the noise generated during mining operations and other activities on the site does not exceed the level set out in Table 2:

Table 2: Operational noise impact assessment criterion dB(A)

Day $L_{Aeq(15\ minute)}$	***Land***
35	*Any residence on, or more than 25% of, any privately owned land (except at "Lilydale")*

However, if the Proponent has a written negotiated noise agreement with the landowner of any land, and a copy of this agreement has been forwarded to the Department and DECC, then the Proponent may exceed the noise limits in Table 1 or Table 2 on that land in accordance with the negotiated noise agreement.

3(6) The Proponent shall implement all reasonable and feasible measures to ensure that the traffic noise generated by the project combined with the traffic noise generated by other mines does not exceed the level in Table 4:

Day/Evening $L_{A1eq(1\ hour)}$	***Road***
55	*Any residence adjacent to Torrens Road*

Note: Traffic noise generated by the project is to be measured in accordance with the relevant procedures in the DECC's Environmental Criteria for Road Traffic Noise.

3.10.2 Control Procedures

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

- 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, e.g. 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.

Sunnyside Coal Mine 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*

The Noise Monitoring Program details the requirements for attended noise monitoring for construction, transport and operational noise associated with the Sunnyside Coal Mine. The noise monitoring sites are identified on Figure 3.

The following sub-sections present a summary of the outcomes of each monitoring event. Copies of all monitoring reports are presented in Appendix 7.

3.10.3.2 *February 2011 Noise Monitoring*

On the 8th February 2011 attended noise monitoring was undertaken at “Illili” (R4), “Ferndale” (R5), “Plain View” (R6), “Lilydale” (R9) and “Glendower” (R15). “Ivanhoe” (R2) was not recorded as the property is not permanently occupied and access is generally unavailable. Spectrum Acoustics reported that mine noise was below the criterion of 35 dB(A) or inaudible at all monitoring locations during the day and evening monitoring events.

In addition to the site noise monitoring, traffic noise from the transport trucks was measured at the “Roslyn” property on Torrens Lane, near the CHPP, over a one hour

period. The noise levels from 19 trucks (7 full, 7 empty and 5 other heavy vehicles) passing the site were measured from 11:05am on the 9th February 2011. The measured Leq noise level from mine vehicles was 54 dB(A), below the noise criterion of 55 dB(A) Leq (1 hour).

3.10.3.3 *May 2011 Noise Monitoring*

On the 19th May 2011 attended noise monitoring was undertaken at "Illili" (R4), "Ferndale" (R5), "Plain View" (R6), "Lilydale" (R9) and "Glendower" (R15). "Ivanhoe" (R2) was not recorded as the property is not permanently occupied and access is generally unavailable. Spectrum Acoustics reported that mine noise was below the criterion of 35 dB(A) or inaudible at all monitoring locations during the day and evening monitoring events.

The product coal from the Sunnyside mine is transported by road trucks to the Whitehaven CHPP, near Gunnedah. At the time of monitoring the transport of coal was on a campaign type basis with no transport from Sunnyside at the time of monitoring and therefore monitoring of road noise could not be undertaken.

3.10.3.4 *August 2011 Noise Monitoring*

On the 4th August 2011 attended noise monitoring was undertaken at "Illili" (R4), "Ferndale" (R5), "Plain View" (R6), "Lilydale" (R9) and "Glendower" (R15). "Ivanhoe" (R2) was not recorded as the property is not permanently occupied and access is generally unavailable. Spectrum Acoustics reported that mine noise was below criteria or inaudible at all monitoring locations during daytime monitoring.

- Mine noise exceeded the noise criterion of 35 dB(A) Leq (15 min) at the "Plain View" (37 dB(A)) and "Lilydale" (36 dB(A)) monitoring locations during the evening. The mine noise at both "Lilydale" and "Plain View" consisted of haul truck engine revs, dozer engine and track noise and general mine hum. Mine noise was below criteria or inaudible at all other monitoring locations. Upon investigation of the meteorological conditions it was found that a temperature inversion was present. This is thought to have amplified mine noise at the two monitoring points. Lilydale is mine owned residence. "Plain View" is privately owned and Whitehaven has indicated to the landholders an intention to discuss options for a noise agreement. It is proposed to discuss the possibility of an agreement with the landholder in the immediate future.

Additionally on the 5th August 2011 at 8:05 am, traffic noise was measured at the "Roslyn" property on Torrens Lane, near the CHPP. A total of 8 heavy vehicles travelled along Torrens Lane during the monitoring period. These consisted of 4 full and 4 empty coal haulage trucks. Over the approximate 1 hour monitoring period the measured Leq noise level from vehicles on Torrens Lane was 51.66 dB(A). This is below the noise criterion for a local road of 55 dB(A) Leq (1 hour).

