



Duralie Coal Mine Project Independent Environmental Audit



This Independent Environmental Audit was conducted to satisfy the requirement of Project Approval 08_0203 Schedule 5 condition 8, granted for the Duralie Coal Mine Project on 26 November 2010.

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Independent Environmental Audit

Duralie Coal Mine Project

November 2014

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by

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15 July 2015

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Abbreviations

AEMR	Annual Environmental Management Report
Annual Return	Annual Return required under the EPL No.11701
Annual Review	Review required under Project Approval 08_0203 Schedule 5 condition 3
ARTC	Australian Rail Track Corporation
BCA	Building Code of Australia
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
DCM	Duralie Coal Mine
DCPL	Duralie Coal Pty Ltd
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
DII	Department of Industry and Investment
Director-General	Director-General Department of Planning and Infrastructure, or delegate
DoP	Department of Planning
DP&E	Department of Planning and Environment (previously Department of Planning and Infrastructure until April 2014)
DP&I	Department of Planning and Infrastructure
DSC	Dam Safety Committee
EA	Environmental Assessment
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPL	Environmental Protection Licence
GLC	Great Lakes Council
ML	Mining Lease
Mine Water	Water that accumulates within active mining areas and mine drainage
Mining operations	Includes all coal extraction, processing, handling, storage and transportation activities on the Duralie Coal Mine Project site
NEPM	National Environmental Protection Measure
Minister	Minister for Planning, or delegate
Mitigation	Activities associated with reducing the impacts of the project
MOP	Mining Operations Plan
MWD	Main Water Dam
NOW	New South Wales Office of Water
ROM	Run-of-Mine
SEE	Statement of Environmental Effects
SMC	Stratford Mining Complex

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Appendix 1

Agency Consultation Letters

Executive Summary

The Independent Environmental Audit of the Duralie Coal Mine Project was conducted by Trevor Brown & Associates between 24 and 29 November 2014.

The audit conclusions indicated a generally high standard of compliance of the Duralie Coal Mine Project activities with the conditions of approval granted to the project under the Project Approval 08_0203, Environment Protection Licence 11701 and Mining Leases 1426 and 1646.

In summary the conclusions of the audit in relation to the environmental management components for the Duralie Coal Mine Project were:

Environmental Management Strategy (EMS)

Environmental Management Strategy Compliance Status: Compliant

The Environmental Management Strategy generally addresses the elements of ISO14001 and the requirements of Project Approval 08_0203 Schedule 5 condition 1, and provides a sound basis for the management of environmental aspects of the Duralie Coal Mine Project.

Noise

Noise Compliance Status: No non-compliances identified. (Five observations provided with recommendations for improvement of noise survey reporting).

Duralie Coal Mine Project is operating generally in compliance with Project Approval 08_0203 and associated documents with respect to its noise obligations. In relation to the EPA licensed monitoring locations (Woodley, Zulumovski, Mahony and Fisher-Webster), measured mine contributed noise emissions were consistent with predicted noise values in the Environmental Assessments for all locations.

Blasting

Blasting Compliance Summary: No non-compliances identified.

The Blast Management Plan provides best practice procedures for management of potential impacts from blasting operations at the Duralie Coal Mine Project. All Project Approval conditions related to blast management were found to be compliant.

Air Quality

Air Quality Compliance Status: No non-compliances were identified

The Air Quality and Greenhouse Gas Management Plan (AQMP-R02-E), required under Project Approval Schedule 3, Condition 23 has been implemented for the Duralie Coal Mine Project. The monitoring of dust has demonstrated compliance with the conditions of the Project Approval and Environment Protection Licence related to air quality.

Water Management

Water Management Compliance Status: No non-compliances were identified

The Surface Water Management Plan has a comprehensive water management system and monitoring program for the Duralie Coal Mine Project site. The surface water monitoring results did not demonstrate any significant changes in water quality in the natural waterways (i.e. Mammy Johnson River, Unnamed Tributary, Coal Shaft Creek) that would be attributable to the Duralie Coal Mine Project operations and activities during the 2011 to 2014 period. Occasional higher readings for parameters appeared to be related to periods of low rainfall and hence low flow conditions in the waterways, or following heavy rainfall where first flush waters conveyed suspended solids from upstream runoff.

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Irrigation

Irrigation Compliance Status: No non-compliances identified

Management of the existing irrigation system at the Duralie Coal Mine Project is generally consistent with the Irrigation Management Plan (2013) and appears to be sustainable based on irrigation monitoring results. On-site surface water monitoring results were consistent with predictions made in the Environmental Assessment (2010) and generally comply with the EPL criteria.

Erosion and Sediment Control

Erosion and Sediment Control Compliance Status: No non-compliances identified

The Erosion and Sediment Control Plan within the Surface Water Management Plan describes the design and construction of the erosion and sediment control structures in accordance with the recommendations for site drainage works presented in *"Managing urban storm water – Soils and Construction Volume 1"* (Landcom, 2004) and *"Managing urban storm water – Soils and Construction Volume 2e – Mines and quarries"* (DECC 2008). Observations of the sediment basins during this Independent Environmental Audit site inspections confirmed that the Duralie Coal Mine operations are well maintained in regard to erosion and off site sediment transport.

Groundwater

Groundwater Compliance Summary: No non-compliances identified

The Groundwater Management Plan presents a comprehensive monitoring program for groundwater quality and water table levels across the Duralie Coal Mine Project site. On basis of the groundwater monitoring results, the mine activities are not influencing groundwater quality. This is consistent with the groundwater assessment conducted in the Environmental Assessment (2010).

Biodiversity

Biodiversity Compliance Status: No non-compliances identified. (One observation and recommendation regarding the Giant Barred Frog surveys and consultation with OEH is provided).

The Biodiversity Management Plan was approved by the DP&I on the 29 March 2012.

The Biodiversity Management Plan was also approved by SEWPaC 28 August 2012. A revision of the Plan was approved by DP&I and SEWPaC in September 2013 and implementation commenced following approval of the revised Biodiversity Management Plan. Arrangements for the conservation and management of offset areas in perpetuity as required under Project Approval Schedule 3 condition 44 had not been finalised at the date of this audit, with ongoing consultation occurring with the OEH or DP&E.

Heritage

Heritage Compliance Status: No non-compliances identified. (One observation made and associated recommendation).

The management of heritage items associated with the Duralie Coal Mine Project have occurred in accordance with the Duralie Heritage Management Plan.

Visual Impact

Visual Amenity Compliance Status: No non-compliances identified.

The views of the Duralie Coal Mine Project from public and private viewpoints are largely screened by topography and vegetation. To minimise potential views along a section of The Bucketts Way identified in the Project Approval Appendix 7 and required under Schedule 3 condition 51(a), Duralie Coal had erected a visual screen along the roadside to address this matter.

Waste

Waste Compliance Status: No non-compliances identified.

The management of waste materials at the Duralie Coal Mine Project were consistent with the procedures and requirements of the Waste Management Plan.

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Rehabilitation

Rehabilitation Compliance Status: No non-compliances identified. (One observation made).

The Rehabilitation Management Plan developed for the Duralie Coal Mine Project provides a sound basis for the restoration of overburden emplacement and other disturbed areas of the mine site. The rehabilitation is progressively being established on areas where activities have been completed with good establishment of vegetation and stability of the completed surfaces as confirmed by visual inspection during this audit. The MOP rehabilitation target to the end of 2013 of 84.5 hectares was met. No additional rehabilitation was scheduled in the MOP for 2014. The planned rehabilitation in the MOP for 2015 is 43 hectares. Based upon visual inspection during this audit the rehabilitation to November 2014 appeared to be generally consistent with the proposed rehabilitation strategy described in the Environmental Assessment (2010), the Mining Operations Plan and complies with the objectives in Project Approval Schedule 3 condition 55 Table 11.

Rail Haulage

The operation of the Shuttle Train from Duralie Coal Mine site to the Stratford Mining Complex CHPP was audited in December 2013 and found to be compliant with the requirements of the Project Approval conditions.

The summaries of findings of the Rail Haulage Noise Audit December 2013 were:

- Current locomotives used in the shuttle train meet currently accepted noise objectives, in the context of the regulatory framework;
- The commitment to replacing the existing locomotives with GL Class or equivalent from Year 2 of the Duralie Extension Project or sooner has been achieved. The locomotives used in the shuttle train meet accepted noise objectives and the Duralie Coal commitment to replacing the existing locomotives with GL Class or equivalent (PallaziRail 2013);
- Train movements have been within the permitted limits and permitted timeframes;
- The Palazzirail Audit Report states in detail the processes used by Duralie Coal to minimise train operations during the night. The report suggests given the limited number of movements, it appears possible to transport the same amount of coal yet avoid any departures after 9:25pm by instituting more movements on a Saturday;
- Noise compliance monitoring indicated compliance with the 65 LA_{eq(15 minute)} daytime noise goal at all receivers; however, exceedances of the LA_{max} 85 dBA pass-by criterion by 1-2dBA was indicated at 27 receivers;
- The current dust mitigation practice of two-stage watering at the Duralie rail load out facility was found to be appropriate for controlling potential dust emissions from laden trains and no further controls are recommended (Katestone 2012).
- Based on the findings of this audit report, it would not appear to be necessary to conduct further dust audits, provided the operator continues to implement its current controls to the rail haulage operations (Todoroski 2012);and
- From the review of registered complaints there appeared to be no systemic complaints regarding the operation of the Duralie shuttle train.

Community Consultation

The Community Consultative Committee (CCC) for the Duralie Coal Mine Project was formed in accordance with Project Approval Schedule 5, condition 5 following approval of Duralie Extension Project in November 2010. The CCC Meetings are held quarterly at the Duralie Coal Mine Project site offices with site tours arranged as required for information of the members or as requested by the CCC for particular matters.

Community Complaints

Community complaints have reduced over the 2011 to 2014 period with noise from the evaporative fans installed in 2012, and blasting being the majority of complaints. Investigation of blast complaints did not identify any exceedances of overpressure or vibration criteria. Noise from the evaporative fans is being addressed as part of the operational review for the Duralie mining operations and the location of the evaporative fans, noise attenuation and shielding (bundling) of the units on the overburden emplacements is being undertaken and continues to be further investigated.

1. Introduction

1.1 Background

The Project Approval granted for the Duralie Coal Mine dated 26 November 2010 requires an Independent Environmental Audit to be conducted in accordance with the Project Approval 08_0203 Schedule 5 condition 8:

“By the end of December 2011, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:

- (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;*
- (b) include consultation with the relevant agencies;*
- (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);*
- (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and*
- (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned approvals.”*

The on-site audit activities for this Independent Environmental Audit were conducted at the Duralie Coal Mine Project (part of the Yancoal Australia Group) by Trevor Brown & Associates between 24 and 29 November 2014.

1.2 Scope of Work

The Independent Environmental Audit was conducted generally in accordance with the Australian/New Zealand Standards *ISO 19011:2002 – Guidelines for Quality and/or Environmental Systems Auditing* and the Draft *Guideline – Independent Environmental Audits of Mining Projects*, DP&I, 1 April 2014. The scope of work for the Independent Environmental Audit of the Duralie Coal Mine Project included the following components:

- review of compliance with the Project Approval conditions and other approvals for the project;
- conduct of a site inspections and review documentation and monitoring data relevant to the audit;
- discussion of the Project Approval and other approval conditions and operation of the project with Duralie Coal Mine project staff;
- assessment of environmental performance of the development with the requirements in this Project Approval, Environment Protection Licence and Mining Lease conditions (including any assessments, plans or programs required under these consents/approvals);
- review of the adequacy of strategies, plans or programs prepared under the consents/approvals;
- provision of recommendations if considered necessary for implementation of measures or actions to improve environmental performance of the Duralie Coal Mine Project; and
- preparation of the Independent Environmental Audit Report providing assessment of compliance against each consent condition and provision of recommendations or actions where considered appropriate to improve the environmental performance of the development, and/or the environmental management and monitoring systems.

1.3 Structure of the Report

The report has been prepared to provide comment on each condition of approval in a tabulated form, with additional discussion where required on specific matters. The tabulated comments for each approval condition are attached. The Independent Audit Report sections are:

Abbreviations

Executive Summary

Section 1 Introduction

Section 2 Duralie Coal Mine Project Development

Section 3 Consents, Approvals and Licenses

Section 4 Review of Environmental Management

Section 5 Conclusions and Recommendations

Appendix 1 Consultation Letters with Agencies

Attachment A Project Approval Conditions Compliance Table

Attachment B Environment Protection Licence No.11701 Conditions Compliance Table

Attachment C Mining Lease 1427 and 1646 Conditions Compliance Table

Appendix 1 Agency Consultation Letters/Response

1.4 Compliance Table

This Independent Environmental Audit assessed the Duralie Coal Mine Project activities for compliance with the intent of the conditions via site inspections and verification of relevant documentation related to each condition (documentation made available by Duralie Coal). The status of compliance with conditions of the project approvals are expressed below. Any non-compliances would be risk assessed as outlined within the DP&E Draft Guidelines – Independent Environmental Audit of Mining Projects 2014 section 7.2. Observations are also made with recommendations included in Section 5:

Status	Description of Status
Compliant	The intent and specific requirements of the condition have been met.
Compliant Ongoing	The intent and specific requirements of the condition have been met and the requirements are ongoing for the operation of Duralie Coal Mine Project.
Non-compliant	The intent of one or more specific requirements of the condition had not been met and the effect would be environmentally significant.
Administrative Non-compliance	A technical non-conformance with a condition of the approval that would not result in material harm to the environment.
Not applicable / Not triggered	Condition or requirement that had not been activate or triggered at the time of the audit, therefore a determination of compliance could not be made.

2. Duralie Coal Mine Development

Duralie Coal Mine Project is part of the Yancoal Australia Group, located north of the village of Stroud Road in the Great Lakes Shire, New South Wales.

The mine site is situated within the Gloucester Valley and is surrounded by agricultural land uses and native bushland and is classified as General Rural Zone 1(a) under the *Great Lakes Local Environmental Plan 1996*. Mining is a permissible use of zone 1(a) land. The closest residence is located approximately 500 metres north of the project area boundary.

The Duralie Coal Mine Project described in the Environmental Impact Statement (EIS) (1996) and subsequent Modifications described in the Statements of Environmental Effects (SEE) and Environmental Assessments (EA) (dated 1998, 2003, 2006, 2010, 2012 and 2014), provide assessment of the project development as it has progressed from the original Duralie Pit to the Weismantel Open Cut and currently active Clareval Open Pit.

Development of the Duralie Coal Mine commenced in 2002 and after a construction period of approximately eight months, production of coal commenced in March 2003. Mining commenced with extraction of coal from the south-eastern corner of Box Cut 1, between Coal Shaft Creek (to the west) and the Main Northern Railway Line (to the east). The Duralie Coal Mine produces two Run-of-Mine (ROM) coal products that are processed and blended with other ROM coals to meet customer needs at the Stratford Mining Complex Coal Handling and Processing Plant (CHPP), located 20 km to the north of the Duralie Coal Mine Project.

The initial mine development comprised an open pit and mine infrastructure area, water management structures and a rail siding located on the south eastern boundary of the mining lease area. (This rail siding is still used for the transport of all coal from Duralie Coal Mine to the Stratford Mining Complex).

The mine currently has approval to extract 3 million tonnes of ROM coal per annum, 24 hours per day seven days per week (Project Approval 08_0203 Schedule 2 condition 6 dated 26 November 2010).

This Project Approval granted on 26 November 2010 was the subject of an appeal to the NSW Land and Environment Court and the final Order from the Court was handed down on 10 November 2011.

A further Modification (Duralie Open Pit Modification) was lodged in 2014 to:

- increase the maximum depth of the Clareval open pit;
- result in a minor increase in the extent of surface development of the DCM of approximately 2.5 ha resulting from:
 - a reduction in low wall angles of the Clareval open pit and the removal of a pillar between the Clareval and Weismantel open pits to improve geotechnical stability; and
 - associated relocation of the up-catchment diversion to the west of the Clareval open pit;
 - revised mining sequence (i.e. progression of mining in the Clareval and Weismantel open pits); and
 - increased height of the waste rock emplacement (i.e. the backfilled open pit) from the currently approved elevation of approximately 110 metres Australian Height Datum (m AHD) to approximately 135 m AHD.

Duralie Coal Pty Ltd was awaiting a decision on this 2014 Modification from the Planning and Assessment Commission at the date of this audit (November 2014). Approval was subsequently granted on 5 December 2014.

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Figure 1: Duralie Coal Mine General Arrangement

3. Consents, Approvals and Licenses

3.1 Development Consents and Project Approvals

The initial Development Consent under Sections 76(A)9 and 80 of the *Environmental Planning and Assessment Act 1979* and the Minister's Conditions of Approval (MCoA) for the Duralie Coal Mine Project, was granted in August 1997. The consent was limited to a period of 21 years from the date of granting of a Mining Lease in respect of the development.

A Project Approval under Part 3A of the *Environmental Planning and Assessment Act 1979* was granted 26 November 2010 - Project Approval (DA 08_0203) for the Duralie Extension Project with Consolidated Minister's Conditions of Approval attached.

3.2 Duralie Development History

Date / Document	Development History	Decision/Comment(s)
1996 <i>Duralie Coal EIS</i>	A Development Application regarding environmental impacts associated with the development of the Duralie Coal Mine was submitted to the Minister for Urban Affairs and Planning	Following a Commission of Inquiry, the NSW Minister for Urban Affairs and Planning granted Development Consent for the mine in August 1997.
1998 <i>Proposed Alterations to Duralie Coal Project SEE</i>	New Development Application lodged to allow Duralie ROM coal to be railed to Stratford Coal Mine for processing in the CHPP, to reduce the area to be mined and rate of coal production.	The Modification was approved on 5 February 1999 by the NSW Minister for Urban Affairs and Planning.
21 August 2003 Modification application MOD-92-9-2003-I	A Modification was lodged to amend the water management system (i.e. Coal Shaft Creek Diversion); and. In August 2003, a further modification was lodged to revise the alterations to the Coal Creek Diversion.	Both modifications - MOD-13-3-2003-i and MOD-92-9-2003-i were approved by the NSW Minister for Planning in 2003.
2006 <i>Duralie Extended Modification SEE, 2006</i>	Modification 3 was lodged for an extension of the Duralie Coal Mine open pit and waste rock emplacement area, and an increase in the annual ROM coal production rate from 1.5 up to 1.8Mtpa.	DA 168/99 MOD 3 was approved by the NSW Minister for Planning in July 2006.
	Modification 4 was lodged for the construction of auxiliary water storage dams	DA 168/99 MOD 4 was approved by the NSW Minister for Planning in December 2008.
June 2009 <i>Duralie Modification MOD 6 Environmental Assessment</i>	Modification 5 to the Duralie Coal Mine was lodged which involved an extension of the Duralie Coal Mine open pit to extract 1.8mtpa and increase waste rock emplacement.	Approval for the modification by the NSW Minister for Planning was granted on 28 October 2009

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27 January 2010 <i>Duralie Extension Project Environmental Assessment</i>	Project Modification Application under Part 3A lodged to extract 3mtpa coal	Project Approval under Part 3A of the <i>Environment and Planning Act 1979</i> was granted on 26 November 2010 for the Duralie Coal Extension Project. A Land and Environment Court hearing occurred in February 2011 and the Land and Environment Court Decision was granted on 10 November 2011.
April 2012 <i>Duralie Rail Hours Modification, Environmental Assessment</i>	Project Modification was lodged in 2012 to modify rail haulage hours from Duralie to Stratford Mining Complex.	Project Approval MOD 1, was granted under Section 75J of the <i>Environmental Planning and Assessment Act 1979</i>
July 2014 <i>Duralie Extension Project</i>	Project Approval Modification 2 was lodged in July 2014 to: <ul style="list-style-type: none"> • increase the maximum depth of the Clareval open pit; • result in a minor increase in the extent of surface development of the DCM of approximately 2.5 ha resulting from: <ul style="list-style-type: none"> ○ a reduction in low wall angles of the Clareval open pit and the removal of a pillar between the Clareval and Weismantel open pits to improve geotechnical stability; and ○ associated relocation of up-catchment diversion to the west of the Clareval open pit; ○ revise the mining sequence (i.e. progression of mining in the Clareval and Weismantel open pits); ○ increased height of the waste rock emplacement (i.e. the backfilled open pit) to approximately 135 m AHD. 	Project Approval MOD 2 was granted under the <i>Environmental Planning and Assessment Act 1979</i> Section 75J by the Planning Assessment Commission on 5 December 2014.

The Duralie Coal Mine project has been developed and operated generally in accordance with the proposed project described in:

- Statement of Environmental Effects October 1998, and Development Consent granted on 5 February 1999,
- Modification of Consent granted on 24 September 2003;
- Modification to Consent granted July 2006;
- Modification to Consent for Auxiliary Water Storage Dams granted on 3 December 2008.
- Environmental Assessment Duralie Open Pit Project Approval Modification January 2010; and
- Environmental Assessment Duralie Extension Project, Project Approval Modification 2014, approved 5 December 2014 (activities not commenced at the date of this audit).

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This audit has been conducted to assess compliance with the Project Approval and the review of compliance of the Duralie Coal Mine Project activities against the Consolidated Conditions of Approval dated 26 November 2010 and Modification 1 (compliance and comments summarised in Attachment A).

3.2 Environment Protection Licence

Duralie Coal Pty Ltd (DCPL) received Environment Protection Licence (EPL) 11701 under section 55 of the *Protection of the Environment Operations Act 1997* for the Duralie Coal Mine on 4 September 2002. Recent Section 58 Notices of Variation of the EPL have been:

Variation Notice	Variation to EPL 11701
20 August 2014 V/N 1519470	Noise Limits: <ul style="list-style-type: none">• Condition L4.2 Reference has been amended.• Condition L4.3 Reference has been amended.• Condition L4.4 Reference has been amended.• Condition L4.6 Reference has been amended.• Condition L4.8 Reference has been amended. Blasting: <ul style="list-style-type: none">• Condition M8.2 has been modified to refer to the Moylan Premises for future monitoring under Condition M8. The previous residence being monitored is now under a private agreement.• Condition M9.1 Reference has been amended.
21 March 2013 V/N 1508851	<ul style="list-style-type: none">• Condition P1.3 – Removed discharge quality monitoring Point 5 from licence;• Condition P1.3 – Removed monitoring Points 10, 11, 12, 13 and 14 from the licence;• Condition P1.3 – Removed ambient water monitoring Point 29 from the licence;• Condition P1.3 – Addition of ambient monitoring point 35

Review of compliance of the mining activities with EPL 11701 conditions (dated 20 August 2014), are summarised in Appendix B.

3.4 Mining Leases

Mining Lease No. 1427 was granted to Duralie Coal Pty Ltd under the *Mining Act 1992* on 6 April 1998. The mining lease area is 762.5 hectares.

Mining Lease No. 1646 was granted to Duralie Coal Pty Ltd under the *Mining Act 1992* on 4 January 2011 for an additional mining lease area is 180.3 hectares.

A Mining Operations Plan (MOP) was prepared in accordance with the mining lease conditions and the Department of Mineral Resources (DMR) Guidelines document GUI.08060002 and approved by DMR on 28 February 2003, prior to commencement of mining. Revision and updating of the MOP has occurred and the revised plans and documentation submitted to the authorities for approval:

- MOP Amendment relating to irrigation area access road, approved by the DMR 18 October 2004.
- Attachment to the MOP relating to exploration drilling within the mining lease, submitted to the Department of Primary Industries – Mineral Resources (DPI-Minerals) dated 29 April 2005 and approved 2 May 2005.
- Altered MOP plans submitted to DPI – Minerals following the approval of the “Duralie Extended” area.
- Alterations to the MOP related to eastern high-wall and drainage realignment submitted to DPI-

Minerals and approved 30 July 2007.

- Alterations to the MOP related to additional eastern high-wall realignment and north eastern diversion channel submitted to the DPI-Minerals and approved 18 August 2008.
- Alterations to the MOP related to diversion drain for proposed Auxiliary Dam No. 1 submitted to DPI-Minerals and approved 18 August 2008.
- Revision and alterations of the MOP to address the Duralie Extension Project development and rehabilitation submitted to DII for approval in January 2011.

Review of compliance with the Mining Lease conditions are summarised in Appendix C.

3.5 Dam Safety

The Duralie Coal Mine Main Water Dam (MWD) is a prescribed dam under the *Dams Safety Act 1978*. Between August 2004 and June 2008 the Dams Safety Committee (DSC) was provided with monthly figures showing pit workings in relation to the dam. In addition, other information requested by the DSC, in the form of a monthly report, was supplied between September 2007 and June 2008.

A Dam Safety Emergency Plan (DSEP) for the Mine Water Dam was prepared and a copy supplied to the DSC in May 2006. This document was updated in January 2009. A Mine Water Dam Operations and Maintenance Manual was also approved by the DSC during 2008.

Routine visual inspections of the Main Water Dam are undertaken three (3) times per week. Monthly monitoring of piezometers terminating beneath the dam's clay core and within the clay core is also undertaken. Monuments located along the dam's crest are routinely surveyed for any indication of movement.

Auxiliary Dam 1 was prescribed by the DSC in October 2008 and construction completed in 2009. This dam provides supplementary storage to the Main Water Dam. A Safety Emergency Plan and an Operations and Maintenance Manual have been prepared for this dam. Auxiliary Dam 2 (a second supplementary storage dam to the Main Water Dam) was prescribed by the DSC in August 2010.

3.6 Water Licences

Bore Licences under section 115 of the *Water Act 1912* were obtained for the Duralie Mine operations:

- DLWC Bore Licence for the dewatering of the Duralie Open Cut (20BL168404) dated 23 September 2002;
- DLWC Bore Licence for monitoring bores (20BL168539) dated 31 October 2002;
- DIPNR licence 20SL060324 relating to diversion of Coal Shaft Creek was replaced by Approval No. 20WA202053 under the Karuah River Water Sharing Plan;
- Modification to existing DIPNR licence 20SL060324, dated 2 October 2003;
- DW&E Water Supply Works, Karuah Water Source, Approval No. 20WA202053, dated 1 July 2004
- DIPNR Bore Licence 20BL168539 was revised with an additional three bores added on 2 February 2004.
- NSW OoW licence 20BL168404 related to Excavation Industrial Dewatering dated 23 September 2012
- NSW OoW licence 20BL173570 related to Test Bore dated 5 August 2013
- NSW OoW licence 20BL173569 related to Test Bore dated 5 August 2013
- NSW OoW licence 20BL173568 related to Test Bore dated 5 August 2013

The groundwater bores were installed and are maintained in accordance with the bore licence conditions.

4. Review of Environmental Management

4.1 Environmental Management Strategy

[Project Approval 08_0203 Schedule 5 condition 1]

Environmental Management Strategy Compliance Status: Compliant

The Environmental Management Strategy (EMS) prepared for the Duralie Coal Mine Project was approved by DP&I on 21 July 2011 following the granting of Project Approval dated 26 November 2010. The Environmental Management Strategy was revised on 6 March 2012 to include the Consequential Order by the Land and Environment Court.

The Environmental Management Strategy addresses each of the requirements of Schedule 5 condition 1.

The Duralie Coal Mine Project operations are conducted in accordance with the approved Environmental Management Strategy that also generally addresses the elements of ISO 14001:

- an overall framework for environmental management of the Duralie Coal Mine Project activities;
- identification of key environmental aspects addressed in the EMS and supporting plans and procedures;
- a framework for review of the EMS and plans for continual improvement; and
- process for reviewing the implementing of the EMS and corrective action if required.

Table 4.1 Environmental Management Strategy vs AS/NZS ISO14001 Elements

ISO 14001 Element	Construction Environmental Management Plan section
4.2 Environmental Policy	Section 5 Environmental Objectives DCPL Environmental Policy
4.3.1 Environmental Aspects	Section 2 Identification and Management of Environmental Aspects
4.3.2 Legal and Other Requirements	Section 3 Statutory Requirements Appendix A - Project Approval 08_0111 Appendix B - Consequential Order by Land & Environment Court Appendix C - EMP's required under Project Approval
4.3.3 Objectives and Targets	Section 5 Environmental Objectives
4.3.4 Environmental Management Programs	Section 7 Environmental Management and Monitoring Programs
4.4.1 Structure and Responsibility	Section 4 Site Environmental Management Structure
4.4.2 Training Awareness and Competence	Section 7.2 Environmental Awareness Training
4.4.3 Communication	Section 8 Community Involvement
4.4.7 Emergency Preparedness and Response	Section 6.1 Environmental Emergencies
4.5.1 Monitoring and Measurement	Section 7 Environmental Management and Monitoring Programs
4.5.2 Non-conformance, Corrective and Preventative Action	Section 10 Compliance

4.1.1 Conclusion

The Environmental Management Strategy generally addresses the elements of ISO14001 and the requirements of Project Approval 08_0203 Schedule 5 condition 1, and provides a sound basis for the management of environmental aspects of the Duralie Coal Mine Project.

4.2 Noise

[Project Approval 08_0203 Schedule 3 conditions 2 to 7]

Noise Compliance Status: No non-compliances identified. (Five observations provided with recommendations for improvement of noise survey reporting).

4.2.1 Noise Management Plan

[Project Approval 08_0203 Schedule 3 condition 7]

The current Noise Management Plan (2012) was approved by the DoPI in June 2013 and provided for altered noise monitoring locations deemed necessary as a consequence of changes to property ownership. Designated monitoring locations resulting from consultation with the OEH in June 2011 are:

- NM1 - Woodle,
- NM2 - Zulumovsky North,
- NM3 - Mahony; and
- NM3 - Fisher-Webster.

The implementation of the Noise Management Plan and noise monitoring provides a satisfactory basis for the control of noise from the Duralie Coal Mine Project activities with ongoing assessment and implementation of mitigation occurring following each noise monitoring survey.

4.2.2 Commitments in Noise Management Plan

The Noise Management Plan section 6 outlines the following mitigation measures in relation to noise management from the mining operations (as detailed in a letter sent to DECCW (now the EPA), dated 12 March 2010):

- Replacement of two standard D10 dozers (SWL 121 dBA each) operating on the northern extent of the Clareval North West open pit and waste rock emplacement with XQ D10 dozers (SWL 112 dBA each) by Year 3 (2015).
- Operation of the 350 tonne excavator and associated XQ D10 dozer in the Clareval North West open pit restricted to RL 100 m or lower and XQ D10 Dozer (SWL 112dBA) on waste rock emplacement restricted to RL 90 m or lower during the evening and night-time operations.
- Removal of one D10 dozer (SWL 121 dBA) from the operational fleet by Year 5 (2018)

The above measures, or equivalent have been implemented progressively to achieve the noise criteria specified in Project Approval Schedule 3, condition 2.

A Consultation Plan was prepared in accordance with Project Approval Schedule 4, condition 1A and approved by DP&I on 30 November 2013, for the implementation of reasonable and feasible mitigation measures at noise-affected receivers at the residences listed in Project Approval Schedule 3, condition 4(c).

4.2.3 Environmental Assessment Noise Predictions and Commitments

The Environmental Assessment – Appendix C Noise and Blasting Impact 2010 provides predictions on mine contributed noise emissions for various operational years. An acoustic model was developed that simulates the Duralie Coal Mine Project components using noise source information (i.e. sound levels and locations) and predicted noise levels at relevant receiver locations.

In terms of the four EPA licensed monitoring locations (“Woodley”, “Zulumovski”, “Mahony” and “Fisher-Webster”), predicted mine contributed noise emissions were generally consistent with measured values at all locations between November 2011 and November 2014. Exceptions were “ex-Hattam” (July 2012) and “Duralie Road” (October 2012, January and April 2013) where recorded mine contributed noise values on occasion were

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greater than predicted emissions. It should be noted that the “ex-Hattam” property is owned by Duralie Coal Pty Ltd and “Duralie Road” is within the DCPL Mine Lease.

The Environmental Assessment 2012 Appendix A Noise and Blasting Assessment (SLR Consulting) noise model was updated to account for the proposed changes to the Duralie Coal Mine Project layout (e.g. increased waste rock emplacement height).

A reduction in the noise levels for the Duralie Extension Modification was predicted, as mobile plant would be operating approximately 60 metres deeper in the Clareval open pit in comparison to the DEP noise modelling scenario, modelled in the Environmental Assessment – Noise and Blasting Assessment (SLR 2010 and 2014).

In Project Approval 08_0203 Schedule 3 condition 2 there were twelve residences in the Noise Management Zone (i.e. 1 to 5 dBA above the project specific noise limit [PSNL]). This reduced to five privately-owned residences in the Environment Assessment Modification 2012. Within the Project Approval Schedule 3 condition 2 (dated 26 November 2010), there were also four residences were within the Noise Affection Zone (i.e. greater than 5dBA above the PSNL of 35 dBA). This reduced to zero privately-owned residences in the Environment Assessment Modification 2012.

The Environmental Assessments described the following commitments and mitigation measures related to noise management:

Environmental Assessment 2010	Action
Additional mobile equipment necessary to meet Project increased ROM coal production would be low noise emission standard, including up to 16 new CAT 785XQ haul trucks and attenuation of other new plant items (i.e. dozer, excavator, drill and grader).	New CAT 785XQ haul trucks and attenuation of other new plant items (i.e. dozer, excavator, drill and grader) now meet the low emission criteria.
The use of two existing CAT 789 haul trucks would be restricted to daytime operations only.	CAT 789 haul trucks are not operated at night.
Waste rock emplacement activities on elevated/exposed portions of the waste rock emplacement would be restricted to daytime only.	Operations on the elevated sections of the waste rock emplacements are undertaken only during daylight hours.
The height of the waste rock emplacement would be restricted to relative level 110 metres (m).	Waste rock emplacement currently does not exceed AHD 110 metres.

At the date of this audit (November 2014), the Duralie Coal Mine Project activities were undertaken in accordance with these commitments.

4.2.4 Noise Monitoring

[Project Approval 08_0203 Schedule 3 condition 7(c)]

[Environment Protection Licence 11701 condition L4.1, L4.5 and 4.8]

Quarterly noise surveys were conducted by Vipac between 2011 and 2014, in January, April, July and October each year at the four EPA licensed monitoring locations (Woodley, Zulumovski, Mahony and Fisher-Webster) specified in the Noise Management Plan section 7 – Noise Monitoring Program and Noise Management Plan section 8 Real-time Noise Monitoring.

The Sentinex real-time noise monitor that continuously measures noise emissions generated from the Duralie Coal Mine Project operations has been operating since June 2012 at noise monitoring location RTNM1 on Martins Crossing Road.

Review of the attended noise monitoring results reveals frequent and substantial noise criterion exceedances at NM1 and/or NM2 with the results deemed in compliance with the statutory conditions due to inversion strength exceeding the Industrial Noise Policy default value of 3⁰C/100m as specified in of EPL 11701 condition L4.8. This is in compliance with the current noise assessment framework.

4.2.4.1 Assessment of Low Frequency Noise

EPL 11701 Condition L4.5 contains a requirement for assessment of “*modifying correction factors*” defined in Industrial Noise Policy (EPA 2000) Chapter 4. Of these, the most important factor relating to coal mines is the low frequency noise emissions. The Duralie Coal Mine Project noise monitoring reports do not contain assessment of low frequency noise emissions, in accordance with the Industrial Noise Policy.

The Industrial Noise Policy Chapter 4 states “*that if the C-weighted noise level attributed to an industrial source exceeds the A-weighted noise level by more than 15dB, then a +5dB modifying correction factor is to be added to the reportable noise emission from that site*”.

There is no known dominant low-frequency noise emissions from the existing Stratford Mining Complex identified in noise monitoring undertaken by Vipac between 2011 and 2014. As there are no relevant criteria for low frequency noise provided by the EPA to assess such noise impacts reporting provides an ‘A’ weighting noise level assessment in accordance with the Industrial Noise Policy.

Recommendation N1:

The Vipac Quarterly Environmental Noise Survey reports do not contain comment on low frequency noise emissions in accordance with the Industrial Noise Policy. It is recommended that comment on low frequency noise emissions be reported in the quarterly reports to satisfy Condition L4.5 of EPL 11701.

To incorporate the low frequency assessment into the current noise monitoring report format analysis results (as expressed at the left hand side of the graphical representation in the compliance report) should be changed to the following, in order:

- 1) Total Leq dB(A)
- 2) Mine contribution Leq dB(A)
- 3) Mine contribution Leq dB(C)
Mine dB(C) – dB(A)
- 4) Mine contribution L₁ (night time only)

These values will provide the data for determining compliance with the noise emission, sleep disturbance and low frequency criteria in the one image.

Noise Management Plan Section 7.2.3 requires measurement of the LA_{eq}, L₁, L₁₀ and L₉₀ percentiles, amongst others, but the L₁₀ and L₉₀ need not be included in a compliance report due to the absence of criteria expressed in these percentiles.

Recommendation N2:

It is recommended that to incorporate the low frequency assessment into the current noise monitoring report format analysis results should be changed on the left hand side of the graphical representation to the following, in order:

Total Leq dB(A)
Mine contribution Leq dB(A)
Mine contribution Leq dB(C)
Mine dB(C) – dB(A)
Mine contribution L₁ (night time only).

4.2.4.2 Temperature inversions

The Duralie Coal Mine Project inversion tower infrastructure was commissioned after the July 2013 monitoring survey and provides a major improvement in temperature inversion measurement. There are many instances where noise criterion exceedances, often in excess of 5dB, were deemed compliant due to inversion strength greater than the Industrial Noise Policy default value of 3°C/100m (EPL condition L4.8). The noise monitoring survey reports state that inversion strengths well in excess of the Industrial Noise Policy default value are not uncommon in the Duralie Coal Mine Project area that is located in the Gloucester Valley. These inversions also not restricted to the winter period and may be considered a prevailing meteorological feature of the area.

Recommendation N3:

It is recommended that the inversion data since commissioning of the real-time capability be analysed to determine the 90th percentile site-specific inversion strength in accordance with provisions in the INP. A summary report should then be forwarded to EPA/OEH for their consideration of reviewing the applicable inversion strength in EPL 11701. Incorporation of the site-specific value in the EPL would then necessitate changes to the real-time noise management triggers.

4.2.4.3 Noise Monitoring Summary

Duralie Coal Mine Project operating noise emissions were below the relevant noise criteria in Project Approval Schedule 3 condition 2 and EPL condition L4.1 during all attended noise measurements between November 2011 and December 2014.

It is concluded that the noise emissions produced by Duralie Coal Mine Project between November 2011 and November 2014 complied with noise criteria on the basis of the wind speeds that were prevalent during the monitoring periods at each location.

4.2.4.4 Mobile Plant Noise Assessments

The Duralie Coal Mine Project fleet of mobile plant including haul trucks, excavators, dozers, and graders are assessed for sound power levels (SWL). Noise assessments of mobile plant and equipment were conducted by Vipac in March 2013 and May 2014.

The sound power levels (dBA re 1pW) for Duralie Coal Mine mobile plant were presented in Environmental Assessment Appendix A - Noise and Blasting Assessment, Table 16. Four mobile plant exceeded the specified target noise emission levels in the static test conditions, and three mobile plant exceeded the specified target noise emission levels in the dynamic test conditions in the noise assessment surveys.

Maintenance of the equipment and mobile plant was undertaken by Leighton Contractors to address the noise emission issues for haul trucks and/or replacement of mobile plant with attenuated plant occurred to mitigate the noise emission issues.

4.2.4.5 Evaporation fans

Noise from the evaporation fans resulted in numerous complaints recorded between November 2011 and December 2014.

The evaporative fans on the waste emplacements had earthen bunds constructed by Duralie Coal to mitigate noise emissions. (Note the Duralie Extension Modification MOD 2 conditions dated 5 December 2014, include condition 7(b) that requires *“the construction of earth bund walls around evaporative fans located on the waste rock emplacement area.”* The bund walls had been constructed prior to the approval condition for MOD 2).

4.2.5 Annual Review and Verification

The noise monitoring survey results from the Vipac quarterly reports are provided in the Annual Reviews. The summary tables of attended and unattended noise results presented in the Annual Reviews are consistent with the Vipac reports.

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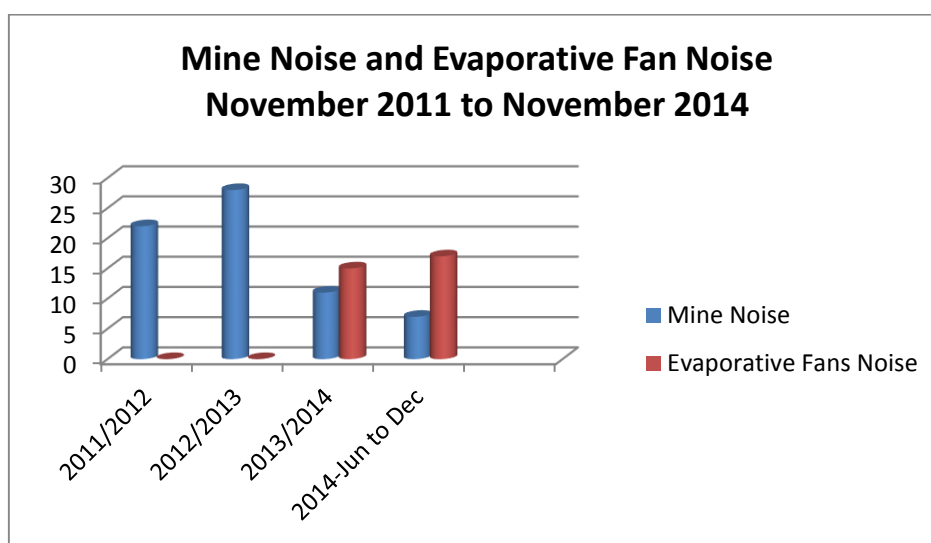
4.2.5 Matters Raised by Relevant Agencies

Great Lakes Council requested the Independent Environmental Audit should investigate and report on:

Great Lakes Council Issue	Response in this IEA
Schedule 3, Condition 2 'Noise Criteria' - It is requested that information be provided which indicates whether noise generated from the project complies with the noise criteria presented in Table 2. It should be noted that concerns were raised at the Duralie Coal Community Consultative Committee on 8 May 2014 in relation to noise emissions associated with evaporative spray. It is requested that this operation be considered in any noise assessment.	Refer to section 4.2.4.3 and section 4.2.4.5.
Schedule 3, Condition 7 'Noise Management Plan' - The effectiveness of the Noise Management Plan should be reviewed and audited. Any non-compliance with project noise criteria should be identified and the effectiveness of measures that were implemented to address any non-compliance should be described.	Refer to section 4.2.4

4.2.6 Community Complaints

Noise related complaints received between November 2011 and December 2014 include general mine noise and evaporative fan noise. The complaints related to evaporative fan noise commenced after installation of the fan units on the waste rock emplacement areas in 2013. The general mine noise complaints reduced during 2013 and December 2014



4.2.7 Conclusions and Recommendations

Duralie Coal Mine Project is operating generally in compliance with Project Approval 08_0203 and associated documents with respect to its noise obligations. In relation to the EPA licensed monitoring locations (Woodley, Zulumovski, Mahony and Fisher-Webster), measured mine contributed noise emissions were consistent with predicted noise values in the Environmental Assessments for all locations.

Recommendation N4:

It is recommended to discontinue including model results in compliance reports.

Recommendation N5:

It is recommended the unattended logger surveys (typically 72 hour) be discontinued.

4.3 Blasting

[Project Approval 08_0203 Schedule 3 conditions 8 to 16]

[Environment Protection Licence 11701 conditions M8.1 and 8.1]

[Mining Lease 1427 and 1646 condition 10]

Blasting Compliance Summary: No non-compliances identified.

4.3.1 Blast Management Plan

[Project Approval 08_0203 Schedule 3 condition 16]

A Blast Management Plan prepared in consultation with the EPA to satisfy Project Approval 08_0203 Schedule 3 condition 16 was approved by DP&I on 6 June 2012. The Blast Management Plan was reviewed, revised (BLMP-R02-B) and approved by DP&I 27 September 2013. An amended Blast Management Plan (BLMP-R03) has been provided to DP&E to address previous comments from DP&E and includes a Blast Fume Strategy.

4.3.2 Commitments in Blast Management Plan

In addition to the blast design and implementation methodologies (outlined in the Drill and Blast Instruction Plan - Appendix E), the following activities outlined in the Blast Management Plan section 3 are undertaken prior to blasting in accordance with the Blast Management Plan Appendix D - Explosives Management Plan and Appendix E - Contractors Drill and Blast Procedure, to minimise potential impacts of blasting at the Duralie Coal Mine Project:

Blast Management Plan section 3 Commitment	Reference to Action on Commitments
Blast design addressing aspects including total charge size, instantaneous charge size, delay between hole explosive initiation, direction of initiation (taking into account potentially affected receivers), type and quantity of stemming material, geology, use of decking, provision for burden relief, etc.	Contractors Drill and Blast Procedure section 9 - Blast Design and Implementation
Evaluation of the overpressure enhancing potential offered by adverse prevailing weather conditions, particularly low, dense cloud cover and strong winds. Blasting will not be undertaken if unacceptable environmental outcomes are anticipated	Contractors Drill and Blast Procedure section 9.7 - Blast Vibration and Overpressure Predictions
Evaluation of the potential for the generation of dust and/or fume.	Blast Management Plan section 3.6
Evaluation of the potential for dust and/or fume to be carried to a nearby receiver as a consequence of receiver proximity, wind direction and wind strength.	Contractors Drill and Blast Procedure section 9.11 - Blasting Check List
Evaluation of the potential for flyrock generation.	Blast Management Plan section 3.5
Adequate preparation of the blast floor (e.g. dozing/grading) to provide an even surface for drilling.	Contractors Drill and Blast Procedure section 9.5 - Drill Plan
Inspection of the blast floor to ensure that there is no significant geological weakness (e.g. fracturing from a previous blast) that may contribute to inadequate containment of explosive energy during blasting.	
Completion of a Blasting Checklist to evaluate the potential impacts of the blast.	Contractors Drill and Blast Procedure section 9.11 - Blasting Check List
Quality control for supplied stemming gravel to ensure the material is acceptable in terms of size, rock type and angularity.	Contractors Drill and Blast Procedure section 10 -Drilling
Monitoring of the quantity of stemming gravel within each blast hole and ensuring compliance with design.	

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Blast Management Plan section 3 Commitment	Reference to Action on Commitments
Maintaining the integrity of the stemming material such that it is not contaminated with foreign matter such as clay which may result in the explosive materials being insufficiently stemmed.	Explosives Management Plan, section 6.3 - Identified Hazardous Conditions and Actions (Leighton Contractors)
Personnel involved in designing and undertaking blasting operations will be appropriately qualified and experienced to undertake their assigned tasks.	Explosives Management Plan, section 6.1.3 - Register of Licenced Personnel, (Leighton Contractors)
External blasting expertise and specialised service providers will be utilised as required.	

4.3.3 Environmental Assessment Predictions and Commitments

Environment Assessment Appendix A - Noise and Blasting Assessment (dated January 2010) assessed potential blasts impacts against applicable building damage and human comfort criteria.

To minimise blasting effects at nearby receivers, Duralie Coal Pty Ltd would vary the Maximum Instantaneous Charge (MIC) or other relevant blasting parameters according to the location of blasts and the proximity of nearby private receivers.

In summary, the blasting assessment concluded that with the application of reduced MIC (400 kilograms [kg]) for blast locations nearest to private receivers:

- *“the blast emission levels are predicted to be below the applicable building damage vibration and airblast criteria at all private receivers;*
- *the vibration velocities are predicted to be below the vibration human comfort criteria at all private receivers; and*
- *airblast levels are predicted to be equal to or below the airblast human comfort criteria at all except six nearest privately owned receivers.”*

Table 4.3.3: Commitments related to blasting provided in the Environmental Assessment (January 2010):

Environmental Assessment Commitments (January 2010):	Duralie Coal Actions
Management of potential blasting impacts will be consistent with the Blasting Management Plan.	Blasting is conducted in accordance with the Blast Management Plan (R02- B), September 2013, and the Leighton Contractors Explosives Management Plan and Drill and Blast Instruction.
DCPL commits to appropriate blast designs addressing aspects including total charge size, instantaneous charge size, delay between hole explosive initiation, direction of initiation, type and quantity of stemming material and geology to minimise potential blasting impacts at nearby receivers.	Blast design procedures and strategies address total charge size, instantaneous charge size, delay between hole explosive initiation, direction of initiation, type and quantity of stemming material and geology to minimise potential blasting impacts at nearby receivers and ensure compliance with blast over-pressure and ground vibration limits, is practised for the every blast event at the Duralie Coal Mine.
DCPL commits to notifying the occupants of residential receivers within 2 kilometres (km) of a proposed blast prior to the blast occurring.	Notification of blast events is described in Blast Management Plan section 3.2.1. A “Blasting Hotline” (6538 4213) has been established to provide the public with up-to-date information on blasting schedule and an initial blast notification, by post is provided to any landowner whose property lies within the 500 metre (m) Blast Zone of current mining operations and other pre-blast

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Environmental Assessment Commitments (January 2010):	Duralie Coal Actions
	notification phone calls are made on request from community members.
DCPL will establish an exclusion zone around blast events, including the positioning of sentries on public access points for privately owned properties within 500 m of a blast event. DCPL also commits to notifying the occupants of residential receivers within 2 km of Project active mining areas that they are entitled to a structural property inspection by a suitably qualified, experienced and independent person.	Exclusion zones are established around blast events, including the positioning of sentries on public access points for privately owned properties in accordance with the Australian Explosives Industry and Safety Group Code of Good Practice (June 2011). Structural property inspections are conducted when requested by residential receivers within 2km of the active mining areas in accordance with Project Approval Schedule 4 condition 1.