3.10.3.5 *November 2011 Noise Monitoring*

On the 7th November 2011 attended noise monitoring was undertaken at "Illili" (R4), "Ferndale" (R5), "Plain View" (R6), "Lilydale" (R9) and "Glendower" (R15). "Ivanhoe" (R2) was not recorded as the property is not permanently occupied and access is generally unavailable. Spectrum Acoustics reported that mine noise was below criteria or inaudible at all monitoring locations during the day and evening monitoring events.

On the 7th November 2011 from 5:00 pm traffic noise was measured at the "Roslyn" property on Torrens Lane, near the CHPP. Over a one hour period, a total of 6 heavy vehicles travelled along Torrens Lane. These consisted of 4 full and 1 empty coal haulage trucks and one fuel truck leaving site. The measured Leq noise level from vehicles on Torrens Lane was 50.7 dB(A) Leq (1 hour). This is in compliance with the noise criterion for a local road of 55 dB(A) Leq (1 hour).

The two noise exceedances recorded during the reporting period (from one monitoring event on the 4th August 2011) compare favourably to the four noise exceedances recorded in the previous 12 months. One of the exceedances was recorded at the project related property "Lilydale" and therefore the exceedance at "Plain View" is the only exceedance recorded at a private residence.

As the Sunnyside pit has developed, more in-pit dumping has occurred as the northern emplacement area has reached its maximum elevation. This in-pit dumping has reduced noise impacts on surrounding properties, with the northern emplacement area acting as a noise buffer between the active pit and the surrounding properties.

With regard to the noise exceedance at "Plain View" on 4th August 2011, although inversion conditions were present, to reduce the likelihood of any future noise

impacts, a private agreement will be sought with the landholders during the coming reporting period.

3.11 Visual, Light

3.11.1 Management

Light from the Sunnyside Coal Mine is visible from the Oxley Highway, Quia Road and Coocooboonah Lane, particularly during the winter months. The most affected residences are “Lilydale” (project related), “Ferndale”, “Illili”, “Glendower” and “Plain View”. General lighting at night is restricted to the workshop and office facilities. There are currently 6 lighting plants in use. These plants run within the operating hours of up to 10pm Monday to Friday and 6pm on Saturdays. The lights are generally directed away from surrounding residences, where possible. No issues or complaints have been received by the mine in regards to the use of lighting plants to date.

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;
- Construction of amenity bunds on the northern and eastern boundaries of the mine site;
- Progressive rehabilitation of disturbed areas; and
- Sympathetic positioning and direction of lights to avoid impacting on local residences.

3.11.2 Performance

Sunnyside Coal Mine did not receive any complaints during the reporting period which related to visual or light impacts.

The eastern amenity bund was designed to reduce the visual impacts at the "Lilydale" property to the east of the mine. Although "Lilydale" is mine owned the bund provides an effective screen to all residences east of the mine.

The northern amenity bund continues to reduce visual impacts from Coocooboonah Lane and neighbouring properties. The bund has well established pasture and reduces impact from the coal stockpile and the coal load out bin.

All practicable measures are taken to minimise impacts on surrounding landholders, whilst ensuring safe operations at the mine site, and Sunnyside Coal Mine will endeavour to address any issues or concerns which may be raised by landholders in the future.

3.12 Aboriginal Heritage Management

3.12.1 Sites Management and Performance

An assessment of the cultural heritage of the mine site was conducted by Archaeological Surveys and Reports Pty Ltd (ASR). Prior to the investigation, ASR contacted the Red Chief Local Aboriginal Land Council (LALC) and Bigundi Biame Gunnedarr Traditional People to arrange for site officers to assist in the survey. A representative from each group was present for the site survey conducted on the 12th September 2006 and the coal transport route survey on the 7th December 2006. The ASR assessment was used in the preparation of the Environmental Assessment for the mine, undertaken by R.W. Corkery & Co. Pty Ltd on behalf of Namoi Mining Pty.

Four sites were recorded during the investigation, as detailed in Table 8. Only one site (AGG1) was recorded within the mine site while the three isolated artefact sites were identified to the south of the mine site.