4.3.4 Blast Criteria

[Project Approval Schedule 3 condition 8]

EPL 11701 condition L5]

[Mining Lease condition 10]

The Project Approval 08_0203, EPL 11701 and Mining Lease 1427 and 1646 conditions all state that overpressure at monitored locations, caused by blasting, may only exceed 115 dB(L) for 5% of blasts during the reporting period (i.e. 12 months) but must not exceed 120 dB(L) at any time.

Peak particle velocity (ppv) (i.e. ground vibration) at monitored locations caused by blasting may exceed the ppv of 5 mm/s for 5% of blasts during the reporting period (i.e. 12 months) but not exceed 10 mm/s.

4.3.5 Blast Monitoring

[Project Approval 08_0203 Schedule 3 condition 8]

[EPL 11701 condition L5]

[Mining Lease condition 10]

Blasting at the Duralie Coal Mine Project is conducted in accordance with a Blast Management Plan. The requirement to monitor blasts for ground vibration and overpressure and associated limit conditions are contained within the Project Approval, Environment Protection Licence and Mining Lease conditions.

Building condition inspections of several privately owned dwellings located in the vicinity of the mine are routinely carried out by an independent structural engineer in accordance with Project Approval Schedule 3 condition 11. In addition, other surveys may be commissioned following an approach by a landowner concerned about dwelling damage which they consider may be related to mining activity.

During the reporting period building condition surveys were conducted at one privately owned dwelling (Receptor 94) and at the former Weismantels Inn.

The permanent blast monitoring locations are shown on Blast Management Plan Figure 4.3.4.

4.3.6 Review of Overpressure Results

All blast monitoring and conditions in the Project Approval were found to be compliant (i.e. less than 5% of total blasts exceeded 115dB(L) and no blast exceeded 120dB(L) at privately owned residents. During the audit period of November 2011 to December 2014 two blasts exceeded 120 dB(L) overpressure at monitoring location AAAB2 (18 October 2013 recorded 121.2dB(L) and 16 June 2014 127.7dB(L)). A private agreement is in place with the property owner in place in accordance with Project Approval Schedule 3 condition 8 so the blast criteria in condition 8 do not apply (Schedule 3 condition 8 – “However, these criteria do not apply if the Proponent has

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a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.”

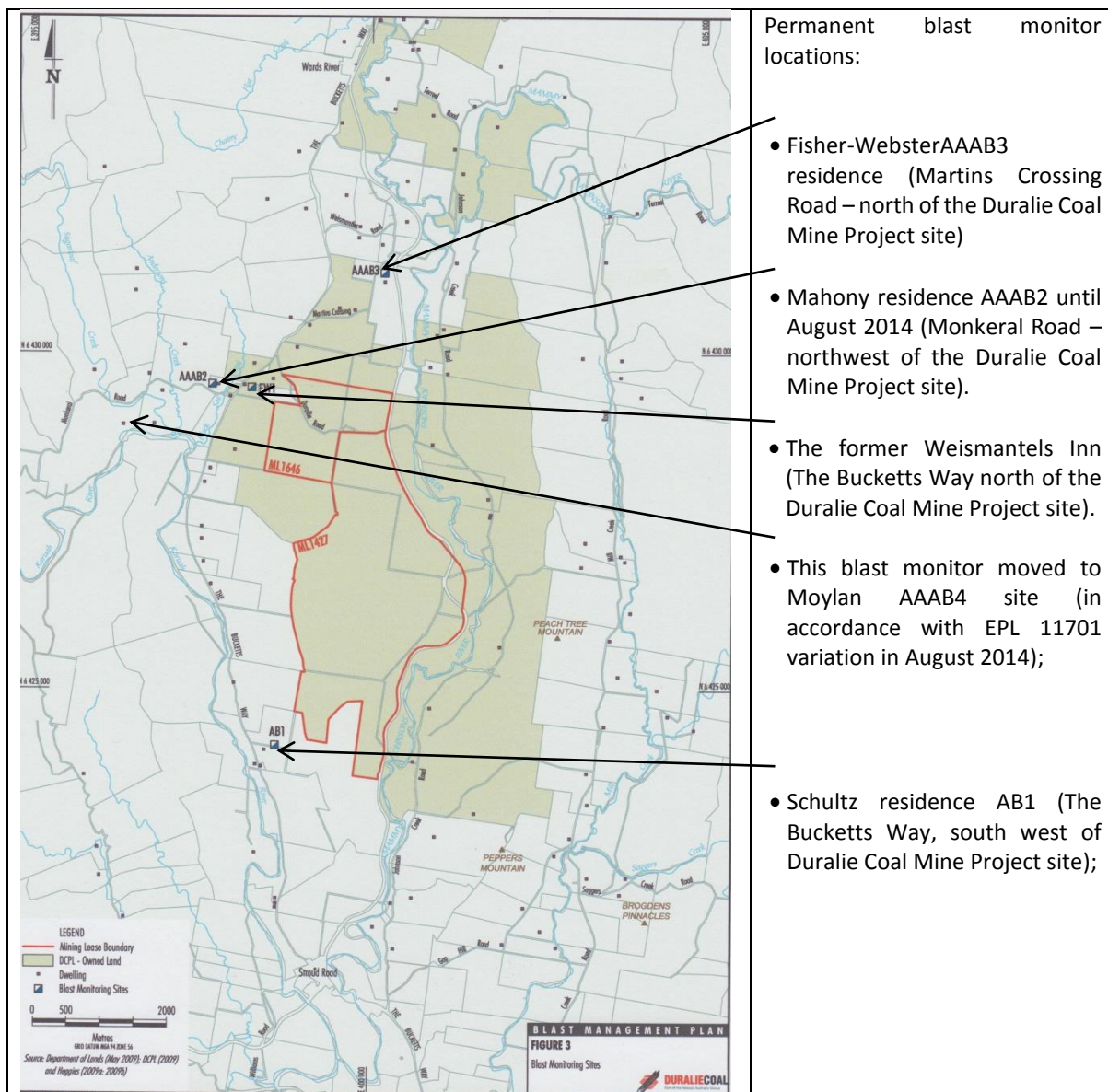


Figure 4.3.4: Permanent blast monitor locations – Duralie Coal Mine Project

4.3.7 Review of Vibration Results

During the review period (November 2011 to December 2014) no blasts exceeded the 5 mm/s ground vibration criteria.

4.3.8 Annual Review and Verification

The Annual Reviews provide a summary of the blast overpressure and vibration monitoring results extracted from the raw data files (Annual Review Appendix 5). The summary of blast management is in accordance with the Blast Management Plan and the monitoring data reviewed is representative of the results at each blast monitor location.

4.3.8 Matters Raised by Relevant Agencies

No matters related to blasting were raised during consultation with the agencies. The DP&E Audit (2013) provided a recommendation for the relocation of a blast monitor (AAAB2). This blast monitor was relocated by Duralie Coal following the approval of the Blast Management Plan by DP&E.

4.3.9 Community Complaints

A “blasting hotline” was established to satisfy a Project Approval Schedule 3 condition 13(b).

This system allows the public to telephone a dedicated number (02 6538 4213) and be advised of intended blasts. Persons living within two (2) kilometres of an active or approved operational area can also request advice of blasting. Such advice is delivered by mobile telephone text messaging or a telephone voice call.

Blast complaints received between November 2011 and December 2014 (16 complaints in 2012, 21 complaints in 2013 and 12 in 2014) were investigated and in all cases the overpressure and vibration results were compliant.

4.3.10 Conclusions

The Blast Management Plan provides best practice procedures for management of potential impacts from blasting operations at the Duralie Coal Mine. All Project Approval conditions related to blast management were found to be compliant.

An exceedance of overpressure was reported to DP&I on from a blast 18 October 2013 (121.2dBL) and 16 June 2014 (127.7dBL) at monitoring location AAAB2 where a private agreement is in place. An alternate location for monitoring was assessed and the blast monitor was moved to the AAAB4 site (in accordance with EPL 11701 variation in August 2014).

A blasting information hotline is provided on the Duralie Coal Mine Project website in accordance with, Project Approval Schedule 3 Condition 13b(b).

4.4 Air Quality

[Project Approval 08_0203 Schedule 3 conditions 17 to 24]

[Environment Protection Licence condition O3.1]

Air Quality Compliance Status: No non-compliances were identified.

4.4.1 Air Quality and Greenhouse Management Plan

[Project Approval 08_0203 Schedule 3 condition 23]

The Air Quality & Greenhouse Gas Management Plan prepared to satisfy Project Approval Schedule 3 condition 23, was approved by DP&I on 29 March 2012. The Air Quality & Greenhouse Gas Management Plan was revised in 2013 and approved by DP&I on 27 September 2013. The Air Quality & Greenhouse Gas Management Plan addresses particulate matter and deposited dust in accordance with the requirements of the Project Approval and EPL conditions:

- deposited dust;
- total suspended particulate matter (TSP);
- particulate matter with diameter less than 10 micrometres (PM₁₀).

Greenhouse gas emission requirements in Project Approval 08_0203 Schedule 3 condition 18, require Duralie Coal Mine to minimise the release of greenhouse gases from their operations. The greenhouse gases considered in this Air Quality & Greenhouse Gas Management Plan are in accordance with the requirements of the National Greenhouse and Energy Reporting (Measurement) Determination, 2008:

- carbon dioxide (CO₂);
- methane (CH₄); and
- nitrous oxide (N₂O).

4.4.2 Commitments in Air Quality and Greenhouse Management Plan

Table 4.4.2: Commitments Outlined in the Air Quality & Greenhouse Gas Management Plan, section 6.

Activity	Management Measure	Comment
Areas disturbed by mining	The minimum area necessary for mining will be disturbed. Exposed areas will be reshaped, topsoiled and revegetated as soon as practicable.	Rehabilitation Management Plan section 5.4 - vegetation clearance at the Duralie Coal Mine Project limits the area required for active mining and overburden emplacement for clearance.
Soil stripping and stockpiling	Areas subject to soil stripping will be watered to reduce dust generation. Long term soil stockpiles will be vegetated with a cover crop.	Rehabilitation Management Plan section 5.4.4 -Disturbance areas will be stripped progressively (i.e. only as required) to reduce erosion and sediment generation. Stockpiled soil is used as soon as possible for rehabilitation.
Waste rock emplacement areas	Active waste emplacement surfaces will be watered to suppress dust generation. Progressive rehabilitation (i.e. reshaping, soil placement and revegetation) of waste emplacement areas will occur. Irrigation of the waste rock emplacements using a travelling and/or fixed irrigation systems will be used to reduce wind-blown dust.	Progressive rehabilitation of waste emplacement areas occurs with irrigation of waste rock emplacements. Evaporative fan are used to manage excess water and reduce generation of wind-blown dust.
ROM coal handling areas	Coal-handling areas will be kept moist using water carts to minimise wind-blown and traffic generated dust.	Water sprays are installed around the ROM coal handling areas to minimise wind-blown and traffic generated dust.
Coal trains	Water spraying of coal in wagons will occur prior to departure from the Duralie Coal Mine.	Water spraying of coal in wagons occurs prior to departure from the Duralie Coal Mine Project. Refer to section 4.17 of this report.
Haul road dust	All roads and trafficked areas will be watered using water carts to minimise the generation of dust.	Water carts are used on haul roads to reduce the generation of dust.
Drilling	Dust aprons will be lowered during drilling. Water injection or dust suppression sprays will be used when high levels of dust are generated.	Drill rigs are fitted with dust suppression sprays to reduce dust generation.
Blasting	Fine material collected during drilling will not be used for blast stemming. Adequate stemming will be used at all times. Blasting will only occur following assessment of weather conditions by the Environmental Officer to ensure that wind speed and direction will not result in excess dust emissions from the site towards adjacent residences. No blasting will occur in the open cut when wind speeds exceed 10 m/s.	Refer to Blast and Vibration Management Plan section 3 and Appendix F.

The air quality commitments in the Air Quality & Greenhouse Gas Management Plan are implemented along with procedures and mitigation measures for the reduction of dust generation outlined in the Rehabilitation Management Plan, Biodiversity Management Plan and Blast Management Plan.

4.4.3 Environmental Assessment Predictions and Commitments

An Air Quality Impact Assessment was prepared by Pacific Environment Limited for the Environmental Assessment, Appendix D January 2010. The Environmental Assessment air quality monitoring network would continue to be used with additional monitoring locations established to reflect the northern extension of mining.

It was predicted that a reduction in annual dust emissions could occur from the Duralie Open Pit Modification in the Environmental Assessment Appendix B (dated July 2014). No exceedances of air quality criteria were predicted at any privately-owned receiver due to project-only emissions and the existing mitigation, management and monitoring measures described in the Air Quality and Greenhouse Gas Management Plan (dated September 2013) and Pollution Reduction Programs would continue including real-time air quality monitoring and management.

4.4.4 Dust Management

[Project Approval 08_0203 Schedule 3 condition 22]

[Environment Protection Licence 11701 condition 8]

Dust generation is managed and controlled on the Duralie Coal Mine Project site in accordance with the Air Quality and Greenhouse Gas Management Plan section 6. The mitigation measures include:

- Minimising areas disturbed to that required for the active mine operations;
- Reshaping, topsoiling and revegetation of completed overburden emplacement areas;
- Use of water trucks on haul roads and other dust generating areas;
- Water sprays on the ROM dump hopper and transfer point between the ROM and train loading bins; and
- Water sprays over the wagons during train coal loading;
- Modifying operations during adverse weather conditions to reduce potential for dust generation.

4.4.5 Dust Monitoring and Criteria

[Project Approval 08_0203 Schedule 3, condition, 19, 20 and 24]

[EPL 11701 conditions P1.1, M2.2, M5.1, U1.1]

Duralie Coal Mine Project has a meteorological monitoring station and a network of nine (9) static dust fallout gauges, four (4) high volume PM₁₀ air samplers, one real time dust monitor (TEOM) and for the monitoring of dust surrounding the mine site.

Monthly dust deposition levels are monitored at private or company owned residences surrounding the mine and within the village of Wards River. The EPA annual average limit for dust deposition is 4.0g/m² /month.

The high volume air samplers (HVAS) are located near company owned rural dwellings along Johnsons Creek Road (Hattam northeast of the mine, Twin Houses east of the mine and High Noon south of the mine) and on private land along The Bucketts Way (Edwards west of the mine). Sampling occurs for a 24 hour period every 6 days in accordance with AS 2724.3. The EPA goal for air quality is an annual average limit of 30ug/m³/day and a National Environmental Protection Measure (NEPM) 24-hour average limit of 50ug/m³/day.

A Tapered Element Oscillating Microbalance (TEOM) analyser measuring PM₁₀ and PM_{2.5} was installed in April 2012 on Martins Crossing Road north of the Duralie Coal Mine Project active open pit. Performance indicators were developed by Todoroski Air Sciences (2013), for the purposes of managing potential air quality impacts from the Duralie Coal Mine Project.

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Meteorological monitoring of wind speed and wind direction, rainfall, evaporation and temperature is provided by an automated meteorological monitoring station on the Project site. In addition, appropriate equipment has been installed to measure temperature lapse rates in accordance with Project Approval 08_0203 Schedule 3, condition 24.

In accordance with EPL 11701 condition M5.1, temperature lapse rates are continuously measured over a minimum vertical height interval of 50 m with two 10 m towers, located on site in positions with an elevation differential greater than 50m. The continuous temperature lapse rate measurements are calibrated and validated with periodic measurement using a weather balloon.

4.4.6 Review of Dust Monitoring Results

4.4.6.1 Dust Deposition

Annual average results for dust deposition gauges (D1-D5, D7-10, D12-13) are presented in Table 4.3.4.1. (Gauge D7 located within Wards River Village was installed in June 2007).

Table 4.3.4.1: Annual Average Dust Deposition Rates Duralie Coal Mine November 2011 - December 2014

Year	Dust deposition (annual average)	Comments
1 July 2013 to 30 June 2014	1.5g/m ² /month	Dust gauge D1 generally had higher results largely attributed to the close proximity of the gauge to on site vehicular traffic. Dust gauges D1 and D2 were removed from the EPL in March 2013 as they were no longer representative of offsite receivers.
1 July 2012 to 30 June 2013	1.6g/m ² /month	
1 July 2011 to 30 June 2012	1.4 g/m ² /month	

Conclusion

Results of depositional dust monitoring were generally in concurrence with the Duralie Coal Mine Environmental Assessment (2010) which predicted that annual average criteria of 4 g/m²/month will not be exceeded at any receiver and that project only incremental increases in annual average dust deposition will not exceed the applicable 2g/m²/month EPA criterion at any receiver. The dust deposition results between November 2011 and November 2014 confirm conformance with the Environmental Assessment predictions.

4.4.6.2 High Volume (PM₁₀) Dust Samplers

High volume air sampler (HVAS) monitoring results between November 2011 and November 2014 for the four monitoring sites at "High Noon", "Twin Houses", "Hattam" and "Edwards" (commenced monitoring on 27 February 2012) are presented in Table 4.3.1.2.

Table 4.3.1.2: HVAS PM₁₀ Results Duralie Coal Mine November 2011 - December 2014

Year	PM ₁₀ levels	NEPM*	Running Average PM ₁₀	NEPM/OEH
1 July 2013 to 30 June 2014	High Noon 0.5 - 46.2 µg/m ³ /day, Twin Houses 3.1-54.6 µg/m ³ /day Hattam 3.1 - 49.3 ug/m ³ /day Edwards 3.2 - 43.4µg/m ³ /day.	50 µg/m ³ /day	High Noon 12.9 µg/m ³ /day Twin Houses 16 µg/m ³ /day# Hattam 12.0 µg/m ³ /day Edwards 11.9 µg/m ³ /day	30 µg/m ³ /day
1 July 2012 to 30 June 2013	High Noon 1.0 - 32.0 µg/m ³ /day Twin Houses 1.5- 44.6 µg/m ³ /day Hattam 4.0 - 39.3 µg/m ³ /day Edwards 3.0 - 29.0µg/m ³ /day.	50 µg/m ³ /day	High Noon 11.4 µg/m ³ /day Twin Houses 13.7 µg/m ³ /day Hattam 12.8 µg/m ³ /day Edwards 11.7 µg/m ³ /day.	30 µg/m ³ /day
1 July 2011 to 30 June 2012	High Noon 3.3 - 26.6 µg/m ³ /day, Twin Houses 2.6 - 32 µg/m ³ /day Hattam 1.5 - 34.9 µg/m ³ /day Edwards 3 - 18.6 µg/m ³ /day	50 µg/m ³ /day	High Noon 9.4 µg/m ³ /day Twin Houses 11.1µg/m ³ /day Hattam 10.3ug/m ³ /day Edwards 9.7 µg/m ³ /day.	30 µg/m ³ /day

* National Environmental Protection Measure (NEPM)

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The 50 µg/m³/day assessment criteria was exceeded on one occasion at Twin Houses. However it was noted that heavy smoke was present in the valley for the majority of the day due to bushfires.

Results of HVAS monitoring are in concurrence with the Duralie Coal Mine Environmental Assessment (2010) which predicted the annual average PM₁₀ criteria of 30µg/m³/day would not be exceeded at any receiver and that project 24 hour PM₁₀ concentrations would not exceed the 50 µg/m³/day assessment criteria at any privately owned receiver with the possible exception of "Hattam" which is in close proximity to the mining operations.

The annual average PM₁₀ for all sampling locations were below the 30 ug/m³/day EPA limit and did not exceed the 50 µg/m³/day limit on any occasion between November 2011 and June 2014 period.

4.3.6.3 Tapered Element Oscillating Microbalance analyser (TEOM)

During 2012 a Tapered Element Oscillating Microbalance analyser (TEOM) was installed on Martins Crossing Road north of the Duralie Coal Mine Project active open pit to measure PM₁₀ on a real-time continuous basis.

The running average from the 10 April 2012 to 30 June 2014 for PM₁₀ monitoring from the TEOM were:

Year	TEOM PM ₁₀ Running Average
1 July 2013 to 30 June 2014	15.3 ug/m ³ /day
1 July 2012 to 30 June 2013	11.1 ug/m ³ /day
10 April 2012 to 30 June 2012	4.0 ug/m ³ /day

4.4.7 Annual Review and Verification

The Annual Reviews section 3.3 (Meteorological Monitoring), and section 3.4 (Air Quality) provide a summary of the dust deposition, HVAS PM₁₀ and TEOM monitoring data with comment on the compliance of the monitoring data with the assessment criteria and predictions in the Environmental Assessments. The raw monitoring data is provided in Appendices 2 and 3 of each Annual Review.

4.4.8 Matters Raised by Relevant Agencies

Great Lakes Council requested that the Environmental Audit should investigate and report on:

Great Lakes Council Issue	Response reference
Schedule 3, Condition 19 'Air Quality Assessment Criteria' - It is requested that information be provided which indicates whether particulate matter emissions generated from the project complies with the criteria presented in Table 5, Table 6 and Table 7.	Refer to section 4.4.6 of this Audit report. The air quality monitoring results have confirmed compliance with the criteria between November 2011 and December 2014.
Schedule 3, Condition 23 'Air Quality & Greenhouse Gas Management Plan' - The effectiveness of the Air Quality & Greenhouse Gas Management Plan should be reviewed and audited. Any non-compliance with long term criteria, short term criterion and/or long term criteria for deposited dust should be identified and the effectiveness of measures that were implemented to address any non-compliance should be described.	

4.4.9 Community Complaints

A total of nine (9) dust complaints were received between November 2011 and December 2014 and summaries of complaint response are posted on the Duralie Coal Mine website:

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Year	Dust Complaints Received	Result of Investigation(s)
22 Nov 2012	Complaint from Weismantel - north of the mining operations.	Dust from blasting due to wind direction
15 May 2013	Complaint from Wards River rural approx. 1.7km NE of Duralie mining operations.	Dust from blast dissipated quickly within Mine Lease. Westerly wind at time of blast.
31 May 2013	Complaint from resident approx. 2.6km from Duralie mining operations	Review of blast activity and weather conditions did not support resident's concern.
22 August 2013	Complaint from The Bucketts Way Weimmantel.	Dust emission observed from blast. Complainant contacted.
31 October 2013	Complaint from approximately 3.4km from mining operations.	Resident concerned about colour of dust from blast. Advised resident blast on day was from dark coloured ground.
19 May 2014	Complaint lodged with EPA.	Investigation conducted by Duralie Environmental Officer. Response to EPA. Complaint closed.
20 May 2014	Complaint from Wards River resident to EPA re dust observed from end of Duralie Rd.	Response provided to the EPA and Complainant. Complaint closed.
21 May 2014	Complaint received regarding train dust emissions.	Investigation conducted by Duralie EO. Response provided to EPA and complaint closed

All complaints were investigated within 24 hours by the Duralie Coal Environmental Officer and the complainant / EPA advised of the results. The small number of complaints (9) related to dust over the November 2011 to December 2014 period, were mainly observation of dust following blasting operations on the Duralie Coal Mine Project site and not directly related to dust nuisance.

4.4.10 Conclusions

The Air Quality and Greenhouse Gas Management Plan (AQMP-R02-E), required under Project Approval Schedule 3, Condition 23 has been implemented by Duralie Coal. The monitoring of dust from the Duralie Coal Mine Project operations has demonstrated compliance with the conditions of the Project Approval and Environment Protection Licence related to air quality.

4.5 Site Water Management

[Project Approval 08_0203 Schedule 3 conditions 25 to 29]

Water Management Compliance Status: No non-compliances were identified.

The Duralie Coal Mine Project area is located in the catchment of Coal Shaft Creek, a small tributary which flows into the lower reaches of Mammy Johnsons River, a tributary of the Karuah River.

Coal Shaft Creek is generally more saline than the Mammy Johnsons River and the Karuah River due to its ephemeral nature and the outcropping of coal seams within the catchment. Coal Shaft Creek has been diverted around the Duralie Coal Mine Project workings in an approved, purpose-built channel.

The current approach of beneficial use of water collected from operational areas for on-site irrigation occurs under the approved Irrigation Management Plan first flush protocol. The first flush protocol captures any initial surface runoff from the on-site irrigation areas during high rainfall events.

A water balance for the Clareval North West and Weismantel Extension final voids, including a water quality analysis, conducted for the Environmental Assessment – Appendix A Surface Water Assessment, concluded that the final voids would not overflow to downstream watercourses.

The main principles of the Duralie Coal Mine Project water management system are to:

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- Minimise the generation of dirty water;
- Minimise storage requirements by maximising re-use of dirty water;
- Remove potential impacts on downstream water resources by provision of secure water containment on site and irrigation of excess water on site;
- Implement a system, whereby under extreme events in excess of design capacity, dirty water spill to the mine pit and not to the clean water catchments; and
- No discharge off site of water with total suspended solids concentration greater than the EPL criteria .

4.5.1 Water Management Plan

[Project Approval 08_0203 Schedule 3 conditions 25 to 29]

The Duralie Coal Mine Water Management Plan was prepared in accordance with the requirements of Project Approval 08_0203 Schedule 3 Condition 29, and Schedule 5 Condition 4. The Water Management Plan was prepared in consultation with the EPA and NOW, by Mr Lindsay Gilbert (Gilbert & Associates Pty Limited) and Dr Noel Merrick (Heritage Computing) who were endorsed by the Director-General on 18 February 2011 as suitably qualified and experienced persons under Project Approval 08_0203 Schedule 3 condition 29.

The Water Management Plan was approved by DP&I on 2 August 2012 and SEWPAC on 27 September 2013. The Water Management Plan was revised to reflect the conditions of Environment Protection Licence (EPL) 11701 as varied by Notice 1508851 on 21 March 2013.

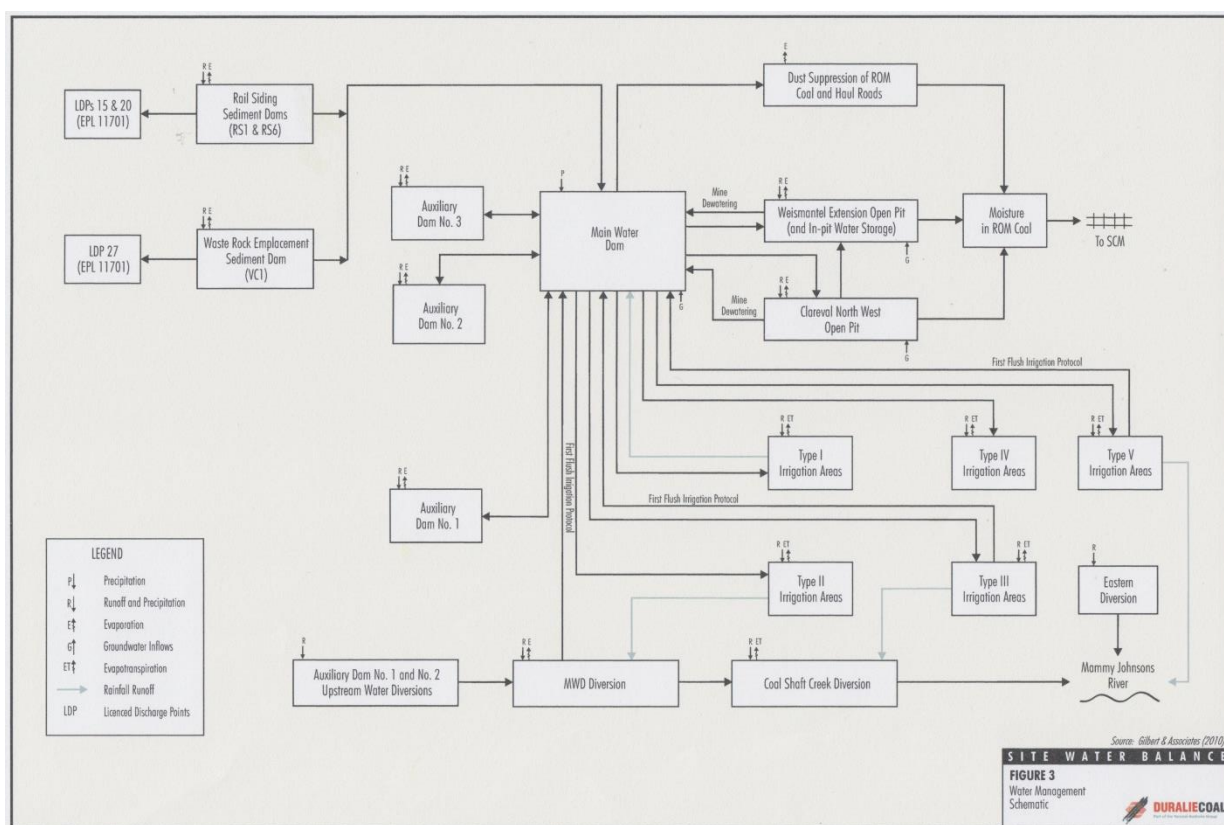


Figure 4.5.1: Duralie Coal Mine Project Water Management System

The Water Management Plan describes the water management system (refer to Figure 4.5.1) and includes:

- Appendix 1 - Site Water Balance;
- Appendix 2 - Surface Water Management Plan
 - Attachment A – Irrigation Management Plan
- Appendix 3 – Groundwater Management Plan
 - Attachment A – Groundwater Monitoring and Contingency Plan

4.5.2 Commitments in Water Management Plan

Refer to Commitments section in each of the Appendices to the Water Management Plan:

- Appendix 1 - Site Water Balance section 4.6.2 Environmental Assessment Commitments;
- Appendix 2 - Surface Water Management Plan section 4.7.2 Commitments;
 - Attachment A – Irrigation Management Plan section 4.8.2 Commitments;
- Appendix 3 – Groundwater Management Plan section 4.9.2 Commitments

4.5.3 Environmental Assessment Groundwater Predictions and Commitments

Refer to Environmental Assessment Predictions and Commitments section in each of the Appendices to the Water Management Plan:

- Appendix 1 - Site Water Balance section 4.6.2 Environmental Assessment Commitments;
- Appendix 2 - Surface Water Management Plan section 4.7.2 Commitments;
 - Attachment A – Irrigation Management Plan section 4.8.2 Commitments;
- Appendix 3 – Groundwater Management Plan section 4.9.2 Commitments

4.5.4 Monitoring

The Annual Reviews include a summary for the monitoring programs conducted for each of the water components in the Water Management Plan. Refer to the Monitoring section in each of the Appendices to the Water Management Plan:

- Appendix 1 - Site Water Balance section 4.6.3 Monitoring;
- Appendix 2 - Surface Water Management Plan section 4.7.4 Monitoring;
 - Attachment A – Irrigation Management Plan section 4.8.4 Monitoring;
- Appendix 3 – Groundwater Management Plan section 4.9.4 Monitoring

4.5.5 Annual Review and Verification

The Annual Reviews include a summary for each of the water components in the Water Management Plan. Refer to the Annual Review and Verification section in each of the Appendices to the Water Management Plan:

- Appendix 1 - Site Water Balance section 4.6.4 Annual Review and Verification;
 - Appendix 2 - Surface Water Management Plan section 4.7.5 Annual Review and Verification;
 - Attachment A – Irrigation Management Plan section 4.8.5 Annual Review and Verification;
- Appendix 3 – Groundwater Management Plan section 4.9.5 Annual Review and Verification

4.5.6 Matters Raised by Relevant Agencies

The following matters were raised by Great Lakes Council during consultation in November 2014:

Water management is a long standing community concern particularly the prevention of any direct discharge to the Mammy Johnson River or tributaries. The Water Management Plan does not permit discharge of water to Mammy Johnson River except as a result of heavy rainfall and release from the first flush system (Irrigation Management Plan section 4.6). Use of the evaporative fans for the reduction of excess water on the Duralie Coal Mine site occurs and introduction of additional evaporative fans would be considered in the annual Site Water Balance review.

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Potential breach of EPL 11701 Condition O4.2 (Runoff from irrigation areas) resulting from an uncontrolled discharge from the Duralie Coal Mine Type II irrigation areas on 18-Nov2014.

The EAs and Consents for Duralie go to particular lengths to condition how dirty Duralie mine water can be managed. The Consent Conditions lead to the Surface Water Management Plan and within that Plan the Irrigation Management Plan. In the Irrigation Management Plan, Type I to Type V lands are treated differently.

Great Lakes Council Issue	Response reference in this IEA
Water management is a long standing key community concern particularly the prevention of any direct discharge to the Mammy Johnson River or tributaries. During 2013/2014 the mine breached its operating conditions by directly releasing mine water to the river which would be otherwise irrigated. This coincided with a peak event and the real time monitoring indicated salinity of discharge water was below that of the receiving water. What is concerning is that whilst salinity appears not to be an issue the breach which was self-reported by the mine attracts no penalty or trigger to review practices with a view to ensure future full compliance. The results of a performance review need to be publically communicated.	The release of water from the Type II irrigation area on 18 November 2014 occurred in accordance with the approved Irrigation Management Plan section 4.6 First Flush System, and was not deemed a breach of the EPL 11701 Condition O4.2 (Runoff from irrigation areas). The release incident was notified by Duralie Coal Mine Project because the EC in Mammy Johnsons River was still above the EPL criteria of 400µS/cm. The release of rainfall runoff was from the irrigated area (not mine water release) and occurred with the discharge water being of better quality than the river. It is important to note it was not a release of polluted water from the Duralie Coal Mine Project site.
In addition the mine should consider all possible technologies and management procedures to ensure the full adherence to the no direct discharge operating condition including the use of evaporative fans. The results of independent compliance monitoring of the irrigation discharge program are also required to avoid potential for over irrigation and indirect discharge via groundwater to the river system.	No direct discharges of mine water occur or have occurred to Mammy Johnson River. The only release to Mammy Johnson River would be from the first flush system that occurs after the initial runoff from the irrigated areas.
In accordance with your offer, could you please include the use by Duralie of evaporative fans as an alternative for dispersing dirty mine water otherwise destined for Mammy Johnsons River, into the Audit of which you spoke at the recent Community Consultative Committee meeting. The Water Management Plan does not permit discharge of water to Mammy Johnson River except as a result of heavy rainfall and release from the first flush system (Irrigation Management Plan section 4.6). Use of the evaporative fans for the reduction of excess water on the Duralie Coal Mine site occurs and introduction of additional evaporative fans would be considered in the annual Site Water Balance review.	The Water Management Plan does not permit discharge of water to Mammy Johnson River except as a result of heavy rainfall and release from the first flush system (Irrigation Management Plan section 4.6).
The EAs and Consents for Duralie go to particular lengths to condition how dirty Duralie mine water can be managed. The Consent Conditions lead to the Surface Water Management Plan and within that Plan the Irrigation Management Plan. In the Irrigation Management Plan, Type I to Type V lands are treated differently. The above request predominantly concerns the carriage of evaporated dirty mine water in the winds that leave the evaporative source.	This irrigation waters onto the five types of irrigation areas at locations delineated in the Irrigation Management Plan section 4.2. The water quality is basically the same for each irrigation area and the spray drift dispersed from the evaporative fans is only distributed over a localised area around the fan(s) as observed during operation of the fans.

4.5.7 Community Complaints

Community complaints associated with the water management system have been related to noise from the evaporative fans. Duralie Coal Mine Project manage the time of operation of the evaporative fans and location on the overburden emplacement areas, to reduce potential for community complaints.

4.6 Site Water Balance

[Project Approval 08_0203 Schedule 4 condition 29(a)]

Site Water Balance Compliance Status: No non-compliances were identified

The Site Water Balance is reviewed and revised at least annually by Gilbert & Associates. The latest review was dated June 2014, with the next Annual Review due in December 2014.

The review of the Duralie Coal Mine water balance includes:

- Re-calibration/validation of the Duralie Coal Mine Project water balance model against the observed behaviour of the water management storages over the review period;
- Use of the Duralie Coal Mine water balance model to hind-cast the water balance components that cannot be measured (e.g. groundwater inflow) over the review period;
- Summarise the site water balance/inventory over the review period, including pumped water volumes from pits and other dams;
- Provision of quantitative water balance schematic for the review period;
- Estimation of the mine groundwater seepage inflows and comparison with Environmental Assessment predictions and licence extraction limits;
- Provision of spill risk and mining disruption assessment for the remaining mine life;
- Review of rainfall data against regional records; and
- Provision of an Annual Report.

4.6.1 Water Management On-site

The water management system at the Duralie Coal Mine Project operates under a surplus water balance. The major water inflows to the site are rainfall-runoff generated from operational areas and groundwater inflows to the mine workings. The water management system at the Duralie Coal Mine is based on the following principles:

- Runoff from undisturbed and rehabilitated areas is diverted around areas disturbed by mining activity.
- Runoff from areas disturbed by mining activity is collected, stored on site and used for haul road watering and agricultural irrigation activities in accordance with the approved Irrigation Management Plan (2013).
- Excess water that accumulates on site is held in site storages that are operated to maintain an adequate freeboard within the storages to control the risk of spill. If these storages become full up to their design freeboard levels, no pumping from the open cut pits occurs. Pumping back into the Weismantel Pit can also occur if water volumes in the storages exceed nominated minimum freeboard levels.

The three largest water storages on site are:

- Main Water Dam with a capacity of approximately 1,405 megalitres located on a former tributary of Coal Shaft Creek to the west of the southern end of the Weismantel Pit.
- Auxiliary Dam 1 with an estimated capacity of approximately 460 ML located upslope and south-west of the Main Water Dam.
- Auxiliary Dam 2 with an estimated capacity of approximately 2,720 ML located upslope and north-west of the Main Water Dam.

Water generated from the Weismantel and Clareval open-cut pits, the ROM stockpile, rail load-out, contractor's workshop, administration areas and the out-of-pit waste rock emplacement areas is pumped to the Main Water Dam. Water is transferred between this dam and Auxiliary Dam 1 and 2 as required to maintain adequate freeboard in the storages.

Water pumped to the Main Water Dam is first discharged into a smaller bunded area located at the north of the Main Water Dam. Water for haul road dust and rail loader suppression requirements is drawn from the Main Water Dam. The Main Water Dam diversion includes a two small diversion dams (DDD2 and DDD3) that intercept runoff from the catchments upstream of the storages and divert the up-catchment runoff water around the perimeter of these storages and into the Coal Shaft Creek diversion and Mammy Johnsons River. The Main Water Dam diversion is also a component of the irrigation first flush protocol. Upslope diversions have also been constructed around open cut pit and waste rock emplacement areas.

4.6.2 Environmental Assessment Predictions

It was concluded that the potential Duralie Coal Mine Project operational impacts on local and regional surface water resources were:

- Minor changes to flows in local creeks due to expansion and subsequent capture and re-use of drainage from mine catchment areas;
- Changes to the potential for export of contaminants (principally sediments and soluble salts) in mine area runoff and accidental spills from containment storages (principally sediments, soluble salts, oils and greases), causing degradation of local and regional watercourses;
- Changes to flows in the Mammy Johnsons River as a result of runoff and flow changes in contributing catchments and groundwater drawdown;
- Given the large distance to the nearest coal mining (Stratford Coal Mine) and coal seam gas activity (Gloucester Gas Project), no quantitative cumulative impact assessment was deemed necessary.

4.6.2.1 Water Balance Model Results

The water balance simulation modelling conducted by Gilbert & Associated annually shows that there were only two potential simulated sequences from the MWD or AD1 that reflects a low risk uncontrolled spill (equivalent to 0.2% over the remaining mine life) if the assumed operational conditions are adhered to.

Water balance modelling indicates that the risk of having insufficient water for mine dust suppression during the mine life is low (less than 0.1%).

4.6.2.2 Impacts on Flow Regime in Local Creeks

There was no change predicted on the flow regimes of the Coal Shaft Creek catchment and negligible change to the Un-named Tributary catchment so impact on these watercourses would be negligible. The catchments of Coal Shaft Creek and the Unnamed Tributary will be progressively reinstated as the waste rock emplacements are rehabilitated and become free draining. Following the completion of rehabilitation post-mining, only the catchment areas of the final voids (approximately 1.2 km²) would remain excised from these catchments.

4.6.2.3 Release of Contaminants in Drainage Off-site

The risk of spill from the Main Water Dam and the open pits was evaluated as part of the site water balance. Surface runoff from disturbed areas at the mine would continue to be captured on-site in accordance with the Surface Water Management Plan and there would be no change associated with the potential release of this surface runoff from disturbed areas.

No changes were proposed to the approved irrigation system or management regime and the Horizon Soil Survey and Evaluation (2014) concluded that irrigation at the Duralie Coal Mine appeared to be sustainable and predicted irrigation water salinities would not cause soil structural degradation or plant growth in irrigation areas.

4.6.2.4 Impacts on Mammy Johnsons River

The runoff from catchment areas of Coal Shaft Creek and the Unnamed Tributary to Mammy Johnsons River contribute approximately 3.2% of the total catchment area of Mammy Johnsons River. The Duralie Coal Mine Project currently excises approximately 8 km² of the catchment of Mammy Johnsons River which represents approximately 2% of the total catchment.

Following the completion of rehabilitation post-mining, the size of the Mammy Johnsons River catchment that is excised by the mine development would reduce to approximately 1.2 km² which represents less than 0.05% of the total catchment of Mammy Johnsons River. The change in the Mammy Johnsons River catchment resulting from the Duralie Coal Mine Project development would have a negligible impact on the Mammy Johnsons River flow regime.

The Environmental Assessment Appendix A - Groundwater Review also concluded that the impact of groundwater flows to the Mammy Johnsons River is considered to be negligible. The migration of groundwater as a result of irrigation and on-site water storage was assessed to have a negligible impact on water quality in the Mammy Johnsons River.

The Duralie Extension Environmental Assessment Modification 2014 was not expected to change the potential water quality impacts on the Mammy Johnsons River. Surface runoff from disturbed areas at the Duralie Coal Mine Project would continue to be captured on-site in accordance with the Surface Water Management Plan and there would be no change to impacts associated with the potential release of surface runoff from disturbed areas.

4.6.3 Environmental Assessment Site Water Balance Commitment

The original proposal for the Duralie Coal Mine Project On-site Water Management incorporated a controlled release of excess mine water to the Mammy Johnsons River and additional irrigation areas to the east of the Mammy Johnsons River. During the environmental assessment of the Duralie Coal Mine Project water balance and refinement of engineering and mine planning it was determined that an off-site controlled mine water release and irrigation areas to the east of Mammy Johnsons River was not required.

Environmental Assessment (January 2010) included the commitment that Duralie Coal Pty Ltd will maintain and extend current water management measures (e.g. on-site water storage, beneficial use of contained water for irrigation and diversion of runoff from upstream sources) in accordance with the conditions of the Project Approval and Environment Protection Licence.

The site water management occurs in accordance with the Site Water Management Plan and no release of waters to the surrounding occurs under normal meteorological and mine operating conditions.

4.6.4 Monitoring

The Site Water Balance monitoring conducted for the water balance is reviewed and the site water balance estimates are revised annually by Gilbert & Associates (see Figure 4.6.3). The latest review is dated June 2014, with the next Annual Review due to commence in December 2014.

The review of the Duralie Coal Mine Project water balance and a report prepared by Gilbert & Associates includes:

- Re-calibration/validation of the water balance model (Annual Water Balance Review section 6.2);
- Use of the DCM water balance model to hind-cast the water balance components that cannot be measured (e.g. groundwater inflow) over the review period ;
- Summarise the site water balance/inventory over the review period (Annual Water Balance Review section 5 – Quantitative Water Balance);
- Provision of quantitative water balance schematic (Annual Water Balance Review Annual Water Balance Review Figure 12);

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-
- Gilbert & Associates** Pty. Ltd.
- Legend**
- Pumped Flow
 - Gravity Flow
 - Spill
 - Seepage
- Water Management System Diagram:**
- The diagram illustrates the water management system for the Weismantel Open Cut Mining Area, showing the flow of water between various components and the Main Water Dam.
- Key Components and Flow Rates:**
- Clareval Open Cut Mining Area:** 26ML GW Inflow, 347ML Runoff, 1ML Evap.
 - Weismantel Open Cut Mining Area:** 802ML Seepage & GW Inflow, 287ML Runoff, 15ML Evap.
 - Auxiliary Dam 2:** 365ML Runoff, 336ML Evap, 240ML to Main Water Dam, 600 ML to Main Water Dam.
 - Main Water Dam:** 373ML Runoff, 265ML Evap, 18ML to VC1, 61ML to RS6, 1ML to Rail Loader, 224ML to Haul Roads, 1336ML to Irrigation.
 - DD2, DD3, VC1, RS6, RS1:** Various runoff and evaporation rates, with spill flows to Mammy Johnsons River, Coal Shaft Creek Diversion, and Weismantel Open Cut Mining Area.

4.6.5 Annual Review and Verification

Trevor Brown & Associates

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Annual Review for the Main Water Dam, Auxiliary Dam 1 and Auxiliary Dam 2 are consistent with the Duralie Coal Mine Annual Water Balance Review reports prepared by Gilbert & Associates.

4.6.6 Matters Raised by Relevant Agencies

DP&E requested a review of the annual water balance in their response letter in response to dams appearing 'full' on site during the 2013 DP&E audit. A review of the Site Water Balance Annual Review (4.6.4) and operational capacities was undertaken.

4.6.7 Community Complaints

No community complaints related to site water balance were received between November 2011 and December 2014.

4.6.8 Conclusions

The Site Water Balance reviews and modelling conducted by Gilbert & Associates have indicated that the water management system operates generally in accordance with the predictions in the Environmental Assessment and the risk of having insufficient water for mine dust suppression during the mine life is low (less than 0.1%).

It is noted that the consequence of exceeding the design capacity of the water management system would be the transfer of water to the open cut pits with potential consequential disruption to mining operations.

4.7 Surface Water Management

[Project Approval 08_0203 Schedule 3 conditions 29(b)]

Surface Water Management Compliance Status: No non-compliances were identified

4.7.1 Surface Water Management Plan

[Project Approval 08_0203 Schedule 3 conditions 29(b)]

The Duralie Coal Mine Project Surface Water Management Plan was prepared as part of the Water Management Plan - Appendix 2 in accordance with the requirements of Project Approval 08_0203 Schedule 3 Condition 29(b), and Schedule 5 Condition 4. The Surface Water Management Plan was prepared in consultation with the EPA and NOW by Mr Lindsay Gilbert (Gilbert & Associates Pty Limited) and Dr Noel Merrick (Heritage Computing) endorsed by the Director-General on 18 February 2011 as suitably qualified and experienced persons under Project Approval 08_0203 Schedule 3 condition 29. The Surface Water Management Plan was approved by DP&I on 2 August 2012.

Edits were made to the Surface Water Management Plan to address outcomes of the Annual Review (submitted June 2012, conditions of EPL 11701 varied by Notice 1508851 on 21 March 2013 2012, and conditions of the Project Approval 08_0203 modified on 1 November 2012. These revisions were approved on 27 September 2013.

4.7.2 Commitments in Surface Water Management Plan

The surface water management system at the Duralie Coal Mine Project includes the following components:

- water management storages;
- diversions for runoff from catchment areas upslope of the mine disturbance area;
- runoff control structures and devices on disturbed and rehabilitated areas at the mine;
- runoff control structures and devices on infrastructure areas;
- procedures, structures and devices for the control of erosion and sediment movement;

- procedures and equipment for the disposal of excess water through on-site irrigation; and
- sewage treatment plant and a system for the disposal of effluent.

The Surface Water Management Plan and site water management system includes all of the above commitments and implementation of the water management procedures and mitigation measures was observed to have occurred.