Table 8 - Aboriginal Artefacts

Site Name	Site Type	Site Description/Comments
Sunnyside AGG1	Axe Grinding Groove	Axe grinding groove at the rim of a cliff-like scarp (beside a small water-filled natural depression in the rock). Dimensions: 28cm (L) x 6cm (W) x 2cm (D). Located approximately 150m from the southern side of the open cut area.
Sunnyside ISO1	Isolated Artefact	Flake with possible retouch to one margin located on the bank beside the upper reaches of a dry creek (on a vehicle track). Dimensions: 21 x 12 x 3mm
Sunnyside ISO2	Isolated Artefact	Proximal fragment of a flake located on the bank beside the upper reaches of a dry creek. Dimensions: 22 x 22 x 5mm.
Sunnyside OS1	Artefact Scatter	Artefact scatter of at least ten artefacts in a lozenge-shaped area of 30 x 8m, on the upper slopes down slope of a contour bank down slope of a saddle. Artefact types: flakes and flaked pieces, including a backed blade.
Source: Modified after ASR (2007) – EA SCSC Part 7		

All Aboriginal Heritage sites are managed in accordance with the Sunnyside Coal Mine Aboriginal Cultural Heritage Management Plan, prepared in accordance with Condition 3(32) of PA 06_0308. The specific management measures for each of the identified sites are as follows:

AGG1

Although the site will not be directly impacted upon by mining operations and associated facilities, there is some potential for indirect impact from fly-rock as the site is located approximately 150 m from the extent of open cut operations.

In consultation with the relevant Aboriginal groups, it was determined that the site requires measures to ensure it is not damaged from flyrock. This has been achieved by the covering of the site with a straw blanket.

Sites ISO1, ISO2 and OS1

Each of these artefact sites are located outside the site boundary and more than 500m from any mining related activity. On this basis no specific protection mechanisms are considered necessary.

In the event that additional protective measures are required in the future, Sunnyside Coal Mine will initiate such actions in consultation with local Aboriginal groups and the OEH.

3.12.2 Consultation

Sunnyside Coal Mine, through the soil stripping contractor, regularly consults with representatives of the local Aboriginal community. In accordance with the agreement with the representative aboriginal groups, notification of planned topsoil stripping is provided by the soil stripping contractor or the environmental officer directly to the nominated Aboriginal 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.

No cultural material of significance was identified during the one soil stripping campaign in July 2011. To date, the measures in place to protect Aboriginal Cultural Heritage are considered satisfactory, with all measures identified in the EA 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 Project Approval Area and hence, no specific management procedures are required.

3.14 Spontaneous Combustion

3.14.1 Management

Sunnyside Coal Mine is located within the Hoskissons Coal Seam which has been mined for over 120 years with a number of reported outbreaks of spontaneous combustion. Tests have confirmed that coal from the Sunnyside Coal Mine has the potential to spontaneously combust. On this basis, a Spontaneous Combustion Management Plan has been developed to prevent and manage spontaneous combustion issues.

In the event of spontaneous combustion, Sunnyside Coal Mine 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

Sunnyside Coal Mine is located within an area of cleared agricultural land. The mine maintains fire fighting equipment as well as earthmoving equipment and a water truck which could be used in the control of fires. Sunnyside personnel also liaise with the local (Coocooboonah) Rural Fire Service, as required.

3.15.2 Performance

There have been no bushfire incidents on or adjacent to the mine site since development commenced.

3.16 Mine Subsidence

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

3.17 Hydrocarbon Contamination

3.17.1 Management

It is Sunnyside Coal Mine's objective that:

- All bulk hydrocarbons, i.e. fuel, oils, grease etc (both new and waste) retained at the mine be contained within bunded areas within the contained water management system as described in Section 2.9.2.
- 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 the mine's Hydrocarbon Management Plan.

3.17.2 Performance

Sunnyside Coal Mine'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.

3.17.3 Greenhouse Gas Emissions

Diesel Consumption

During the reporting period, a total of 2,956,941 litres of diesel fuel was used on site for mining related activity. Assuming an energy content of diesel fuel of 38.6GJ/kL, and using Table 3 of the "National Greenhouse Accounts (NGA) Factors" – July 2011, the estimated direct – scope 1, Greenhouse Gas Emissions including all CO_2 and non CO_2 gases are as follows.

Table 9 - GHG Emissions - Diesel Fuel

	Diesel Fuel Usage kL	Emission Factor T $CO_{2\text{-}e}$/kL	Equivalent Tonnes
GHG 2010/11	2,956	2.7	7,981

The site does not utilise electricity from the power grid, but via 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 2,565 t of explosives was used at Sunnyside Coal Mine. Assuming a conversion factor of 0.1778, it is estimated that blasting at the mine yielded 456 equivalent tonnes of CO_2.

Fugitive Emissions

ROM coal production is used to estimate fugitive emission factors. Based on 360,592 tonnes of ROM coal production during the reporting period and a conversion factor of 0.045 (from Table 7 of the "National Greenhouse Accounts (NGA) Factors" – July 2011), it is estimated that 16,226 tonnes of CO_2 were emitted during the reporting period.