4.7.3 Environmental Assessment Surface Water Predictions and Commitments

The Environmental Assessment of surface water quality (2010) indicated that:

- Near neutral to slightly alkaline pH has been recorded at Coal Shaft Creek, Mammy Johnsons River and Karuah River (Gilbert & Associates Pty Limited, 2010).
- Coal Shaft Creek is generally more saline than the Mammy Johnsons River and the Karuah River. The EC data presented in the Duralie Coal Environmental Assessment showed similar trends in these streams to the data collected since mining operations began at the Duralie Coal Mine.
- Elevated zinc concentrations are regularly recorded in the Karuah River, Mammy Johnsons River, Coal Shaft Creek and the Unnamed Tributary to Mammy Johnsons River, including sites both upstream and downstream of the Duralie Coal Mine (Gilbert & Associates Pty Limited, 2010).
- Concentrations of copper and chromium have also been recorded above the ANZECC & ARMCANZ default trigger values for aquatic ecosystems in these watercourses (Gilbert & Associates Pty Limited, 2010).
- The majority of the concentrations of other metals monitored have been below the detection limit on most sampling occasions (Gilbert & Associates Pty Limited, 2010).

The Environmental Assessment of the Duralie Coal Mine Project water balance (2010) and refinement of engineering and mine planning determined that off-site controlled mine water release to Mammy Johnsons River was not required and included the following commitment:

- Duralie Coal Pty Ltd will maintain and extend current water management measures (e.g. on-site water storage, beneficial use of contained water for irrigation and diversion of runoff from upstream sources) in accordance with the conditions of the Project Approval and EPL.

(The site water management occurs in accordance with the Site Water Management Plan and no release of waters to the surrounding occurs under normal meteorological and mine operating conditions).

4.7.4 Surface Water Management

4.7.4.1 Clean Water Management

The main objective of clean water management is the segregation of clean from dirty water with diversion drains around disturbed areas of the mine to minimise the quantity of dirty water generated on the site. Surface water controls aim to prevent clean runoff water from entering the open mining pit and overburden dumping areas where practical. The main structures are:

- Diversion of Coal Shaft Creek (the creek will be re-established at the conclusion of mining);
- Diversion drain that intercepts runoff from the catchment above the Main Water Dam and delivers that water to Coal Shaft Creek;
- Auxiliary Dam 1 (AD1) and Auxiliary Dam 2 (AD2) diversion drains;
- Clareval Pit western diversion drain;
- Flood control embankments to prevent inundation of mining areas;
- Culvert under the Main Coal Haul Road that allows Coal Shaft Creek to flow through the site; and
- Various runoff control drains/bunds around disturbed areas, designed to divert clean water runoff around those areas.

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4.7.4.2 Dirty Water Management

The dirty water control facilities are:

-

A landscape photograph showing a golf course area. In the foreground, there's a grassy field with a small pond. A road curves along the right side. In the background, there are hills under a cloudy sky. A power line runs diagonally across the middle of the image.

LEGEND

- Mining Lease Boundary
- Approximate Extent of Development

0 200 Metres

Source: Aerial Photography from the Department of Environment and Planning, NSW Government

FIGURE 2
Aerial Photograph of the Project Area and Surrounds

Figure 4.7.4: Main Water Storage Dams – Duralie Coal Mine

4.7.5 Surface Water Monitoring

[Project Approval 08_0203 Schedule 3 condition 28]

Surface water management at the site was inspected and found to present little risk in regard to erosion and off site sediment transport. Primarily all site waters drain or are otherwise managed to not leave the site. Waters external to the active mining and other operational areas are well controlled and diverted around the site works in constructed temporary channels.

The only area of identified low level risk was a small water storage basin located adjacent to the rail coal loader facility. This basin received waters from the upper works area/loading facility and machinery work area. Water management in this area is reliant on a large electric pump to remove water to the main open pit storage. In the event of pump failure overflow from this basin may flow out of the controlled works area.

4.7.4.1 Review of Surface Water Monitoring Results

Surface water quality monitoring locations on and surrounding the mine site, comprise both streams and water storage structures in accordance with the Surface Water Management Plan and Environment Protection Licence 11701 conditions:

- SW2 (Coal Shaft Creek [Lower])
- SW2(RC) (Coal Shaft Creek [Rail Culvert])
- SW6 (Culvert at Rail Siding) SW9 (Fisher-Webster)
- SW10 (Holmes)
- GB1 (Mammy Johnsons River [Upstream])
- High Noon (Mammy Johnson River)
- Site 9 (Karuah River [Stroud Road])
- Site 11 (Mammy Johnsons River [Downstream])
- Site 12 (Mammy Johnsons River [Relton])
- Site 15 (Mammy Johnsons River [Tereel])
- Site 19 (Karuah River [Washpool])
- DDD 2 and DDD 3 (MWD Upslope Diversion)
- North Drain [ND] and South Drain [SD]
- Units 6, 9, 11 MJR US EC and MJR DS EC
- CSC Upstream and CSC Rail Culvert

Collected waters are analysed for a suite of physical and chemical parameters and results compared with the ANZECC Guidelines for Fresh and Marine Water Quality (2000) (Aquatic Ecosystems and Environment Protection Licence requirements.

Comments on analysed parameters during the November 2011 to November 2014 period are:

- pH at all sites was generally within the ANZECC guidelines and ranged from 6.3 to 8.5.
- Electrical conductivity (EC) across all sites ranged about the ANZECC nominated band between November 2011 and December 2014. EC above the ANZECC range is attributed to lower stream flows and groundwater influence during low flow conditions. EC was generally higher within Coal Shaft Creek than in Mammy Johnsons River and higher within Mammy Johnsons River than in the Karuah River, a trend that has been observed during previous monitoring periods.
- Turbidity and suspended solids were generally low at all sampling locations, except during increased flows after high rainfall events.
- Sulphate concentrations recorded at all sites were generally low.
- Manganese, iron, zinc and aluminium concentrations were generally low and within the relevant ANZECC guidelines.
- Calcium, magnesium and chloride concentrations were variable across the monitored sites during the November 2011 and December 2014 but no anomalous results were identified.

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- Calcium concentrations ranged from 2 to 98 mg/L, magnesium concentrations ranged from
- 1 to 96 mg/L and chloride concentrations ranged between 11 and 1003 mg/l. The higher concentrations were generally observed under low stream flows.

The surface water monitoring results were consistent with predictions made in the Environmental Assessment (2010) and did not exhibit results that indicated impact attributable to the Duralie Coal Mine Project activities.

4.7.6 Annual Review and Verification

The surface water management is reported in the Annual Reviews in section 3.6 including:

- Surface water management (outlines the clean and dirty water management systems);
- Surface water monitoring (including local streams water quality and mine water quality);
- Biological monitoring (conducted of the aquatic ecosystems of Mammy Johnson River and Karuah River in March and September annually by Invertebrate Australasia);
- Riparian vegetation 'health' monitoring (in accordance with the Water Management Plan section 8.6); and
- Ecotoxicity testing program (in accordance with the Water Management Plan section 8.7).

The Annual Review status of surface water management activities provides a consistent review with the specialist reports appended to the Annual Review.

4.7.7 Matters Raised by Relevant Agencies

Matters related to the surface water management were raised by the Great Lakes Council during consultation with the agencies (Refer to section 4.5.6 of this report).

4.7.8 Community Complaints

No community complaints related to surface water management were received between November 2011 and December 2014.

4.7.9 Conclusions

The Surface Water Management Plan contains a comprehensive monitoring program and water management system for the Duralie Coal Mine Project site.

The surface water monitoring conducted between November 2011 and November 2014 did not demonstrate any significant changes in water quality in the natural waterways (i.e. Mammy Johnson River, Unnamed Tributary, Coal Shaft Creek) that would be attributable to the Duralie Coal Mine Project operations and activities during the November 2011 to November 2014 period. Occasional higher readings for parameters appeared to be related to periods of low rainfall and hence low flow conditions in the waterways, or following heavy rainfall where first flush waters conveyed suspended solids from upstream runoff.

4.8 Irrigation

[Project Approval 08_0203 Schedule 3 condition 29(b)]
[EPL condition O4.2 and O4.3, O6.3 and O7.1]

Irrigation Compliance Status: No non-compliances identified

4.8.1 Irrigation Management Plan

[Project Approval 08_0203 Schedule 3 condition 29(b)]

The Irrigation Management Plan prepared as part of the Water Management Plan to satisfy Project Approval 08_0203 Schedule 3 condition 25 and 29, was approved by DP&I on 2 August 2012. The Water Management Plan and Irrigation Management Plan were revised and approved by DP&I on 27 September 2013. The Irrigation Management Plan has been developed to ensure that surface runoff from the irrigation areas is not discharged from the Duralie Coal Mine Project site except under extreme weather events when the first flush system is triggered.

The approved Irrigation Management Plan also includes a first flush protocol that captures any initial runoff with elevated salinity levels from Duralie irrigation areas during rainfall events.

4.8.2 Irrigation Management

The Duralie Coal Mine Project operates under a continual stored water surplus. There is only minimal requirement for process water on site (e.g. for dust suppression and fire-fighting). The Development consent and Project Approval conditions preclude disposal of mine water to the local creek/river system.

Irrigation, is used within the Duralie Coal Mine lease area, to draw down the excess stored water by irrigation onto specified areas within the site. Irrigation consists of a network of fixed sprays, evaporative fans and travelling irrigators in the various approved irrigation areas, in accordance with the Water Management Plan and Irrigation Management Plan. The excess water produced on the site is stored in the Main Water Dam and Auxiliary Dams 1 and 2.

The Main Water Dam is the primary supply of water for the on-site irrigation system. Irrigation occurs in areas upslope of the Main Water Dam. Direct runoff of water from irrigated areas is avoided by management of irrigation rates, using continuous monitoring with soil moisture sensors in accordance with the approved Irrigation Management Plan. Runoff from these areas reports to the Main Water Dam diversion and is subject to recapture as part of the Duralie Coal Mine Project first flush protocol.

Irrigation over areas of rehabilitated or partially rehabilitated Weismantel waste rock emplacements occurs with runoff reporting either to the Weismantel Pit or VC1.

The first flush protocol for runoff from the irrigated areas is designed to collect initial rainfall runoff from irrigation areas which drain to Coal Shaft Creek or Mammy Johnsons River. Sensors measuring Electrical Conductivity (EC) are installed in sumps in the Main Water Dam diversion to monitor runoff from the irrigation areas upslope of the Main Water Dam. The first flush system for the irrigation areas is triggered:

- When EC readings in Mammy Johnsons River downstream of the Duralie Coal Mine Project area is equal to or greater than 400 $\mu\text{S}/\text{cm}$, motorised butterfly valves in pipelines at the downstream end of the Main Water Dam diversion northern and southern drains open, directing runoff from the irrigation areas to the Main Water Dam.
- When the EC readings in the Main Water Dam diversion drain sumps are below 1,326 $\mu\text{S}/\text{cm}$ and the EC reading in Mammy Johnsons River at High Noon are below 400 $\mu\text{S}/\text{cm}$, the valves close, allowing the runoff in the Main Water Dam diversion to report to the Coal Shaft Creek diversion and Mammy Johnsons River downstream of the Duralie Coal Mine Project area.

4.8.3 Commitments in Irrigation Management Plan

Commitments made in the Irrigation Management Plan related to the irrigation operations were:

- The Water Management System will have minimal operational disruption while maintaining a negligible risk of spill from the Mine Water Dam and Auxiliary Dams to Mammy Johnsons River and Coal Shaft Creek.
- Irrigation Areas will have no significant impact on soil properties or suitability of soil in irrigated areas for future agricultural use (i.e. grazing on native pasture).

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- Surface Water Quality impacts (including impacts to biological diversity and aquatic ecological integrity) will have negligible impact on water quality in Mammy Johnsons River, Coal Shaft Creek and the Unnamed Tributary as a result of the Duralie Extension Project.
- No significant impact on aquatic ecosystems and biota will occur as a result of the Duralie Extension Project.
- No more than a negligible impact on riparian vegetation along Mammy Johnsons River, and Coal Shaft Creek and Unnamed Tributary (downstream of approved mine disturbance areas), will occur as a result of the Duralie Project.

The Water Management Plan also includes the monitoring programs that have been implemented for the assessment of the Duralie Coal Mine operations against the performance indicators and measures for water management and water resources that include:

- meteorology (Section 8.1);
- water management system performance (Section 8.2);
- irrigation (Section 8.3);
- erosion and sediment control structures (Section 8.4);
- surface water quality and flows (Section 8.5);
- stream and riparian vegetation “health” (Section 8.6);
- ecotoxicity (Section 8.7); and
- reconstructed Coal Shaft Creek (Section 8.8).

If a performance measure is considered to have been exceeded, the Contingency Plan will be implemented (Section 10).

4.8.4 Environmental Assessment Predictions and Commitments

The Environmental Assessments (2010, 2012 and 2014) addressed irrigation management.

The irrigation system is operated to maximise evapotranspiration and plant growth and avoid surface runoff, resulting from the irrigation. Irrigation water is applied to maintain a 10 millimetres (mm) soil moisture deficit before, during and immediately following irrigation application.

Soil moisture deficit is measured using soil moisture sensors. Determination of soil moisture levels to rank irrigation priorities is undertaken using a combination of automated moisture probe sensing and manual downloading of Gbug sensor/loggers data. The irrigation system is operated such that soil moisture levels are maintained below field capacity to ensure that saturation only occurs during rainfall.

There are five types of irrigation area delineated in the Irrigation Management Plan 2013 that have been approved for use as irrigation areas:

- Pasture and woodland land use in irrigation areas:
 - Type I – Irrigation areas between the Main Water Dam diversions and the water storage inundation area of the Main Water Dam. Heavily irrigated area that drains to the Main Water Dam.
 - Type II – Irrigation areas located upslope of the Main Water Dam diversions within Mining Lease (ML) 1427. A first flush containment protocol diverts saline drainage to the Main Water Dam.
 - Type III – Irrigation areas located upslope of the northern extent of the open pits, including the upper reaches of Coal Shaft Creek. A first flush containment protocol would divert saline drainage from the Northern Diversion Dam to the Main Water Dam. ((Note: Type III irrigation areas have not been commissioned at the date of this audit December 2014).
- Type IV and V irrigation areas on waste rock emplacements:
 - Type IV – Irrigation areas located on partially rehabilitated and rehabilitated areas of the waste rock emplacement. A first flush containment protocol diverts saline drainage from rehabilitated waste rock emplacement areas from collection dams to the Main Water Dam.

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- Type V – Irrigation areas located on inactive (but not yet top-soiled or rehabilitated) areas of waste rock emplacement. Drainage from waste rock emplacement areas that have not been rehabilitated returns to the open pit.

The Duralie Water Management Plan has environmental performance indicators for investigating potential adverse impacts to mitigate against significant impact to soil properties, or suitability of soil in irrigated pasture areas for future agricultural use (i.e. grazing on native pasture). The irrigation performance indicators for investigating potential adverse impacts described in the Water Management Plan Section 9 are:

- Main Water Dam water:
 - pH between 6.0 and 8.5.
 - electrical conductivity (EC) greater than 2,500 micro Siemens per metre ($\mu\text{S}/\text{cm}$)
 - residual sodium carbonate (RSC) greater than 1.5 milli-equivalents per litre (meq/L).
 - sodium adsorption ratio (SAR) greater than 6.0.
- Irrigation areas:
 - soil pH between 5.5 and 7.5
 - soil EC increases above 2,500 $\mu\text{S}/\text{cm}$
 - soil SAR greater than 6.0
 - leaf scorching

Gilbert & Associates (2014) prepared a Main Water Dam salt balance simulation for median, unusually wet and unusually dry periods. The predicted maximum EC values under these weather conditions were predicted to be:

- Median Rainfall Sequence: 3,400 $\mu\text{S}/\text{m}$.
- Wet (1/10 wet) Rainfall Sequence: 3,100 $\mu\text{S}/\text{m}$.
- Dry (1/10 dry) Rainfall Sequence: 3,800 $\mu\text{S}/\text{m}$.

4.8.5 Irrigation Monitoring

Irrigation water monitoring for sodicity (SAR), salinity (EC) and pH in the Main Water Dam (SW3) for irrigation performance indicators has demonstrated that average salinity and maximum sodicity (SAR) in the Main Water Dam exceeded the irrigation performance indicator for investigating potential adverse impacts in 2013 and 2014.

An assessment of the irrigation performance measures to determine whether there had been significant impact on soil properties, or to the suitability of soil in irrigated areas for future agricultural use (i.e. grazing on native pasture) was conducted and it was concluded that the soil salinity increase in the irrigation areas relative to the reference sites was unlikely to cause measureable decreases in pasture productivity in the short or long term.

Table 4.8.4: Main Water Dam (SW3) Water Quality 2011 to 2014

Parameter	pH	Salinity (EC)	Sodium Absorption Ratio (SAR)
Year	pH units Range (Mean)	Salinity Ranges (Mean)	SAR Range (Mean)
2011	7.0 – 8.4 (7.6)	1900 – 2500 (2100)	1.7 – 2.2 (1.9)
2012	7.0 – 8.3 (7.7)	2200 – 2800 (2600)	2.1 – 2.4 (2.2)
2013	6.9 – 8.0 (7.5)	2700 – 3900 (3300)	2.1 – 6.1 (4.9)
2014	7.6 – 7.6 (7.6)	4000 – 4000 (4000)	5.6 – 5.8 (5.7)

Annual irrigation area soil monitoring (soil salinity, permeability and cumulative contaminant loading) and irrigation area vegetation monitoring (species composition, growth rates, grazing levels, harvesting, rotation of irrigation areas) is conducted in accordance with the Irrigation Management Plan section 8.3. The 2013 and 2014 soil monitoring programs found there was no measurable impairment of agricultural land values associated with operation of the irrigation system (Hollingsworth, 2013, Hollingsworth, 2014).

The soil reference site (DUR7) is located in a volcanic geological unit to the west of the Duralie Coal Mine. The soils formed on these parent materials have relatively high pH, cation exchange capacity (CEC) and fine texture

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(clay loam to light medium clay) in the surface. Soil reference site DUR5 was established to represent soils formed on sedimentary rocks to the east of the Duralie Coal Mine. The soils formed on these parent materials have relatively low pH, CEC and coarse texture (sandy clay loam) in the surface.

The irrigated pasture sites are located on volcanic rock derived soils. Relatively low soil fertility parameters at irrigated waste rock emplacement sites (DUR4 – waste rock emplacement; DUR6 – rehabilitated waste rock emplacement) were similar to the background conditions at reference site DUR5, formed on sedimentary geology.

No evidence was noted that exchangeable sodium percentage (ESP) or soil dispersibility had increased in the Duralie Coal Mine Project areas under irrigation. There does not appear to be a detrimental effect on ground cover or pasture composition in the irrigated pastures compared with the dryland reference sites. Annual monitoring will not measure pasture growth accurately but will provide a relative assessment of pasture condition over time. The monitoring report (Horizon Environmental, 2014) concluded that there had been no significant detrimental effect on soil properties, or suitability of soil in irrigated areas for future agricultural use (i.e. grazing of native pasture).

4.8.6 Annual Review and Verification

The Annual Reviews for 2012-2014 reported that irrigation occurred in accordance with the Irrigation Management Plan onto the approved irrigation areas:

- Type I (MWD catchment) area – PPD10, 10 fixed sprays, spray radius 30m, total area 2.8 ha;
- Type II (Upslope MWD) – PPD8 & 10, 245 fixed sprays, spray radius 30m, total area 69.3 ha;
- Type III – (in the catchment of Coal Shaft Creek above Dam 3) NOT IN USE, 68 fixed sprays, spray radius 30m, total area 19.2 ha (not operational);
- Type IV (Rehabilitated waste emplacement) – PPD 9, 52 fixed sprays, spray radius 15 m, total area 3.7ha; and
- Type V (Waste emplacement) – PPD7, 2 evaporative sprays and 1 travelling irrigator, total area 2 ha (estimated).

Table 4.8.6: Mine water Main Water Dam irrigated within Type II, IV & V areas

Year	ML Water Irrigated within Type II, IV & V areas
1 July 2013 - 30 June 2014	1336 ML
1 July 2012 – 30 June 2013	946 ML
1 July 2011 - 30 June 2012	303 ML

Except for one event on 18 November 2013 following a heavy rainfall, no release of surface runoff has occurred from the irrigation areas. The summary in the Annual Reviews are consistent with the irrigation and Site Water Balance reports.

4.8.7 Matters Raised by Relevant Agencies

DP&E raised the matter of beneficial reuse of surplus water from the Duralie Coal Mine (adjacent irrigation opportunities etc). A response was also provided to DP&E by Duralie Coal following the DP&E audit in 2013.

This matter was discussed with the Duralie Mine personnel and investigated options during the site visit in November 2014. The Duralie Coal Mine Project irrigation operations on-site and use of evaporative fans on the overburden emplacements manages all the excess water on site, at low risk to the environment and surrounding surface water bodies. The development of the mine was designed as a no release operation with site water management to ensure no release of mine water from the site. The investigation of the reuse of surplus water by off-site users identified risks associated with the 'transport' of mine water that would not be wholly manageable by Duralie Coal and would not be acceptable to the community due to the perception of ex-mine

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water quality and potential for release of this ex-mine water to Mammy Johnsons River and the surrounding environment from use off-site for irrigation by local land users. Duralie Coal advised they also continue to reassess options for beneficial reuse of surplus water.

Great Lakes Council raised the matter of a water release to Mammy Johnsons River in response to the consultation that occurred under Project Approval Schedule 5 condition 8(b):

"Water management is a long standing key community concern particularly the prevention of any direct discharge to the Mammy Johnson River or tributaries.

In addition the mine should consider all possible technologies and management procedures to ensure the full adherence to the no direct discharge operating condition including the use of evaporative fans."

The matter related to a potential breach of EPL 11701 Condition O4.2 resulting from an uncontrolled discharge from the Duralie Coal Mine Type II irrigation areas to Mammy Johnsons River on 18 November 2014. EPL 11701 Condition O4.2 states:

"O4.2 Runoff from Irrigation Areas

Runoff from irrigation areas must not be permitted to run to either Coal Shaft Creek downstream of operations or to Mammy Johnsons River if it has an electrical conductivity of greater than 1326 $\mu\text{S}/\text{cm}$ or if the electrical conductivity in Mammy Johnsons River at "High Noon" (EPA point 35) is greater than 400 $\mu\text{S}/\text{cm}$."

Duralie notified the EPA via the Hotline (131 555) within 1 hour of the incident occurring and provided an Environmental Incident Report to the EPA in accordance with EPL 11701 condition R2, the Duralie Coal Mine Pollution Incident Response Management Plan (PIRMP) and Project Approval Schedule 4 condition 6.

The DP&I, Great Lakes Council, NSW Health, NSW Fire and Rescue and Workcover were also notified within 2 hours of the incident.

The incident involved runoff from Duralie Coal Mine Type II irrigation area during a heavy rainfall event whilst electrical conductivity (EC) level was above 400 $\mu\text{S}/\text{cm}$ in Mammy Johnsons River. The rainfall runoff triggered the Duralie first flush system that was designed to respond to the EC concentration in the North and South drains, which at the time of the release was less than the EPL criteria of 1326 $\mu\text{S}/\text{cm}$.

EPL 11701 and Project Approval (08_0203) permits runoff from the Duralie Coal Mine Type II irrigation areas in accordance with the following first flush criteria:

- Mammy Johnsons River at Highnoon must be less than 400 $\mu\text{S}/\text{cm}$ and;
- Main Water Dam (MWD) North and South drains must be less than 1326 $\mu\text{S}/\text{cm}$.

Note: Total rainfall recorded for 24hrs to 9am 18 November 2013 was 87mm which resulted in:

- Rainfall runoff from irrigation areas to the North Drain with an EC range from 426 to 585 $\mu\text{S}/\text{cm}$; and
- Rainfall runoff from irrigation areas to the South Drain with an EC range from 558 to 1022 $\mu\text{S}/\text{cm}$

The release incident was notified by Duralie Coal because the EC in Mammy Johnsons River was still above the EPL criteria of 400 $\mu\text{S}/\text{cm}$. Hence the release occurred from the Duralie Coal Mine Site with the discharge water being of better quality than the river, not a release of polluted water from the Duralie Coal Mine Site. The first flush system provides for release of excess water during high rainfall events following the retention of the first flush runoff into the Main Water Dam and then release of low EC water (i.e. less than 1326 $\mu\text{S}/\text{cm}$) to Mammy Johnsons River. This first flush system is considered a satisfactory management tool for the control of runoff water from mine as it is only triggered under extreme rainfall events. At all other times under normal rainfall events there has been no release of water from the mine site to Coal Shaft Creek or to Mammy Johnsons River.