Summary

A summary of calculated total CO_2 equivalent tonnes/year for the reporting period is provided in Table 10.

Table 10 - GHG Emissions Summary

Source	Calculated Total CO_2 Equivalent tonnes/year
Diesel	7,895
Explosives	456
Fugitive Emissions	16,226
TOTAL	**24,577**

The potential for reducing greenhouse gas emissions at Sunnyside 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.

Sunnyside Coal Mine is committed to a reduction in emission levels as a result of operations at the mine site. As part of this process, the mine continues to operate a newer fleet of new Caterpillar rear dump trucks which burn less diesel fuel as compared to older trucks with the same capacity. Fuel burn during the reporting period was approximately 8.2 litres/tonne ROM coal as compared to 6.5 litres/tonne ROM coal in the previous reporting. This slight increase in fuel burn is due to the increase in ROM coal production since the last reporting period and need to move more overburden as the active pit moves into the rising topography.

Sunnyside's Energy Savings Action Plan predicted diesel use for the third year of production to be 3,665,372 litres, although production levels have increased since the last reporting period, Sunnyside burnt less diesel and as a consequence produced less greenhouse gas than predicted. This is attributable to the lower ROM coal production for the period than that was predicted in the Mining Operations Plan (MOP).

Whitehaven reported greenhouse gas emissions for the Whitehaven Group (including Sunnyside) for the 2010/2011 financial year via the Federal Government's National Greenhouse and Energy Reporting Scheme (NGERS). Reporting was undertaken in October 2011 and will continue in subsequent years.

3.18 Methane Drainage / Ventilation

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

3.19 Public Safety

3.19.1 Management

The Sunnyside Coal Mine is located wholly on NMPL owned land in a relatively remote area. The northern boundary of the mine site is adjacent to Coocooboonah Lane, an unsealed road used by local traffic only. The site is fenced and appropriate signs have been installed. The access gate is locked when the mine is not operating.

Visitors to the mine are required to report to the mine office, where a site sign in register is in place 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 Sunnyside 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, Sunnyside 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 II, II and VII. These areas will continue to be disturbed over the life of the approved mine.

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 Project Approval area will, in the main, be returned to a classification similar to that prior to mining. Sections of the waste emplacement will be returned to Class IV whilst the depression formed by the re-shaped final void will be Class VIII.

3.22 Meteorological Monitoring

3.22.1 Introduction

The Sunnyside meteorological station, shown on Figure 3, has been operating continuously since 2007 recording 15 minute wind speed, wind direction, temperatures, humidity and rainfall.

Daily meteorological data for is presented in Appendix 8.

3.22.2 Rainfall

Rainfall data from the previous 12 months is presented in Table 11 and Figure 6. Full station data is presented in Appendix 8.

Table 11 - Rainfall Data
(December 2010 – November 2011)

Month	Monthly Rainfall Reporting period	Long Term Average Rainfall*[1]	Rain days Reporting period	Long Term Average Rain days*[1]
December 2010	159.4	70	11	6
January 2011	99.4	71.1	6	5.6
February 2011	44.2	66.5	5	5.1
March 2011	33.6	47.9	7	3.9
April 2011	31.8	37.6	6	3.4
May 2011	30.4	42.5	4	4.1
June 2011	8.6	43.6	5	4.8
July 2011	2.6	42.4	1	4.8
August 2011	20.8	41.4	6	4.8
September 2011	89.4	40.3	5	4.5
October 2011	74.6	55.5	7	5.4
November 2011	148.8	62.5	7	5.7
TOTAL	**743.6**	**621.3**	**70**	**58**

* Gunnedah Pool (Station 055 023) averages from 1876-2011.

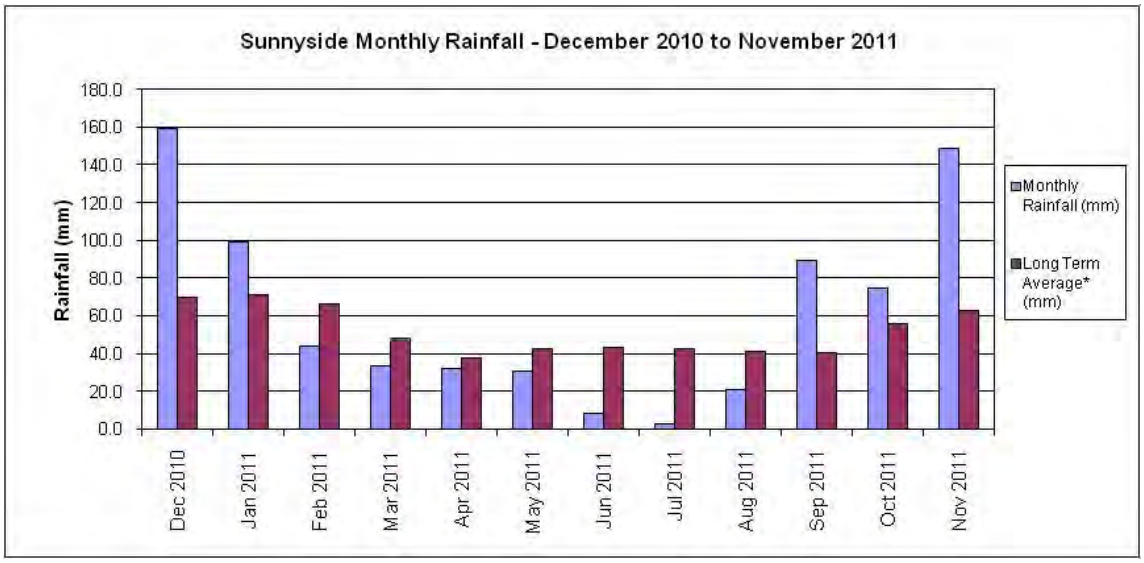

Figure 6 - Monthly Rainfall Data

A review of Table 11 and Figure 6 shows that the total rainfall at the mine during the reporting period was 743.6mm. The total rainfall recorded at the site was 122.3mm higher than the annual average rainfall for Gunnedah and 43mm higher than the previous reporting period. Above average falls occurred in the warmer months with December 2010 and November 2011 recording 308.2mm for the period. Below average rainfall was recorded for 7 months of the year, in particular the colder months with June and July 2011 recording a total of 11.2mm of rain.

A high number of rain days (falls equal or above 1mm) occurred during the reporting period, where it exceeded the annual average by 12 days. Monthly rain day averages was exceeded in every month except July.

3.22.3 Temperature

Average maximum and minimum temperatures for the reporting period are presented in
Table 12 together with long-term monthly averages for Gunnedah Pool (Bureau of Meteorology Station 055023).

Table 12 - Average Monthly Temperatures (December 2010 – November 2011)

Month	Average Daily Temperature			
	Reporting period (°C)		Station 055023 (Gunnedah Pool)* (°C)	
	Min	Max	Min	Max
December 2010	16.7	28.4	16.8	32.9
January 2011	19.1	33.6	18.4	34.0
February 2011	19.7	33.9	18.1	32.9
March 2011	13.3	31.1	15.8	30.7
April 2011	11.1	26.3	11.4	26.4
May 2011	5.2	20.9	7.1	21.3
June 2011	3.7	17.8	4.3	17.6
July 2011	1.4	17.3	3.0	16.9
August 2011	4.9	20.7	4.2	18.9
September 2011	5.9	23.9	7.0	22.8
October 2011	10.8	24.5	10.7	26.7
November 2011	15.6	29.5	14.2	30.3

* Gunnedah Pool (Station 055 023) averages from 1876-2011.

Table 12 shows that:

- Average minimum temperatures at the mine site were above the Gunnedah average for the 3 months of the reporting year, with 9 months similar to or below the Gunnedah averages.
- Average maximum temperatures were similar to Gunnedah averages for 8 months of the year. Lower than average temperatures were recorded in December 2010 and October 2011, higher than average temperatures were recorded in July, August and September.

3.22.4 Wind Speed and Direction

Fifteen minute average wind speed and direction data is collected from the 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.

Monthly wind roses are presented in Appendix 8, and show the following:

- The predominant wind direction during the reporting period was from the east/south-east, and upon review of previous years, is a common trend.
- Wind speeds were generally in the range of 1-5m/s, with gusts greater than 5m/s, which is common at Sunnyside.
- Westerly and north-westerly winds, often at speeds greater than 5m/s, were more prevalent in September and November 2011, these winds generally occur in the warmer months at Sunnyside.
- July was dominated by south-west and south easterly winds, these winds generally occur in the winter months at Sunnyside.

3.22.5 Inversions

Sunnyside's meteorological station is fitted with temperature sensors at 2m and 10m intervals to assist in the determination of inversion conditions. Meteorological data was used to identify inversion conditions which were present during recorded noise exceedances in August 2011 (see Section 3.10.3).

4 COMMUNITY RELATIONS

4.1 Environmental Complaints

Sunnyside Coal Mine 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”.

Four complaints were received during the reporting period in relation to operations at Sunnyside Coal Mine. One complaint was received during Community Consultative Committee (CCC) meetings, two complaints were received via the designated complaints line and one complaint was received directly to the project manager. The nature of the complaints, details and responses to each complaint are presented in Table 13.