4.8.8 Conclusions

Management of the existing irrigation system at the Duralie Coal Mine Project is consistent with the Irrigation Management Plan (2013) and appears to be sustainable based on irrigation monitoring results.

The irrigation system has been implemented in accordance with the Irrigation Management Plan with automatic irrigation controls, and a first flush monitoring system to manage the potential release of water and water quality in the event of high rainfall that results in runoff exceeding the design quality of the water storage dam(s).

Irrigation of excess mine water occurs as part of the site water management system. Water from the Main Water Dam has been assessed as suitable for irrigation in accordance with the Environmental Assessment Duralie Extension Project 2010, and Irrigation Management Plan section 4.1 – *“The key findings of the Agricultural Water Management (2010) assessment were that there was no evidence the MWD would significantly affect soil properties and accordingly water from the MWD is considered suitable for irrigation, conducted in accordance with the IMP moisture deficit strategy.”*

Annual soil monitoring is conducted by an independent soils consultant to assess the soil characteristics and determine any effect of the irrigation on the irrigated areas. Soil salinity has increased in irrigation areas relative to the non-irrigated reference sites however the increase is considered unlikely to cause measureable decrease in pasture productivity in the short or long term. There does not appear to be a detrimental effect on ground cover or pasture composition in the irrigated pastures compared with the non-irrigated reference sites.

Soil permeability and application rates in the irrigation areas were reported to be adequate to maintain leaching of salts applied in irrigation out of the root zone (Gilbert & Associates 2013). The soils are generally not dispersive. On-site surface water monitoring results were consistent with predictions made in the Environmental Assessment (2010) and generally comply with the EPL criteria.

4.9 Groundwater

[Project Approval 08_0203 Schedule 3 condition 29]

4.9.1 Groundwater Management Plan

[Project Approval 08_0203 Schedule 3 condition 29]

Groundwater Compliance Summary: No non-compliances identified

The Groundwater Management Plan was prepared to satisfy Project Approval Schedule 3 condition 29(c), as part of the Water Management Plan Appendix C. The Groundwater Management Plan was approved by DP&I on 27 September 2013 and implemented for the Duralie Coal Mine Project.

4.9.2 Environmental Assessment Predictions and Commitments

Environmental Assessment (2012) included the following conclusions on Groundwater Assessment prepared by HydroSimulations:

The DEP groundwater model was updated to account for the proposed increase in the depth of the Clareval open pit and for the revised mining sequence.

Consistent with the predictions for the DEP and observed groundwater monitoring data, the following is predicted:

- negligible impact to the alluvium in which the Mammy Johnsons River sits, or to river leakage/base-flow contributions;
- negligible impacts to other groundwater users; and

- negligible impacts to groundwater dependent ecosystems.

Groundwater inflow to the open pits is predicted to remain within the Duralie Coal Mine Project existing licensed allocation, and as such, no additional licences would be required. Existing groundwater monitoring and management measures described in the Groundwater Management Plan would continue, including the performance measures and indicators (trigger levels) for investigating any potentially adverse groundwater impacts to the Mammy Johnsons River or privately-owned bores and associated contingency measures.

Environmental Assessment (January 2010) included the following conclusions on Groundwater Assessment based on a number of groundwater studies and monitoring programs undertaken in the Project area, including Project hydraulic permeability testing. Examination of the hydrogeological data facilitated an understanding of the existing groundwater systems and the scale and nature of the existing effects of the Duralie Coal Mine on groundwater systems. The DCM open pit acts as a groundwater sink, and groundwater nearby maintains a flow direction towards the pit.

A conceptual model of the hydrogeological regime was developed based on review of the hydrogeological data and supports two separate groundwater systems:

- shallow groundwater system – associated with alluvium (restricted in extent) and regolith; and
- deeper groundwater system – associated with coal bearing strata.

Alluvial deposits (silty sands and silts with lenses of gravelly sands and sandy, coarse gravel) are associated with Mammy Johnsons River to the east of the Project area.

The Environmental Assessment (2010) described groundwater in the Duralie Coal Mine Project area as being characterised by the following parameters/ranges:

- pH –6.0 to 8.0
- Electrical conductivity –100 to 7600 $\mu\text{S}/\text{cm}$

The groundwater pH range for bores likely to be influenced by the coal measures between November 2011 and December 2014 was generally between 6.0 and 7.7 (with a single monitoring result of pH of 4.6 recorded in December 2013 from DB10W).

The electrical conductivity range for the groundwater bores between November 2011 and December 2014 bores was 105 to 7490 $\mu\text{S}/\text{cm}$. These results are generally consistent with the ranges noted in the Environmental Assessment (2010).

4.9.3 Monitoring

A groundwater monitoring program has been conducted since the commencement of mining operations in October 2002:

- At the commencement of mining monitoring of groundwater occurred in five (5) deep groundwater bores that had been monitored for several years prior to commencement of mine construction. The early mining groundwater bore network was expanded to ten (10) deep and shallow bores to obtain samples from different aquifers.
- During 2004 the monitoring network was further expanded by three (3) bores to sample groundwater within the proposed irrigation Type II area.
- In 2007 an additional piezometer was installed (DB7W) located between northern future mine workings and Mammy Johnsons River.
- Monitoring commenced at bores DB8W, DB9W and DB10W in 2009 between the then northern extent of the Weismantel Pit and Mammy Johnsons River.

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- Additional monitoring bores (DB11W, WR1 and WR2) were installed during the 2012-13 reporting period with monitoring commencing during the 2013-14. WR1 and WR2 were installed on the southern and eastern perimeters of the waste emplacement to monitoring groundwater table recovery within the backfilled void.

General comments on the groundwater monitoring conducted during November 2011 to November 2014 were:

- Depth to groundwater was comparable with historical data for most monitored wells.
- pH varied from slightly acidic (DB10W pH 4.6 in December 2013) to neutral 7.7 (SI2W pH 7.7 in May 2014);
- Electrical conductivity showed a high degree of variability across many of the wells historically. This appears to reflect the cycle of dry and wet conditions. Shallow wells intercept generally low conductivity alluvial aquifers, whilst deep wells associated with coal measures generally have higher conductivity;
- Calcium and magnesium concentrations in all wells exhibited minor fluctuations;
- Sulphate concentrations varied in all wells over the monitoring period;
- Aluminium concentrations were close to the limit of analytical detection in all the deeper wells but comparatively higher in the shallower wells.
- Iron and manganese concentrations showed no trend with rises and falls across wells generally.
- Zinc concentrations were low and not inconsistent with available historical data.

The groundwater monitoring data indicates that the groundwater quality varies in a random manner, when historical results are compared with current data.

On basis of the groundwater monitoring results, the mine activities are not influencing groundwater quality. This is consistent with the groundwater assessment conducted in the Environmental Assessment (2010).

4.9.4 Annual Review and Verification

The Annual Reviews reported on groundwater management, monitoring and depressurisation in section 3.7 and groundwater monitoring data is presented in Appendix 4.

The summary of groundwater management and monitoring results are complete for each period of the Annual Reviews.

4.9.5 Matters Raised by Relevant Agencies

No matters related to groundwater management at the Duralie Coal Mine were raised by the agencies during the consultation in November 2014.

4.9.6 Conclusion

The Groundwater Management Plan presents a comprehensive monitoring program for groundwater quality and levels across the Duralie Coal Mine site. On basis of the groundwater monitoring results, the mine activities are not influencing groundwater quality. This is consistent with the groundwater assessment conducted in the Environmental Assessment (2010).

4.10 Erosion and Sediment Control

[Project Approval 08_0203 Schedule 3 condition 29(b)]

Erosion and Sediment Control Compliance Status: No non-compliances identified

Erosion and sedimentation at the Duralie Coal Mine Project could result directly or indirectly by runoff from:

- areas disturbed in advance of, and during mining;
- topsoil stockpiles and waste rock emplacements, prior to rehabilitation;
- rehabilitated areas prior to adequate stabilisation of the revegetated surface;
- infrastructure areas;
- haul roads or rail embankments; and
- areas where erosion has been exacerbated by irrigation practices.

The primary objectives of the erosion and sediment control at the Duralie Coal Mine are to:

- minimise and control soil erosion and sediment generation in areas disturbed by ongoing mining and associated activities at the Duralie Coal Mine Project; and
- minimise the potential for sediment generated from site activities to adversely affect the water quality of the Mammy Johnsons River or the Karuah River.

Control strategies for soil erosion and sediment migration at the Duralie Coal Mine Project include:

- Separation of runoff from disturbed and undisturbed areas;
- Provision of a site drainage system (comprising clean and dirty water drains) that operates at non-erosive velocities at the specified design criteria;
- Construction of sediment basins downstream of disturbed areas sized to contain runoff up to specified design criteria;
- Treatment of collected runoff water as required in accordance with the conditions of EPL 11701 to achieve:
 - pH range of 6 to 8;
 - <50 mg/L of suspended solids; and
 - no visible oil and grease.
- Selective use of flocculants, such as gypsum, to assist in the settlement of suspended solids in sediment basins if required.
- Construction of silt fences in overland flow areas downslope of disturbed areas;
- Progressive stabilisation of disturbed surfaces, including:
 - the use of contour banks and furrows;
 - the use of hydro-mulching techniques; and
 - early revegetation or armouring (i.e. jute mesh and/or compacted rock) of disturbed surfaces.

The topography at the Duralie Coal Mine is such that mining generally progresses in an up-hill direction with runoff from upslope areas disturbed by topsoil removal naturally draining into the pit.

Sediment dams are dewatered to their normal operating level within 10 days of a runoff-generating rainfall event to re-establish the design containment capacity.

Outlets of collection and diversion drains are armoured (e.g. compacted rock or jute mesh) to prevent localised erosion. Internal and external batters of sediment dams revegetated where practicable to minimise the potential for erosion of dam batters.

4.10.1 Erosion and Sediment Control Plan

[Project Approval 08_0203 Schedule 3 condition 29(b)]

The Erosion and Sediment Control Plan was prepared for the Duralie Coal Mine site as part of the Surface Water Management Plan to satisfy Project Approval Schedule 3 condition 29(b) and approved by DP&I on 2 August 2012.

Erosion and sediment control structures have been designed and constructed in accordance with the recommendations for site drainage works presented in *"Managing urban storm water – Soils and Construction*

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Volume 1" Landcom, 2004) and "Managing urban storm water – Soils and Construction Volume 2e – Mines and quarries" (DECC 2008).

4.10.2 Commitments in Surface Water Management Plan section 7.1

[Project Approval 08_0203 Schedule 3 condition 29(b)]

Sediment dams will be dewatered to their normal operating level within 10 days of a runoff-generating rainfall events to re-establish the design containment capacity.

Outlets of collection and diversion drains are armoured (e.g. compacted rock or jute mesh) to prevent localised erosion. Internal and external batters of sediment dams revegetated where practicable to minimise the potential for erosion of dam batters.

4.10.3 Erosion and Sediment Control Monitoring

[Project Approval 08_0203 Schedule 3 condition 29(b)]

Routine inspections of sediment control structures for loss of capacity due to sediment capture and structural integrity as well as inspections following rainfall events of 20 mm or more in a 24 hour period, are conducted by the Duralie Environmental Officer.

The Coal Shaft Creek Diversion is inspected for structural integrity, blockages or other faults after any rain event of >50 mm in seven days or at least every three months. The Main Water Dam diversion drain is inspected at least twice per year and following significant rain events (> 50 mm/day).

4.10.4 Audit Site Inspection Observations

Surface water management and erosion and sediment control at the Duralie Mine site inspected during the independent environmental audit concluded the Duralie Coal Mine Project operations were being managed in accordance with the Erosion and Sediment Control Plan and presented a minor risk in regard to erosion or off site sediment transport.

Primarily all site waters drain back into the open pits, where the water is managed such that there is no discharge from the mine site to the surrounding environment under normal meteorological conditions and within the approved design criteria of the water management structures (developed in accordance with the *Managing Urban Stormwater Soils and Construction Volume 2E Mines and quarries* (DECC 2008).

Waters external to the mine operational areas were well controlled and diverted around the site in constructed temporary channels. The only area of identified low level risk was the small water storage basin located adjacent to the coal loader facility. This basin received waters from the upper ROM coal storage and works area/loading facility and machinery maintenance area. Water management from this basin is reliant on a large electric pump which would remove water to the main pit.



Southern End of the Clareval Pit

New works being undertaken with diversion and stripping for new haul road.

Currently all areas (except the back of the batter) drain to main pit via a pipes and sumps network. Outside face of the batter is protected with sediment fence at the limit of clearing.

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Clareval Pit Lookout

The ridgeline to the east of the active Clareval Pit forms a management boundary with a diversion drain along its perimeter to stop entry of clean surface runoff water into the active pit. All surface runoff from the disturbed active mining areas drain into the main Clareval excavation from where it is pumped from the in-pit sump and managed for use on site. No dirty mine water is discharged from the Duralie Coal Mine site.



Diversion / extension Northern end of main pit

Rock lined section of diversion channel taking water to unnamed creek. The diversion channel is stable and well-constructed with medium size hard and angular rock material over geotextile. The rock material was sourced from main pit.

The rock lined diversion discharges into small stilling area and then progresses into head of a natural channel



Southern end of rehabilitation area

Rehabilitation works are 2-7 years old and generally very successful. The established vegetation provides good surface cover and there was no significant erosion noted in the rehabilitated area or batter slopes.



Rail Loading area

The surface runoff basin located adjacent to lower side of coal processing/rail loading area receives surface water from upper ROM coal handling and crushing area and rail loading bin and conveyors.

The runoff collected in the basin is pumped back to main pit for settling and reuse on site if required.



Upper machinery/maintenance facility

Maintenance oils/lubricants are stored within a self-bunded unit and dispensed directly to the maintenance area within the workshop. Numerous small drains have been formed through the maintenance facility perimeter berm and down to basin below. These drains are stable.

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Upper machinery/maintenance facility

Surface runoff from the maintenance service area drains via concrete V drain to an oil sock/adsorbent sock provided at the outlet. All vehicle and equipment wash down occurs in a designated area with the runoff collected and treated through an oil separator facility. It was advised that the oil separator tank is planned to be replaced with a larger capacity unit.

4.10.5 Annual Review and Verification

The Annual Reviews described the following dedicated erosion and sediment control structures in use at the Duralie Coal Mine site:

- Access road sediment dams – designated SD1 to SD5 (EPA Identification Monitoring Points 10 to 14 removed from EPL 11701 in 2013).
- Two (2) rail siding sediment dams – designated RS1 and RS6
- Two (2) waste emplacement sediment dam – designated VC1 and ESD
- Temporary Sediment Dams installed in advance of mining operations (observed in the area of the Clareval Open Pit extension).

The Annual Reviews indicate the sediment basin sizing is based on providing sufficient capacity to hold runoff from a 1 in 20 year, 1 hour duration rainfall event (for the given catchment). Runoff in excess of the 1 in 20 year, 1 hour duration rainfall event could result in a dam spilling in accordance with the design criteria. The quality of water collecting within sediment dam is managed to minimise suspended sediment load by a combination of promoting stabilising groundcover within the basin catchment and introduction of a flocculating agent such as gypsum (as required). Sediment basins are inspected following rainfall events. All elements of sediment control are regularly monitored and maintained with basins cleaned out when the storage volume is reduced by sediment deposition (i.e. when 30% of storage volume is lost due to sediment build up).

No sediment dam spills were reported to have occurred between November 2011 and December 2014.

Observations during the independent environmental audit site inspections confirmed the status of the sediment basins as reported in the Annual Reviews and concluded that the Duralie Coal Mine operations present only a minor risk in regard to erosion and off site sediment transport.

4.10.6 Matters Raised by Relevant Agencies

No matter related to erosion and sediment controls were received during consultation with the agencies for this audit. The DP&E Audit (2013) identified and recommended improved sediment control works with the Clareval North diversion. DP&E were advised on completion of the works in November 2013. The Clareval North diversion area was inspected during this audit (November 2014) and noted as compliant.

4.10.7 Conclusions

The Erosion and Sediment Control Plan within the Surface Water Management Plan section 7.1 describes the design and construction of the erosion and sediment control structures in accordance with the recommendations for site drainage works presented in *“Managing urban storm water – Soils and Construction Volume 1”* (Landcom, 2004) and *“Managing urban storm water – Soils and Construction Volume 2e – Mines and quarries”* (DECC 2008).

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Observations of the sediment basins during the independent environmental audit site inspections confirmed that the Duralie Coal Mine Project operations present only a minor risk in regard to erosion and off site sediment transport.

4.11 Biodiversity

[Project Approval 08_0203 Schedule 3 conditions 30 to 45]

Biodiversity Compliance Status: No non-compliances identified. (One observation and recommendation regarding the Giant Barred Frog surveys and consultation with OEH is provided).

4.11.1 Biodiversity Management Plan

[Project Approval 08_0203 Schedule 3 condition 43]

A Biodiversity Management Plan was approved by the DP&I on 29 March 2012 and approved by SEWPaC on 28 August 2012. The Biodiversity Management Plan was further revised and approved by DP&I on 27 September 2013.

Biodiversity Management Plan includes specific management measures for biodiversity and procedures to be implemented in the Offset Areas. This Biodiversity Management Plan also addresses offset requirements for the Bowens Road North Open Cut Mine Instrument of Approval dated November 2010. A total of 715ha of land will be managed by Duralie Coal Pty Ltd as offset areas.

Table 4.11.1: Key characteristics of Offset Areas on-site (including remnant vegetation and revegetation extent), and Vegetation Management Unit areas.

Project Offset	Offset Ecological Community	Offset Area (ha)	Offset Treatment
Bowens Road North Open Cut (BRNOC) Offset	Rough-barked Apple - red gum grassy woodland of the MacDonald River Valley on the Central Coast, Sydney Basin	14.2	Revegetation (Regrowth management/revegetation)
	Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin	3.7	Revegetation (Regrowth management/revegetation)
	Coastal floodplain sedge-lands, rush-lands, and forb-lands of the North Coast	1.1	Remnant
	Rough-barked Apple - red gum grassy woodland of the MacDonald River Valley on Central Coast, Sydney Basin	6.0	Remnant
	Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin	4.0	Remnant
Original Duralie Coal Offset	Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North Coast	3.1	Remnant
Duralie Extension Offset	Coastal floodplain sedge-lands, rush-lands, and forb-lands of the North Coast	2.2	Remnant
	Giant Stinging Tree - Fig dry subtropical rainforest of the North Coast and Brigalow Belt South	0.4	Remnant
	Grey Box - Forest Red Gum - Grey Ironbark open forest of the hinterland ranges of the North Coast	12.9	Remnant
	Rough-barked Apple - red gum grassy woodland of the MacDonald River Valley on the Central Coast, Sydney Basin	10.1	Remnant

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Project Offset	Offset Ecological Community	Offset Area (ha)	Offset Treatment
	Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North Coast	233.6	Remnant
	Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin	3.6	Remnant
	Tallowwood - Brush Box - Sydney Blue Gum moist shrubby forest on coastal foothills of the southern North Coast	7.7	Remnant
	Weeping Lilly Pilly - Water Gum riparian rainforest of the southern North Coast	20.2	Remnant
	Grey Box - Forest Red Gum - Grey Ironbark open forest of the hinterland ranges of the North Coast	166.7	Revegetation (Regrowth management/ revegetation)
	Rough-barked Apple - red gum grassy woodland of the MacDonald River Valley, Central Coast, Sydney Basin	45.0	Revegetation (Regrowth management/revegetation)
	Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North Coast	169.6	Revegetation (Regrowth management/revegetation)
	Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin	0.1	Revegetation (Regrowth management/revegetation)
	Tallowwood - Brush Box - Sydney Blue Gum Moist shrubby forest on coastal foothills of the southern Northern Coast	10.3	Revegetation (Regrowth management/revegetation)
	TOTAL OFFSET AREA	715	

4.11.2 Commitments in Biodiversity Management Plan and Performance

Commitments in the Biodiversity Management Plan and performance as of December 2014 are presented in Table 4.11.2.

Table 4.11.2: Biodiversity Management Plan Commitments

Performance Criteria	Status
Year 1 (2014)	
The long-term security has been provided for the Offset areas (BMP Section 11), Project Approval Schedule 3 condition 36.	Public Positive Covenant documentation was lodged with DP&E in December 2013 and approved by DP&E in January 2015.
The conservation bond has been calculated (BMP Section 11), and Project Approval Schedule 3 condition 36.	The terms of the a conservation bond in the form of a bank guarantee were approved by DP&E on 12 December 2014 and the bank guarantee was provided to DP&E.
Seed collection (for required species as specified) during vegetation clearance (BMP Section 5.7 and 6.10) or an alternate seed source has been obtained.	A report on seed collection targets was completed by Greening Australia (November 2013) and seed collection activities undertaken during Summer 2013/14.
Conduct a baseline Landscape Function Analysis Report for the Offset area (BMP Appendix B Section 4.2.1).	Field surveys undertaken February 2013. Report completed June 2013.
Hollow bearing habitat features (nest boxes) (BMP section 5.4.2 and 6.4).	Nest box Programme: 18 squirrel glider boxes installed February 2013. 105 additional boxes installed in August 2013 to replace cleared vegetation
Suitable material for habitat enhancement to be salvaged during any vegetation clearance activities and placed into areas undergoing revegetation	Material salvaged. Review of BMP undertaken to place salvaged material in the rehabilitation area rather than the offset area.

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Performance Criteria	Status
Year 1 (2014)	
(BMP Section 6.3)	
Prepare a detailed design for the in-stream rehabilitation of a severely eroded section of Mammy Johnsons River (BMP Section 6.8).	Mammy Johnsons River Design Report completed in June 2013.
Initial feral animal study with control program to be initiated where required (Section 5.10).	Initial feral animal surveys undertaken in March 2013. Report completed June 2013.
Pre-cultivation spraying has been undertaken in all installation Vegetation Management Units as well as initial weed treatment of all remnant enhancement and regrowth Vegetation Management Units (BMP Section 5.9 and 6.5).	Initial weeds assessment undertaken in April/May 2013 and report completed. Weeds management activities were undertaken from late Spring 2013 through to Autumn 2014.
Operational review for road and fire trail construction, culverts and cultivation has been completed (BMP Section 5.12 and 6.9).	Operational review completed in October 2012.
Access tracks, fire trails, firebreaks, fencing and culverts establishment and maintenance (BMP Section 5.12 and 6.9).	Completed September 2013.
Consultation with RMS regarding placement of traffic calming devices and signage on the Johnson's Creek Road where it bisects the Offset Area (BMP section 6.7)	Consultation was undertaken with Great Lakes Council and wildlife signage was installed on Johnson's Creek Road in June 2014.
Evaluation of surrounding landholders and the local community participation in implementation of this Biodiversity Management Plan (BMP section 6.7).	Duralie Coal Pty Ltd held discussions with several land holders and all were interested in the Biodiversity Offset Area adjoining and near their land, and advised they were willing to keep Duralie Coal informed about matters on their properties (e.g. feral animals and control of same, weeds, fencing, bushfires) that may affect the Offset Area.
Weed control of woody weeds in all Vegetation Management Units (BMP Section 6.5).	Woody weeds management activities was undertaken from late Spring 2013 through to Autumn 2014. Duralie Coal Pty Ltd is currently liaising with Great Lakes Council to determine appropriate methods for control of woody weeds within the Mammy Johnsons River Riparian Zone.
Year 2 (2015)	
Seed collections to obtain required seed quantities for future revegetation (BMP Section 5.7 and 6.10)	Seed collection activities were undertaken during Summer 2013/14. Approximately 12kg of tree and shrub seed which was not available at time of collection is still remaining to be collected
Maintenance of all access tracks and fire trails. (BMP Section 5.12 and 6.9).	Track maintenance was undertaken as required.
Fire management activities have been undertaken as required. (BMP Section 5.12 and 6.9).	No fire management required during 2014
Feral animal assessment has been undertaken and control initiated if applicable (BMP section 5.10).	No feral animal control required during 2014
Control of exotic <i>Sporobolus</i> and fireweed in all installation Vegetation Management Units (BMP Section 6.5).	Weed management activities were undertaken from late Spring 2013 through to Autumn 2014 and are proposed during Spring 2014 to Autumn 2015
Follow-up weed treatment of all remnant enhancement areas and regrowth management Vegetation Management Units (BMP Section 6.5).	Weed management activities were undertaken from late Spring 2013 through to Autumn 2014 and are proposed during Spring 2014 to Autumn 2015.
Initial revegetation for Vegetation Management Units I, S and U (BMP section 6.3).	Revegetation trials are proposed during Spring 2014.