Table 13 - Complaints Summary

Date/Time of Complaint	Nature of Complaint	Investigation	Action Taken / Follow-up
22nd December 2010 2:34pm	Complaint in relation to truck noise and obeying road rules during coal haulage from Sunnyside.	The Project Manager advised complainant he would discuss the matter with the contract truck driver. The Environmental Manager requested the Toll Project Manager address the matter with the contractor and ensures drivers obey road rules, particularly in terms of stopping and giving way as required, as well as limiting the use of exhaust braking, especially in proximity to residences.	The Project Manager spoke to the driver in question and reiterated the requirement to obey road rules and limit use of exhaust brakes.
5th May 2011 7:15am	Complaint in relation to blast conducted on Tuesday 5th May 2011 and impacts on his residence. The complainant described the blast as the worst he has encountered, not having felt Sunnyside blasts previously.	It was explained to the complainant that the blast did not go as expected and that Orica were instructed to complete an investigation. The outcome of the Orica investigation was discussed, including the identification of a fault in blast design which led to the enhanced overpressure felt at his property. It was also explained that monitors at adjoining properties had confirmed an exceedance in blast compliance criteria, and that advice had issued to the DoPI and OEH. The complainant asked how it was possible for the blasting experts to get it so wrong and was advised that Whitehaven would work closely with Orica Blasting Services to ensure the potential for poor blast designs could be avoided in future.	No follow up required.
1st June 2011 3:45pm	Complaint in relation to a blast on the 9th of April. Although he wasn't at home at the time of the blast on the 9th April 2011 he was advised by a neighbour that it was a damaging blast.	Whitehaven advised that the blast had not exceeded criteria and that blast monitor results would be provided at the next CCC meeting.	Monitor results were provided at CCC meeting in September 2011.
11th August 2011 3:10pm	Complaint was in relation to the blast on 11 August, which shook the complainant's house. He described it as 2/3 as bad as the shot that he complained about previously. Believed Orica to be deficient in their blast practices as this is the second event in the last 4 months.	Complainant was advised that at the time Whitehaven did not have the monitoring results available but would investigate his concerns once they were available. On review of monitoring data, all monitoring locations were well below the blasting limits with the highest overpressure recorded being 105.9dBL at "Plain View" and the highest vibration being 0.7mm/s, also at "Plain View".	Written advice was issued to the complainant confirming the blast was within allowable limits.

Date/Time of Complaint	Nature of Complaint	Investigation	Action Taken / Follow-up
		These results indicated the blast performed as expected. Review of the video of the shot also did not indicate any significant ejection from the blast. The blast had already been delayed from 10:00am that day due to unfavourable weather conditions and the shot was taken at a time more conducive to blasting.	

Any complaints that are made are reported to the Community Consultative Committee and documented in the AEMR as shown above. Last reporting period, two complaints were recorded, compared to four for this reporting period. It is evident from the nature of complaints received that there is a general concern relating to blasting at the Sunnyside operation. Blasting performance and management is addressed in Section 3.9.

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 15 full-time and 4 part-time personnel. Mining contractor MMG, which assists in mining and maintenance, had an average of 8 fulltime casual staff onsite. In addition personnel were employed by contractors in the haulage of coal from the mine site back to the Whitehaven CHPP. All Namoi Mining employees reside in the Gunnedah region.

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. Namoi Mining Pty Ltd has contributed over $150,000 to the community during the reporting period. Whitehaven also contributes to the annual maintenance of the haul roads for this mine.

Whitehaven also contributes to the provision of cadetships and vacation work to a number of young students from the regional area who study at various universities.

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 9 of Schedule 5 of PA 06_0308 a Community Consultative Committee (CCC) was formed in January 2009. The committee, which meets on a quarterly basis, comprises representatives of Gunnedah Shire Council, Sunnyside Coal Mine and the community and is chaired by Mr Michael Broekman.

During the reporting period meetings were held on the 1st December 2010, 2nd March 2011, 1st June 2011 and 14th September 2011.

Sunnyside Mine representatives and Whitehaven's Community Liaison Officer continue to maintain regular personal contact with the neighbours in the vicinity of the mine. These contacts not only provide a means of information dissemination, but also enable Whitehaven to ascertain and address any potential issues which may arise from time to time.

Community organisations and other local businesses 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.

5 REHABILITATION

5.1 Buildings

No removal of buildings was undertaken over the reporting period.

5.2 Rehabilitation of Disturbed Land

5.2.1 Objectives

Sunnyside Coal Mine's rehabilitation/land use objectives for the mine site are as follows:

(a) Areas affected by mining – short term

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

(b) Areas affected by mining – long term

(i) Creating a low maintenance, geotechnically stable and safe landform which is commensurate with the agricultural and nature conservation land uses on and around the mine site;
(ii) Blending of the final landform with the surrounding topography such that the visual impact of the post-mining landform is minimised; and
(iii) Re-establishing 100ha of agricultural land over the areas disturbed by the mine with approximately 16ha of land rehabilitated to a woodland vegetation community.

(c) Areas to be unaffected by mining

(i) Stock exclusion through fencing of the entire mining lease. This includes areas disturbed and rehabilitated with native vegetation and existing agricultural land fenced to exclude stock and allowed to naturally revegetate.

5.2.2 Achievements During the Reporting Period

Table 14 and Table 15 present a Rehabilitation Summary and listing of maintenance activities as required in the DMR Guidelines. Areas disturbed during the previous reporting period now have well established pasture cover, as shown in Plate 2 showing the results of seeding in May 2011, on the north east area of the emplacement area.

Rehabilitation works have commenced on the upper batter of the north western section of the waste emplacement, as identified Plate 3. Approximately 5 hectares of this area has had contour banks installed to assist drainage and to prevent erosion. The area has also been seeded with a pasture mix consisting of Bambatsi Panic, Japanese Millet, Premier Digit, Arrowleaf Clover and Green Panic. The area was mounded with a specialised mounding implement, with the mounds having two main purposes; to promote tree growth by providing a suitable earthen mound and to prevent erosion by capturing and slowing water runoff on the slope. This captured water inevitably waters the planted trees within the furrow below the mound.

For the development of woodland on rehabilitated areas, 1,000 trees have been planted at Sunnyside during late spring and early summer of 2011 planting campaigns. The primary areas targeted were the north and north eastern emplacement areas. Mixes of Eucalypts, Ironbark, Kurrajong and a range of understory wattles were planted.

In addition to this, works have continued on providing for enhancements to the koala habitat in the area; with additional plantings of 760 koala feed tree species during June 2011.