4.11.3 EA Predictions and Commitments

Environmental Assessment (dated January 2010) included terrestrial ecology assessment in Appendix E:

The Duralie Coal Mine Project is located in a rural area characterised by cattle grazing on native and improved pastures. Almost all of the pre-European forest and woodland which once occurred in the Project area was extensively cleared and/or logged. The additional surface disturbance associated with the Duralie Coal Mine Project would involve the clearance of approximately 87 hectares (ha) of native vegetation communities, 109 ha of derived grasslands and 11 ha of cropping land.

An ecological offset located on freehold Gloucester Coal Limited owned land, located in the south and east of the Duralie Coal Mine Project area has been proposed.

The offset will provide for a range of benefits in the medium to long-term including:

- an increase in the area of vegetation/habitat;
- conservation and/or enhancement of similar vegetation communities/fauna habitats as those that would be disturbed by the Duralie Coal Mine Project operations;
- conservation of Endangered Ecological Communities that occur in the offset area;
- enhancement of riparian habitat along approximately 1.7 km of the Mammy Johnsons River; and
- enhanced connectivity to existing fauna habitat areas via linkages with the Mammy Johnsons River and the rehabilitated final Duralie Coal Mine landforms.

Arrangements for the conservation and management of offset areas in perpetuity had not been finalised with the OEH or DP&E at the date of this audit – November 2014) as required under Project Approval Schedule 3 condition 44. The mechanism for securing the biodiversity offset area with a conservation agreement or public positive covenant and/or restriction on the use of the land that would remain in force in perpetuity (as required by Project Approval Schedule 3 condition 42) is still the subject of consultation between Duralie Coal Pty Ltd and the DP&E / OEH.

The Environmental Assessment (dated 2012) included a Flora Assessment prepared by FloraSearch, and a Fauna Assessment was prepared by Australian Museum Consulting, conducted for the Duralie Coal Mine Project and surrounds. (Additional flora and surveys were also conducted by FloraSearch and Australian Museum Consulting, respectively, in April and May 2014).

The relocation of existing water diversion infrastructure adjacent to the Clareval open pit (Environmental Assessment (dated 2014) has been designed to occur within derived grassland and to avoid additional disturbance of native vegetation.

Commitments made in the Environmental Assessments were:

- the provision of an area to offset the potential impacts of the Project and maintain or improve biodiversity values of the surrounding region in the medium to long-term.
- an offset area which is located on freehold Gloucester Coal Ltd owned land located in the south and to the east of the Project area which is currently managed for pastoral purposes.

The provision of an area to offset the potential impacts of the Duralie Coal Mine Project, has occurred to maintain or improve biodiversity values of the surrounding region in the medium to long-term, with the offset area of approximately 715ha located on freehold Gloucester Coal Ltd owned land to the south and east of the Duralie Coal Mine project area.

4.11.4 Biodiversity Monitoring

Six monthly biological monitoring of the streams adjacent to the Duralie Coal Mine have been conducted by Invertebrate Identification Australasia since the commencement of mining at the Duralie Coal Mine in 2003. The latest reports prepared were in March and September 2013 and February 2014. The March 2013 report concluded:

"The results of the current survey indicate that there has been a consistent high level in ecosystem condition compared with the same period in previous years and there is no evidence of any adverse effects on the aquatic macro-invertebrate community over the last six months. Any changes in the community such a reduction in biodiversity were the result of increased scour from the high rainfall/flow events just prior to the survey with the trends being consistent across all sites. Therefore, there appears to be no adverse effects on the aquatic ecosystem as a result of the mine's operations".

The September 2013 report concluded:

"the results from the current survey suggest that the overall; biodiversity and river environmental conditions have remained very good and that there are no apparent adverse effects on the aquatic macro-invertebrate fauna in the Mammy Johnsons River as a result of any activities arising from the operations of the Duralie Mine."

The February 2014 report reached the same conclusion as the September 2013 report and also stated:

"The only significant impact to the river in addition to the very low flows was presence of cattle at site M1 that has impacted water quality, habitat availability and the riverbed, bank and riparian structure."



Plate 4.11.4: Offset Area to the west of Johnson Creek Road – derived grasslands 2014



The nest box program that has been established under the Biodiversity Management Plan section 6.4 has reportedly resulted in a significant degree of habitation by native species during the first 12-18 months of installation. The first nest boxes were installed in February 2013 followed by monthly monitoring beginning in March 2013. The initial stage of the project involved the installation of 18 nest boxes targeting the Squirrel Glider during February 2013.

A total of 106 additional nest boxes were installed during August 2013 within the offset areas. The additional nest boxes were designed to target a range of hollow-dwelling fauna. During the first three months of monitoring nine (50%) of the Squirrel Glider nest boxes, were occupied or showed signs of occupancy.

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After 12 months of monitoring, nest box occupation is high, with 16 out of 18 (approximately 88%) occupied or showing signs of occupancy during the 12 months. After five months of monitoring the additional nest boxes, 31 out of 106 (approximately 29%) were occupied or had showed signs of potential occupancy.

Areas of the Southern Offset area were inspected during this audit. The offset area was fenced as required in the Biodiversity Management Plan. There was evidence of natural regeneration of native grasses and native vegetation including eucalypts from remnant stands of native vegetation within the offset area boundaries.

As described in the 2012-13 and 2013-2014 Annual Reviews required under Project Approval Schedule 5 condition 3, and Annual Biodiversity Reviews, works proposed for Year 1 and Year 2 of the offset area works outlined in the Biodiversity Management Plan have all commenced.

4.11.5 Giant Barred Frog Study

[Project Approval 08_0203 Schedule 3 condition 31]

The Giant Barred Frog Study was prepared by Dr Arthur White (Biosphere Environmental Consultants) in consultation with the OEH, to satisfy Project Approval 08_0203 Schedule 3 condition 31. The Giant Barred Frog Study was approved DP&I and OEH on 6 March 2012, and SEWPaC on 15 August 2012. Between September 2011 and March 2014 Biosphere Environmental Consultants (Dr Arthur White) undertook surveys for the Giant Barred Frog and the results were integrated into the Duralie Coal Mine Giant Barred Frog Study report.

Annual monitoring of the Giant Barred Frog population has been undertaken in accordance with the Duralie Coal Mine Giant Barred Frog Study with monitoring undertaken to observe the potential impact of the Duralie Coal Mine Project on the Giant Barred Frog population and whether a greater than negligible impact has occurred as a result of rainfall runoff from the Duralie Coal Mine Project operations and irrigation areas.

The survey methods that used for the Giant Barred Frog monitoring program are consistent with the *Survey Guidelines for Australia's Threatened Frogs*, Department of the Environment, Water, Heritage and the Arts (2010), and *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians*, DECC (2009). The survey works were carried out under Scientific Licence S_1000038.

Seven survey areas comprising of 70 monitoring sites were established, 50 of which were within the catchment of the Mammy Johnson River:

- Impact Areas within the Mammy Johnson River catchment: Areas 1, 2 and 3 (20 Sites);
- Impact Control Areas within the Mammy Johnson River catchment: Areas 4 and 5 (30 Sites); and
- Control Areas outside the Mammy Johnson River catchment: Areas 6 and 7 (20 Sites).

Table 4.11.5: Giant Barred Frog Surveys				
Survey Dates	Survey Area	Location	Survey Area Type	Monitoring Period
First Survey: Sep 2011 to Mar 2012	1	Located on the Mammy Johnsons River, downstream of confluence with Coal Shaft Creek (i.e. down stream of the Duralie Mine).	Potential impact survey area.	First, second and third survey period.
Second Survey: Sep 2012 to Mar 2013	2	Located on the Mammy Johnsons River, upstream of the confluence with Coal Shaft Creek and downstream of an unnamed minor tributary.	Potential impact survey area.	First, second and third survey period.
Third Survey: Oct 2013 to Jan 2014	3	Located on the Mammy Johnsons River, upstream of the unnamed minor tributary to the confluence with Wards River.	Upstream control survey area	First, second and third survey period.

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Table 4.11.5: Giant Barred Frog Surveys				
Survey Dates	Survey Area	Location	Survey Area Type	Monitoring Period
	4	Located on the Mammy Johnsons River, upstream of the confluence with Wards River.	Upstream 'control' survey area.	First, second and third survey period.
	5	Located on the Wards River, within The Glen Nature Reserve, but inside the Mammy Johnsons River Catchment.	Upstream 'control' survey area.	First survey period only.
	6	Located on Mill Creek, outside of the Mammy Johnsons River Catchment.	Survey Area 6 was established to assess agricultural impacts on the frog populations.	First, second and third survey period.
	7	Located on the Crawford River, outside of the Mammy Johnsons River Catchment.	Survey Area 7 was established to provide comparative data to authenticate (or disprove) climatic impacts on frog populations.	First, second and third survey period.

Surveys were carried out in the spring and summer when conditions are most favourable for detecting Giant Barred Frogs and included:

- Nocturnal frog surveys were conducted at each 200m transect. Any captured Giant Barred Frogs were sexed, determined if they were gravid (if female), classified as adult, sub-adult or juvenile, weighed, measured for snout-vent length and classified to growth index, micro-chipped, inspected for injury or disease, swabbed for Chytrid testing and released.
- Diurnal tadpole surveys were conducted at each monitoring site and classified to growth index and inspected for injuries and early signs of Chytrid infection.
- Habitat assessments were conducted at each Giant Barred Frog monitoring site where vegetation, topography, land use and other site features were recorded. Hydrological condition was documented prior to and during the Giant Barred Frog monitoring surveys. Stream characteristics were also recorded including observations of bank conditions and any impacts.

Monitoring results were used to assess the Project against performance measures detailed in the Giant Barred Frog Management Plan.

4.11.5.1 Giant Barred Frog General Survey Results

Giant Barred Frogs are not distributed evenly throughout the Mammy Johnson River catchment, but occur in discreet areas. In general, Giant Barred Frogs are mostly present in the lower and parts of the middle section of the catchments. There are discrete areas where the frogs are absent in the catchment; notably in the lower sections of Wards River (from its junction with the Mammy Johnson River through pastureland north until it approaches the Glen Nature Reserve); and they appear to be absent from the entire Terreel valley portion of the Mammy Johnson River tributary.

Habitat quality varies greatly within the catchment, with areas having no suitable habitat available for the frogs, and other areas with only compromised habitat available. High quality habitat areas comprising of intact riparian vegetation, river sections with deep pools and riffles present and tadpole refuge areas during floods, occur in Areas 4, 5 and 7. Sections within the catchment with reduced habitat quality due to reductions in the riparian vegetation and fewer pools, riffles or tadpoles refuge areas are presented in Areas 2 and 6. Areas 1 and 2 have the poorer quality habitat because of discontinuous riparian vegetation, weed invasion, severe flood scouring, and a lack of pools or riffles.

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The significant gaps in the distribution of the Giant Barred Frog within the catchment were reported to be due to loss of habitat.

The total population estimates of Giant Barred Frogs in the Mammy Johnson River catchment were:

- Area 1: The lower part of the Mammy Johnson River contains fewer Giant Barred Frogs than upstream areas;
- Areas 2, 3 and 4: Mid-Mammy Johnson River, upstream of the confluence with Wards River contains greater numbers of Giant Barred Frogs than down-stream areas;
- Area 6: Mill Creek survey area is agriculturally affected and the Giant Barred Frogs more closely approximate the numbers and densities found in the Mammy Johnson River catchment;
- Area 7: Crawford River also shows the greatest number of Giant Barred Frogs where the numbers and densities exceed those found in the Mammy Johnson River catchment. (The greater numbers within the Crawford River Area 7 are attributed to the minimal impact by agriculture).

4.11.5.2 Giant Barred Frog Monitoring Program Report - September 2011 to March 2012

With the completion of the 2011/2012 monitoring surveys on populations, there did not appear to be any significant change in number of Giant Barred Frogs in Area 1 (downstream of Coal Shaft Creek) compared to the base line data collected in early 2011.

The 2011/2012 survey data also provided the first statistical information about the structure of each sub-population of frogs along the Mammy Johnson River. Most subgroups of the Giant Barred Frog have a relatively high proportion of young and small animals, suggesting successful breeding. This may have been a response to more favourable rainfall patterns over the past two years.

The September 2011 to March 2012 Giant Barred Frog Monitoring Program Report concluded:

"The Giant Barred Frogs in the Mammy Johnson River catchment are widely distributed across that catchment, although there are areas where they are absent (due to the loss of riparian vegetation and changes in surrounding land use). In areas where there has been a loss of riparian vegetation or there are ongoing agricultural impacts frog densities are lower than elsewhere in the catchment (and much lower when compared to the neighbouring control sites that are not affected by either of these impacts). Irrigation activities associated with the Duralie Extension Project had not commenced during the survey period."

4.11.5.2 Giant Barred Frog Monitoring Program Report - September 2012 to March 2013

Survey areas were nominated for the first monitoring season (September 2011 – March 2012) in the Giant Barred Frog Management Plan and these sites were also largely adopted as a basis for the second monitoring season (September 2012 – March 2013) with the exception of Survey Area 5 which had too few frog records to warrant continued monitoring.

The DCM Giant Barred Frog Monitoring Report September 2012 to March 2013 (Biosphere, 2013) concluded:

The Giant Barred Frogs in the Mammy Johnsons River catchment are widely distributed across that catchment, although there are areas where they are absent (due to the loss of riparian vegetation and changes in surrounding land use). In areas where there has been a loss of riparian vegetation or there are ongoing agricultural impacts frog densities are lower than elsewhere in the catchment (and much lower when compared to the neighbouring control sites that are not affected by either of these impacts). Irrigation activities associated with the Duralie Extension Project had not commenced during the survey period. The current surveys have now established an adequate pre-impact dataset to be able to detect any impacts should they occur as a result of the release of irrigation water in the future.

4.11.5.2 Giant Barred Frog Monitoring Program Report - October 2013 to January 2014

Surveys were reduced (in comparison to previous monitoring periods) as statistically-adequate frog numbers could be obtained from Areas 3, 4 and 7 with fewer surveys. Areas 1 and 2 had fewer frogs and so these areas were surveyed over an extra night each session to obtain sufficient data for statistical analysis. Areas 5, 6 and 8 were dropped from the survey as they had too few Giant Barred Frogs to be of any statistical value to the project.

Survey areas nominated for the first monitoring season (September 2011 – March 2012) were also largely adopted (some sites were revisited and some were moved to a more suitable location) as a basis for the second monitoring season (September 2012 – March 2013) and third monitoring season October 2013 to January 2014.

The Giant Barred Frog Monitoring Report (Biosphere, 2014) concluded:

"The Giant Barred Frogs in the Mammy Johnsons River catchment are widely distributed across that catchment, although there are areas where they are absent (due to the loss of riparian vegetation and changes in surrounding land use). In areas where there has been a loss of riparian vegetation or there are ongoing agricultural impacts frog densities are lower than elsewhere in the catchment (and much lower when compared to the neighbouring control sites that are not affected by either of these impacts). The population of Giant Barred Frogs in the Mammy Johnsons River catchment appear to be quite stable despite breeding being subdued this season".

Areas 1 and 2 have shown a progressive decline in frog numbers throughout this study). Areas 1 and 2 do not contain optimal habitat for Giant Barred Frogs and so it may be expected that these areas would show declines in advance of other areas within the catchment during unfavourable climatic periods.

Irrigation activities associated with the Duralie Extension Project had not commenced during the survey period. The current survey has added the first "dry season" data to pre-impact dataset, the previous three years were much wetter. Data collected during good as well as poorer times is very useful in assessing the long term survival prospects of this frog species.

4.11.6 Giant Barred Frog Management Plan

[Project Approval 08_0203 Schedule 3 condition 32]

The Giant Barred Frog Management Plan was prepared by Dr Arthur White (Biosphere Environmental Consultants) in consultation with the OEH. The Giant Barred Frog Management Plan (GBFMP-R02-C) was prepared to satisfy the requirements of Project Approval 08_0203 Schedule 3 condition 32 (by Order of The Land and Environment Court of NSW 10 November 2011), and to reflect the Commonwealth EPBC Approval 2010/5396 conditions issued by SEWPaC, dated 22 December 2010. The Giant Barred Frog Management Plan was approved DP&I and OEH in March 2012, and SEWPaC on 15 August 2012.

4.11.7 Annual Review and Verification

The Annual Review (2013) section 3.9 and Annual Review section 3.10 address management of biodiversity, and within these sections, Annual Review (2013) section 3.9.1 and Annual Review (2014) section 3.10.1, report on the Giant Barred Frog monitoring program. The Biodiversity Management Plan Annual Report is provided in Appendix 7 of the 2013 and 2014 Annual Reviews.

The summaries in the Annual Reviews are consistent with the findings in the Annual Biodiversity Management Plan Reports 2013 and 2014, and the reports on the six monthly biological monitoring of the streams adjacent to the Duralie Coal Mine (Invertebrate Identification Australasia, March and September 2012, and March 2013).

4.11.8 Matters Raised by Relevant Agencies

The DP&E Audit (2013) identified a finding in relation to the conservation bond under Condition 44 Schedule 3. This matter was addressed by Duralie Coal in their response to recommendations to the DP&E and completed on the 23 December 2013.

OEH was in the process of reviewing the Duralie Giant Barred Frog Management Plan and on the 11 November 2014 and expressed a number of matters of concern:

- Inconsistencies within and between the various reports:
 - statistical analysis methods;
 - monitoring sites;
 - population abundance estimates,
 - frog size class frequency tables and supporting commentary and graphical displays), and
 - design changes to the monitoring plan of the “Giant Barred Frog Study”.
- Duralie Coal had agreed to use tadpoles as an indicator of successful recruitment to the population. OEH would like to recommend a new approach to deal with this matter.

Recommendation B1:

It is recommended that consultation between Duralie Coal Pty Ltd and the OEH should be undertaken to address the concerns expressed by OEH. The amendments to the survey design of the Giant Barred Frog Study described in the Annual Giant Barred Frog Study Reports prepared by Biosphere Environmental Consultants (Dr Arthur White). Any consultation with the OEH in relation to survey transects should include Dr Arthur White who was endorsed by DP&I in March 2012 for the preparation of the Giant Barred Frog Study and Giant Barred Frog Management Plan. The two documents, were approved in March 2012 and annual reports of the monitoring results were submitted to the OEH and DP&I. Any discussion with OEH related to statistical analysis and methodology of the population data should include Dr Ian Lenane to ensure clarification of issues and discussion of consistency of approach.

4.11.9 Community Complaints

No community complaints were recorded related to the Biodiversity Management Plan or the offset areas.

4.11.10 Conclusions

The Biodiversity Management Plan was prepared by Dr Arthur White and approved by the DP&I on the 29 March 2012. SEWPaC approved the Plan on 28 August 2012. A revision of the Biodiversity Management Plan was also approved by DP&I on 27 September 2013.

The implementation of the Biodiversity Management Plan commenced in 2013 following approval of the revised Biodiversity Management Plan by DP&I and SEWPaC.

Arrangements for the conservation and management of offset areas in perpetuity had not been finalised with the OEH or DP&E as required under Project Approval Schedule 3 condition 42 at the date of this audit. The mechanism for securing the biodiversity offset area with a conservation agreement or public positive covenant and/or restriction on the use of the land in perpetuity (as required by Project Approval Schedule 3 condition 42), is still the subject of consultation between Duralie Coal Pty Ltd and the DP&E.

The Conservation Bond required under Project Approval Schedule 3 condition 44 was lodged as a Bank Guarantee with DP&I in December 2013, with the Bond calculated on the cost of implementation of the Biodiversity Management Plan requirements for the offset areas for the first 3 years.

The following issues should be reviewed to improve biodiversity management:

- Biodiversity Management Plan to consider actions beyond 3 years to better reflect expected time frames for meeting completion criteria;
- Consider aligning the time frames of the Biodiversity Management Plan Performance Criteria with other reporting periods.
- Review the Giant Barred Frog Management Plan to address the OEH comments on the Giant Barred Frog Studies as a baseline for future works.

4.12 Heritage

[Project Approval 08_0203 Schedule 3 condition 46]

Heritage Compliance Status: No non-compliances identified. (One observation made and associated recommendation).

4.12.1 Heritage Management Plan

[Project Approval 08_0203 Schedule 3 condition 46]

The Heritage Management Plan prepared to satisfy Project Approval Schedule 3 condition 46 was submitted to DP&I and approved on 18 June 2013. The Heritage Management Plan was developed in consultation with OEH, the Aboriginal community, Heritage Branch, Council, and local historical organisations.

The Heritage Management Plan describes eleven (11) Aboriginal heritage artefacts and two (2) Aboriginal sites in the Duralie Coal Mine Project development area, and provides management for the Aboriginal heritage sites.

The only European heritage building within the vicinity of the Duralie Coal Mine Project area on any heritage register or inventory is the former Weismantels Inn that is listed as being of regional significance in Schedule 2 of the Great Lakes Local Environmental Plan (LEP).

The management measures outlined in the Heritage Management Plan, employed prior to surface disturbance activities include:

- Conduct of pre-clearance inspections prior to major construction works.
- Monitoring of topsoil stripping activities.
- Protocols in the event of identification of new Aboriginal heritage finds.
- Measures to be implemented in the event of discovery of human remains.
- Reporting and communication protocols.

The Heritage Management Plan and Blast Management Plan measures to mitigate the effects of blasting (Section 4.5.3) on Aboriginal cultural heritage during the life of the Project include:

- Ongoing consultation with the Aboriginal community would be undertaken over the life of the Project. Appropriate Aboriginal representation would occur during archaeological fieldwork (e.g. collection of artefacts prior to construction).
- Erosion and sediment control works would be undertaken in accordance with the requirements of the Project Approval.
- The management measures described in the IMP would be updated to address the Project in accordance with the requirements of the Project Approval.
- Any new sites which may be identified during the development of the Project would be registered with the DECCW in consultation with registered Aboriginal stakeholders.
- A record of known Aboriginal heritage sites, their status and location would be maintained by DCPL.

4.12.2 Commitments in Heritage Management Plan

The Heritage Management Plan referred to potential indirect impacts to the former Weismantels Inn from mine blast vibration and airblast, in the Non-Aboriginal Heritage Assessment (Heritage Management Consultants, 2009), which recommended the following management measures:

- As there are no identified direct impacts on the former Weismantels Inn, (Environmental Assessment Appendix C, Heggies 2010) potential indirect blasting impacts on the building and suitable blast management measures would be applied to meet applicable blast vibration criteria. With the implementation of applicable blast management measures, the building is expected to remain in good condition.
- Prior to blasting commencing in the Clareval North West open pit, it is recommended that an archival photographic recording of the former Weismantel Inn be prepared to a suitable standard in accordance

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with applicable Department of Planning – Heritage Branch standards for regionally significant heritage items.

The commitments in the Heritage Management Plan have been addressed:

- All blasts conducted at the Duralie Coal Mine Project have been conducted in accordance with the Blast Management Plan with implementation best practice blast management measures to meet applicable building blast vibration criteria. No exceedance of blast or vibration criteria was recorded at the Weismantels Inn between November 2011 and December 2014.
- Building inspections of the former Weismantels Inn heritage site are conducted each two years with the latest inspection conducted in July 2013.

4.12.3 Environmental Assessment Heritage Predictions and Commitments

Environmental Assessment Appendices J and K (January 2010) and Environmental Assessment 2012 Appendix H, address heritage matters:

4.12.3.1 Aboriginal Heritage

The Duralie Extension Project Environmental Assessment identified 9 sites of Aboriginal heritage significance (DM2, DM3, DM4, DM5, DM6, DM9, DM10, DM11 and the “Honey Tree”) on the Mining Lease. These sites have been protected by way of signage and fencing where required. In addition, 4 sites (DM1, DM7, DM8 and Mammy Johnson’s Grave) were identified outside of the Duralie Mining Lease.

The Aboriginal Cultural Heritage Assessment undertaken for the Environmental Assessment 2012 followed comprehensive surveys across ML 1427, ML 1646 and surrounds. There are no known Aboriginal heritage sites located within the 2012 Modification disturbance areas. Aboriginal heritage sites would continue to be managed in accordance with the Duralie Coal Mine Heritage Management Plan.