Plate 2 - Established Pasture on upper batter of waste emplacement

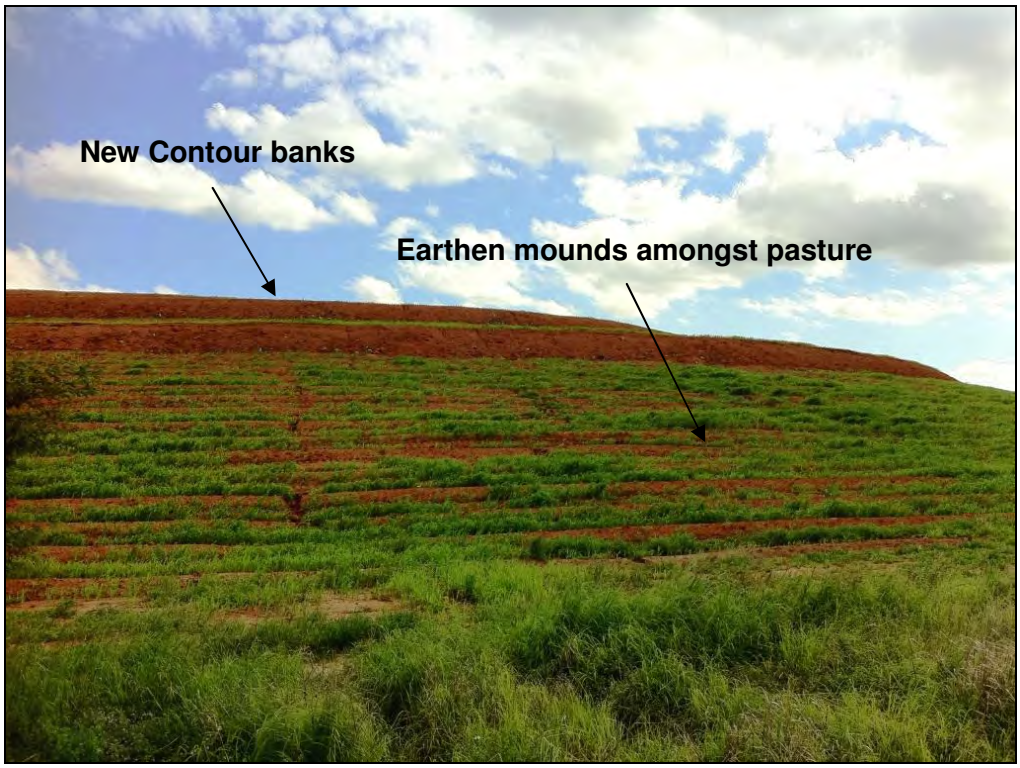

Plate 3 – Newly constructed contours, mounds and developing pasture

Table 14 - Rehabilitation Summary

	Area Affected (hectares)			
	This Report Period (as of 30.11.2011)	**Last Report Period (30.11.10)**	**Cumulative Next Report Period (estimated)**	
A: MINE LEASE AREA				
A1 Mine Lease(s) Area	233.9			
B: DISTURBED AREAS				
B1 Infrastructure area (other disturbed areas to be rehabilitated at closure including facilities, roads)	9	11.8	9	
B2: Active Mining Area (excluding items B3 - B5 below)	30.6	26.3	30	
B3 Waste emplacements, (active/unshaped/in or out-of-pit)	25.8	16.8	35	
B4 Tailings emplacements, (active/unshaped/uncapped)	N/A	N/A	N/A	
B5 Shaped waste emplacement (awaits final vegetation)	0	1.6	5	
ALL DISTURBED AREAS	65.4	56.5	79	F1
C REHABILITATION PROGRESS				
C1 Total Rehabilitated area* (except for maintenance)	22.6**	14.38**	30	F2
D: REHABILITATION ON SLOPES				
D1 10 to 18 degrees	7.67	2.4	10	
D2 Greater than 18 degrees	0	0	0	
E: SURFACE OF REHABILITATED LAND				
E1 Pasture and grasses	22.6**	14.38**	30	
E2 Native forest/ecosystems*	1	0	4	
E3 Plantations and crops	0	0	0	
E4 Other (include non vegetative outcomes)	0	0	0	

* 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.

** Includes area for northern and eastern amenity bunds

Table 15 - Maintenance Activities on Rehabilitated Land

NATURE OF TREATMENT	Area Treated (ha)		
	Report period	**Next period**	**Comment/control strategies/ treatment detail**
Additional erosion control works (drains re-contouring, rock protection**)**	Nil	1	Some minor erosion repairs to be carried out on rehabilitated waste emplacement, areas will be re-profiled and re-seeded.
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	~3	Re-seeding of grass and clover species in areas on a needs basis.
Adversely Affected by Weeds (detail - type and treatment)	6	2	Flaxleaf Fleabane to be controlled through slashing and herbicides.
Feral animal control (detail - additional fencing, trapping, baiting etc)	Nil	Nil	

5.3 Rehabilitation Monitoring and Performance

Rehabilitation is monitored through monthly environmental inspections, in accordance with the approved Rehabilitation and Landscape Management Plan. Monitoring of rehabilitation efforts is completed through the inspection of ground cover, trees and the presence of erosion and weeds. As woodland establishment has recently taken place, the placement of rehabilitation control plots for detailed monitoring will take place during the next reporting period.

In terms of the rehabilitation that was completed this period, a good cover was achieved on the reshaped upper batter of the waste emplacement as a consequence of the planting timing with the above average rainfall during the warmer months. The trees that were planted for woodland establishment have shown a good growth and survival rate.

6 CONTINUOUS IMPROVEMENT AND TARGET INITIATIVES

6.1 Objectives

Namoi Mining 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 Project Approval.

6.2 Achievements to Date

Achievements at the mine over this reporting period have included:

- The continued implementation of a working environmental management program and the establishment of culture of environmental awareness / responsibility within all levels of the workforce;
- Routine implementation of all relevant aspects of approved management plans;
- The establishment and maintenance of an open and honest relationship with the neighbours, community in general, regulatory authorities, Local Government and other groups such as the local Aboriginal community;
- Demonstration of adequate surface water controls through establishing drainage and sediment control structures, with no exceedance of water quality criteria during one discharge from site, despite above average rainfalls over the period;
- Commencement of pasture establishment rehabilitation on the upper slopes of the waste emplacement;
- Commencement of woodland establishment through tubestock plantation of the lower slopes of the rehabilitated waste emplacement;

- Continuation of koala habitat enhancement, with establishment of tubestock of koala feed tree species; and
- Continuation of monthly site environmental inspection that has allowed identification of any environmental issues requiring attention and the continual improvement of environmental performance on site.

6.3 Targets and Goals

- The ongoing development of rehabilitation of the reshaped out of pit overburden emplacement;
- Commencement of rehabilitation and the installation of surface water management structures on the plateau of the active waste emplacement:
- The continuation of development and maintenance of the koala habitat enhancement area;
- Continued development of woodland establishment on the rehabilitated waste emplacement;
- Continued community liaison, support and involvement / education in the mines activities;
- Compliance with all relevant conditions of the lease, licences and consents;
- Improved outcomes relating to noise impacts to minimise effects on surrounding neighbours;
- Improved outcomes relating to blasting impacts from site; and
- Development of a detailed Mine Closure Plan.