Commitments made in the Environmental Assessment (January 2010) were:

The Heritage Management Plan (Aboriginal) would be updated to reflect the Duralie Extension Project and the findings of the Aboriginal Cultural Heritage Assessment. The ACHMP would include the following additional measures:

- A protocol for consultation with the Aboriginal community over the life of the Project (revised HMP section 4 addressed Consultation).
- Updated tables/figures identifying the known Aboriginal heritage sites located within the study area to date and additional detailed information for known sites located within the study area.
- A program for developing updated AHIMS site cards and plans and for revising the records for registered sites (revised HMP section 6.1 addresses AHIMS site cards).
- A protocol for managing Aboriginal heritage during the installation/construction of required ancillary surface infrastructure (e.g. irrigation infrastructure, internal roads, etc.) The revised HMP section 6.1 addresses management of any previously unidentified sites that are identified during pre-clearance surveys and construction works).

The revised Heritage Management Plan addresses each of the commitments in the Environmental Assessment.

4.12.3.2 Non-Aboriginal Heritage

A Non-Aboriginal Heritage Assessment for the Project was prepared by Heritage Management Consultants (2009) and is presented in the Environmental Assessment (2010) Appendix K.

The only non-Aboriginal heritage item identified within the vicinity of the Project area on any heritage register or inventory is the former Weismantels Inn, which is listed as being of regional significance in the Great Lakes Local Environment Plan Schedule 2. The Weismantels Inn building is located outside of the Duralie Coal Mine Project area and approximately 600 m west of the Clareval North West Open Pit.

The non-Aboriginal heritage assessment found that if maximum sized blasts were used in the Clareval North West open pit the implementation of the Duralie Coal blasting mitigation measures, compliance with the applicable blasting vibration criteria at the former Weismantel Inn would be achieved.

Specific mitigation measures to minimise the potential impacts of the Duralie Extension Project on the Former Weismantels Inn would include:

- implementation of suitable blast management measures (such as a reduction in the MIC) when mining in close proximity to the Former Weismantels Inn (Blast Management Plan section 4.5.3); and
- prior to blasting commencing in the Clareval North West open pit, an archival photographic recording of the Former Weismantel Inn would be prepared in accordance with applicable DoP – Heritage Branch standards for a regionally significant heritage sites. The archival photographic recording of the Former Weismantel Inn was undertaken in July 2013.

The Blast Management Plan would be amended to include blast monitoring at the Weismantels Inn site, subject to the conditions of any Project Approval. Blast Management Plan (dated 6 March 2012) section 3.4.2 addresses ground vibration ppv limits in Project Approval Schedule 3, Condition 8, at the former Weismantels Inn must not to exceed 10 mm/s.

The commitment to the mitigation measures provided in the Environmental Assessment (2010 and 2012), have occurred in the revision of the Blast Management Plan.

4.12.4 Monitoring

In accordance with the Heritage Management Plan topsoil disturbance during earthworks, construction and operation of the mine has been monitored utilising officers of the Karuah Local Aboriginal Land Council (KLALC). KLALC representatives are engaged by Duralie Coal Pty Ltd to inspect development areas during initial disturbance. If any previously unidentified relic(s) are encountered during pre-clearance surveys, the Site Supervisor, Chief Executive Officer, Principal and/or Superintendent would be notified immediately of the find in accordance with the Communication Protocol and a suitably qualified archaeologist commissioned to conduct an assessment to confirm the nature of the find.

During the 2011 to 2014 period KLALC officers did not report any previously unidentified Aboriginal artefacts.

In accordance with the Heritage Management Plan section 6, monitoring of the Aboriginal heritage sites at the Duralie Coal Mine Project were conducted each quarterly between 2011 and 2014.

Following consultation with the Aboriginal stakeholders two artefacts were salvaged and relocated into the care of Karuah Local Aboriginal Land Council (KLALC):

- Artefact DM2 (an irregular shaped river cobble was recovered on 8 February 2012); and
- Artefact DM5 (a mature Yellow Box tree with a scar located in an elevated position on the main trunk. The tree was felled by a suitable qualified and experience arborist and the scarred section was removed intact and transported to the KLALC cultural centre located in Karuah NSW on 12 December 2012, and mounted on a concrete slab with a shelter to be erected).

4.12.5 Annual Review and Verification

The Annual Reviews for 2011-2014 have described the heritage management activities for the Duralie Coal Mine Project site. The Annual Reviews provide an accurate account of the status of the known Aboriginal and European heritage sites.

4.12.6 Matters Raised by Relevant Agencies

No matters were requested to be addressed by agencies in relation to heritage management.

4.12.7 Community Complaints

No community complaints were recorded by Duralie Coal in relation to heritage matters.

4.12.8 Conclusions

The management of heritage items associated with the Duralie Coal Mine have occurred in accordance with the Duralie Heritage Management Plan.

Recommendation H1:

It is recommended that the maintenance program for the former Weismantel Inn European heritage site including any special requirements of the tenancy be described in the Heritage Management Plan.

4.13 Visual

[Project Approval 08_0203 Schedule 3 conditions 49 to 51]

Visual Amenity Compliance Status: No non-compliances identified.

The Environmental Assessment Appendix O (January 2010) and Environmental Assessment (2012) Appendix G provided an assessment of the visual amenity. The visual assessments concluded:

- Views of the existing Duralie Coal Mine Project from public and private viewpoints are largely screened by topography and vegetation.
- Residences identified as having the greatest potential of visual impacts are either owned by Duralie Coal, or a private agreement has been negotiated with the individual landholders.
- Views of the Duralie Coal Mine Project occur along some sections of public roads (e.g. The Bucketts Way to the north and Johnsons Creek Road to the east of the Duralie Coal Mine Project area).

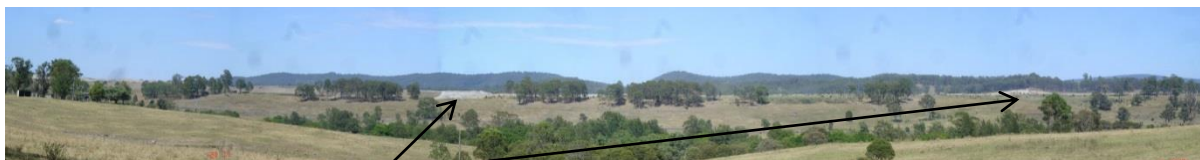


Plate No. 4.13a: Views of the Duralie Coal Mine from Johnsons Creek Road (to the east of the Duralie Coal Mine)

- To minimise potential views of the Duralie Coal Mine Project from The Bucketts Way as identified in Project Approval 08_0203 Appendix 7 and required under Schedule 3 condition 51(a). Duralie Coal Pty Ltd erected a visual screen adjacent the section of The Bucketts Way.
- A revised visual assessment was conducted in the Environmental Assessment (2012) Appendix G to account for the proposed changes to the mine layout (e.g. increased waste rock elevation height).
- Consistent with the outcomes of the DEP, the potential visual impact of the modified Duralie Coal Mine landforms was considered to be “very low” to “low” at sensitive receivers with the implementation of mitigation measures.



Plate 4.13b: The visual screen erected adjacent the section of The Bucketts Way to minimise the potential views of the Duralie Coal Mine. Planting of trees along the visual screen has occurred.

4.13.1 Conclusion

The views of the Duralie Coal Mine Project from public and private viewpoints are largely screened by topography and vegetation. To minimise potential views, along the section of The Bucketts Way identified in Appendix 7 of the Project Approval and required under Schedule 3 condition 51(a), Duralie Coal Pty Ltd erected a visual screen along the roadside to address this matter.

4.14 Waste

[Project Approval Schedule 3 condition 52 and 53]

Waste Compliance Status: No non-compliances identified.

4.14.1 Waste Management Plan

[Project Approval 08_0203 Schedule 3 condition 53]

A Waste Management Plan (WMP-R02-A) prepared to satisfy Project Approval Schedule 3 condition 53 was submitted to DP&I and approved on 6 March 2012.

General waste management at the Duralie Coal Mine Project is the responsibility of the mine owner (Duralie Coal Pty Ltd), and Leighton Mining the principal mine contractor. Supplementing the Duralie Waste Management Plan is the Leighton Environmental Management Plan (MOO52-EN-201), Leighton Mining, 2011 and Waste Management Sub-Plan (LM-EN-324), Leighton Mining, 2010.

The Waste Management Plan provides a framework to:

- identify waste streams produced by the project;
- describe control measures to prevent and/or minimise any material harm to the environment;
- describe measures implemented to reduce, re-use and recycle the waste generated by the project;
- outline procedures and protocols, where the above principles are not practicable, for the storage and disposal of waste in the most environmentally appropriate manner;
- detail monitoring, reporting and reviewing of the requirements and measures set out in the WMP; and
- establish responsibilities and accountabilities for the management of waste at the Duralie Coal Mine Project.

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The solid wastes were observed to be managed adjacent to the workshop area and administration building with separate bins available for waste segregation. The solid waste disposal is managed by a contract with J R Richards and Sons.

Any Potential Acid Forming (PAF) waste from the mining operations is segregated and selectively handled with placement of the material below the water table to reduce potential for oxidation.

4.14.2 Commitments in Waste Management Plan

Waste management at the Duralie Coal Mine Project is based on the general principles of the waste hierarchy established under the Waste and Resource Recovery Act considered against the following priorities:

- Avoidance – the first priority is to take action to reduce the overall volume of waste generated at the Duralie Coal Mine Project activities;
- Resource recovery – where possible, generated waste will be re-used or recycled consistent with the most efficient use of the recovered resource; and
- Disposal – remaining waste which cannot be used by the above means will be disposed of in the most environmentally responsible manner.

The information recorded in the monthly site waste management and disposal reports is reviewed and compared against monthly targets and previous waste management records. Waste targets will be reviewed and modified periodically to assist in improving waste management procedures at the Duralie Coal Mine Project. Waste targets will be determined with the goal of minimising the total volume of waste generated by the project and reducing the requirement for waste disposal by reusing and recycling resources where practicable.

4.14.3 EA Predictions and Commitments

No predictions or commitments were specifically addressed in the Environmental Assessment.

4.14.4 Monitoring

Monthly site waste management and disposal reports provided by the waste contractor (J R Richards and Sons) are reviewed by Leighton contractors and compared against monthly targets and previous waste management records. The waste targets reviewed may be modified periodically to assist in improving waste management procedures at the Duralie Coal Mine Project.

4.14.5 Annual Review and Verification

Annual Review Section 2.4 addresses waste management on the Duralie Coal Mine Project site.

Solid Waste Disposal - All domestic rubbish (e.g. food scraps, paper etc) is deposited in industrial rubbish bins which are periodically emptied by a waste contractor J R Richards and Sons for disposal at the licensed Council landfill.

Scrap metal produced by the Leighton Mining workshop is collected and transferred off site by a scrap metal merchant. The merchant collects the scrap metal whenever the bins become full.

Paper, cardboard, aluminium drink cans and other recyclables are collected for recycling.

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Sewerage Treatment and Disposal - Sewage is processed using a Garden Master 7100 Elite Aerated Waste Water Treatment System that provides primary settlement and aerobic treatment. Treated effluent is discharged via a spray system into a grassed area located to the southwest of the Main Office. The sewage treatment facility was approved by the Great Lakes Council (Occupation Certificate No. 244/11– Bath-house and Sanitary Facilities, Dix Gardner, Great Lakes Council, dated 20 July 2011).

Overburden Waste - Waste rock analyses conducted as part of the Environmental Impact Assessment and Environmental have been confirmed by geochemical (NAG –nett acid generating) testing of waste rock profiles conducted during the mining operations:

PAF and carbonaceous material areas such as floors, benches and ROM pads are treated with ground limestone to avoid acid generation. There were only isolated incidences of acid formation identified by the analyses conducted between November 2011 and December 2014 and these materials were treated with additional limestone.

Used Tyres -

Tyres are buried within backfill in the open cut pits in accordance with the EPA guidelines:

- Tyres are placed in discrete lots and buried in pit with a minimum cover of 5 metres;
- Disposal sites are adequately recorded for future reference. The depth of disposal is also recorded;
- Tyres stockpiled for disposal do not exceed 50 tonnes; and
- Tyres disposed of by burial are not placed with any other combustible material.

Oil and Grease Containment and Disposal - Bulk oil is stored within a bunded area near the workshop. Used engine oils (lubricating oils), hydraulic oils and grease are recovered during plant and vehicle servicing in the workshop.

Within the workshop area, separate bunded areas hold a 28,000 litre waste oil tank and a double-skinned bulk storage tank for oils, greases and lubricants. A wash-pad for cleaning vehicles and plant directs oil contaminated runoff to a concrete sump that traps silt and oil is separated from the contaminated water with a skimmer. Waste oil collected from the skimmer is removed from site by a commercial contractor for recycling.

Aurizon (the shuttle train contractor at Duralie site) provides temporary storage for waste oil in 200 litre drums resulting from maintenance of the shuttle trains, prior to removal by the waste oil contractor who services the Duralie Coal Mine Project site.

The management of waste materials at the Duralie Coal Mine Project were observed to be consistent with the reporting in the Annual Return and the requirements of the Waste Management Plan.

4.14.6 Matters Raised by Relevant Agencies

No matters related to waste management were raised by the agencies.

4.14.7 Community Complaints

No community complaints were received by Duralie Coal Mine Project in relation to waste management.

4.14.8 Conclusions

The management of waste materials at the Duralie Coal Mine Project were consistent with the procedures and requirements of the Waste Management Plan.

4.15 Bushfire

Bushfire Management Compliance Status: No non-compliances identified.

Bushfire Management for the Duralie Coal Mine Project is described in the Biodiversity Management Plan and details activities in the mining lease and offset areas. Bushfire management related activities/works include:

- Improved access to sections of the DPCL landholdings has been created on the mining lease and within the offset areas;
- Leighton Mining can make available an off road water cart for bushfire fighting purposes where suitable access for this machinery is available;
- DCPL routinely (as required) undertakes hazard reduction burns, in consultation with neighbouring property owners/occupiers and the local Rural Fire Service unit; and
- Fuel loads on cleared pasture areas on the mine site which are removed from mining operations and adequately fenced are reduced by cattle agistment and/or periodic slashing.

4.16 Rehabilitation

[Project Approval 08_0203 Schedule 3 conditions 55 to 57]

Rehabilitation Compliance Status: No non-compliances identified. (One observation made).

4.16.1 Rehabilitation Management Plan

[Project Approval 08_0203 Schedule 3 condition 57]

The Rehabilitation Management Plan prepared to satisfy Project Approval Schedule 3 condition 57 was submitted to the DP&I in February 2014. The Rehabilitation Management Plan was approved on 28 February 2014. An updated Rehabilitation Management Plan includes monitoring programs to assess the performance of the Duralie Extension Project rehabilitation areas, subject to the conditions of the Project Approval.

Rehabilitation of disturbed areas is undertaken concurrent with ongoing Duralie Coal Mine Project mining operations. Rehabilitation of the out of pit waste emplacements involve the contouring of the outer faces to an overall slope of 1 in 4 followed by construction of drainage works.

Topsoil stripped from the areas required for the development of mine at the site, is respread to a nominal thickness of 100mm and revegetated. Direct placement of freshly stripped topsoil on areas under rehabilitation is undertaken wherever possible. The overburden emplacements are to be rehabilitated in progressive increments to the final landform.

The major final landforms at the completion of the Duralie Coal Mine Project will consist of waste rock emplacements (including backfilled open pits) and final voids in the Weismantel Extension and Clareval North West open pits.

Endemic plant species have been used previously for revegetation of the finished waste emplacements. Selection of tree and pasture species would include consideration of the adjacent vegetation, site features (i.e. slope, anticipated ground conditions, availability of water), sowing season and prevailing weather conditions, seed availability, advice from seed suppliers and success or otherwise of earlier sowings.

The revegetation objective for the waste rock emplacements is to provide areas of woodland and pasture. The woodland areas would be linked to a broader habitat enhancement strategy (Figure ES-6).

4.16.2 Commitments in Rehabilitation Management Plan

The commitments and primary objectives in the Rehabilitation Management Plan are:

- Production of a landform which is stable and consistent with the local surrounding landscape;
- Minimisation of erosion;
- Re-instatement of pre-mining land capability for the final land uses of grazing, woodland habitat and/or other appropriate land use;
- Tree and shrub establishment, mounding or bunding to provide visual amenity and to re-establish flora and fauna corridors and habitats; and
- To minimise the amount of disturbed land awaiting rehabilitation.

The primary objectives of the rehabilitation program are being addressed by the rehabilitation activities being implemented at the Duralie Coal Mine Project site.

4.16.3 Environmental Assessment Rehabilitation Predictions and Commitments

The Environmental Assessment (2010) described the general principles for rehabilitation the Duralie Coal Mine is undertaking progressively:

- to create physically and chemically stable landforms which are consistent with the local surrounding environment;
- to minimise land disturbance through progressive rehabilitation and mine planning;
- to provide visual amenity through tree and shrub establishment, mounding and/or bunding;
- to create flora and fauna corridors and habitats;
- to establish permanent, self-propagating vegetative cover; and
- to achieve final land uses that meet community and regulatory expectations and infrastructure needs in consideration of the pre-mining land use (i.e. predominately grazing) and conservation values.

The Environmental Assessment (2012) concluded that the rehabilitation and final land use strategy for the Duralie Coal Mine incorporating the 2012 Modification was consistent with the approved strategy with respect to progressive rehabilitation and final land use concepts.

4.16.4 Rehabilitation Monitoring

Rehabilitation monitoring at the Duralie Coal Mine site, using Landscape Function Analysis (LFA) is conducted annually with transects established across four rehabilitation establishment ages on the Duralie Coal Mine Project rehabilitation area. The recommendations based on the LFA results were to:

- Continue monitoring of mine rehabilitation using the highly informative Landscape Function Analysis methodology;
- Photo-monitoring be used as a complementary method for assessing rehabilitation success;
- Monitor general floristic diversity when the more recent rehabilitation plantings establish key diagnostic features;
- Research to better determine waste rock constraints to plant growth.

4.16.5 Rehabilitation Progress

Rehabilitation has been completed in areas such as the shoulders of the site access road, clean water diversion drain, rail siding embankments, dam embankments and the Coal Shaft Creek diversion. Rehabilitation is currently focusing on progressing rehabilitation of the waste rock emplacements. Rehabilitation completed during the November 2011 to November 2014 period included 34.4ha on the southern waste emplacement south of the power-line corridor, 1.8ha on the Weismantel noise bund, 1.3ha on the Block plug and ground cover established on topsoil stockpiles.

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Rehabilitation Summary	Cumulative Area Affected (ha)		
	To Date	1 July 2013 to 30 June 2014	1 July 2014 to 30 June 2015
A1 MINE LEASE AREA	942.8		
B DISTURBED AREAS			
B1 Infrastructure Area	25	25	25
B2 Active Mining Area	115	122	85
B3 Waste emplacements	87	63	76
B4 Tailing emplacement	0	0	0
B5 Shaped Waste Emplacements	2	6.5	0
Total Disturbed Areas	229	216.5	186
C REHABILITATION PROGRESS			
C1 Total Rehabilitated Area	85	76.5	128
D REHABILITATION ON SLOPES			
D1 10 to 18 degrees	69	64.5	72
D2 Greater than 18 degrees	0	0	0
E SURFACE OF REHABILITATION AREAS			
E1 Pasture and grasses	8.5	8.5	48.5
E2 Native forest/ecosystems	76.5	68	79.5
E3 Plantations and crops	0	0	0

Rehabilitation progress is generally in accordance with the planned activities described in DCM Mining Operations Plan (MOP 2010) (i.e. Plan 4C Proposed Mining Activities – June 2013). The MOP makes provision for 85 hectares of rehabilitated area by Year 3 operations (i.e. end 2014).

The MOP rehabilitation target for the end of 2013 of 85 hectares was met. No additional rehabilitation was scheduled in the MOP for 2014. The planned rehabilitation in the MOP for 2015 is 43 hectares.

Based upon visual inspection during this audit the rehabilitation to November 2014 appeared to be generally consistent with the proposed rehabilitation strategy described in the Environmental Assessment (2010), the Mining Operations Plan and complies with the objectives in Project Approval Schedule 3 condition 55 Table 11.

Weed control activities have also been conducted during the spring and summer periods of 2012 to 2014 in accordance with the Biodiversity Management Plan. Weed spraying within the Mining Lease area has mainly targeted Giant Parramatta Grass, Blackberry, Lantana, St John's Wort and Wild Tobacco.

4.16.6 Annual Review and Verification

The Annual Reviews section 5 address rehabilitation summarising monitoring conducted each 12 months and rehabilitation progress against the planned activities in the Mining Operations Plan. The rehabilitated areas on the Duralie Coal Mine site were inspected during the site audit and the progress, appeared to be generally consistent with the Mining Operations Plan, Rehabilitation Management requirements and the objectives outlined in Project Approval Schedule 3 condition 55.

4.16.7 Matters Raised by Relevant Agencies

No matters related to rehabilitation at the Duralie Coal Mine Project were received during consultation with the relevant agencies.

4.16.8 Community Complaints

No community complaints related to rehabilitation at the Duralie Coal Mine Project were received between November 2011 and December 2014.

4.16.9 Conclusions

The Rehabilitation Management Plan developed for the Duralie Coal Mine Project provides a sound basis for the restoration of overburden emplacement and other disturbed areas of the mine site. The rehabilitation is progressively being established on areas where activities have been completed with good establishment of vegetation and stability of the completed surfaces.

The MOP rehabilitation target for the end of 2014 of 85 hectares was met. The planned rehabilitation in the MOP for 2015 is 43 hectares.

Based upon visual inspection during this audit the rehabilitation to November 2014 appeared to be generally consistent with the proposed rehabilitation strategy described in the Environmental Assessment (2010), the Mining Operations Plan and complies with the objectives in Project Approval Schedule 3 condition 55 Table 11.



Plate 4.16.8: Rehabilitation on Waste Emplacement Area Duralie Coal Mine Project.

Recommendation R1:

It is recommended that final landform design remains generally consistent within the limitations of the maximum height of the waste overburden emplacements (i.e. 135 m AHD as approved on 5 December 2014) and include some visible relief (+/- 20m RL) to provide a more natural skyline on the completed rehabilitation areas. The final slope of the overburden emplacement should adopt a concave profile (rather than batters and benches) where practicable to manage surface runoff and reduce potential erosion risk on the completed areas.

4.17 Rail Transport

[Project Approval 08_0203 Schedule 2 conditions 7 and 8]

[Project Approval 08_0203 Schedule 3 condition 48]

Rail Transport Compliance Status: No non-compliances identified

4.17.1 Project Approval Conditions – Compliance

[Project Approval 08_0203 Schedule 2 conditions 7, 8 and 8A]

In accordance with Project Approval Schedule 2 condition 7(a), all coal is transported from the Duralie Coal Mine site to Stratford Mining Complex CHPP. The Shuttle Train haulage has been less than 3 million tonnes of coal per calendar year (1.9Mt between January and December 2013 and 1.95Mt January to December 2014).

In accordance with Project Approval Schedule 2 condition 7(b) less than 5 trains per day left the Duralie Coal Mine site for the Stratford Mining Complex CHPP between January 2013 and December 2014.

In accordance with Project Approval Schedule 2 condition 7(c) the maximum number of trains that have left the site on any given day is 4, with that number only achieved on 28% of all days within the available data set analysed. Over the period 1 December 2012 to 30 December 2014 the average number of trains departing the site was less than 2.3 per day.

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In accordance with Project Approval Schedule 2 condition 8A (*Within 12 hours of operating shuttle trains on the North Coast railway between midnight and 1am in exceptional circumstances, the Proponent shall provide a detailed explanation of the exceptional circumstances on its website*), two recorded events related to the shuttle trains operating on the North Coast railway between midnight and 1am, triggered the exceptional circumstances criteria:

- 23 January 2014 – due to delay in departure from Duralie and unloading of wagons at Stratford due to ARTC directions. The shuttle train arrived back at Duralie at 0051 hours.
- 17 March 2014 – due to a major power outage and delay caused by restoration of power by Essential Energy. The shuttle train arrived back at Duralie after midnight.

Both events were recorded on the Shuttle Train Performance Summary on the website:

- 23 January 2014 - The last shuttle train for was ready for departure from Duralie at 17:30 to allow a clear path to Stratford and avoid clashes with the Countrylink passenger train as well as an export coal train. ARTC train control decided to delay departure of the shuttle and give priority to the Countrylink and export train over the shuttle train.

The shuttle train departed Duralie at 20:25 after a three hour delay from original departure. The shuttle train then was forced to wait on the export train departure from Stratford to commence unloading. Unloading started at 22:42 and continued to 23:20 when the train was required to leave in order to meet the midnight return curfew to Duralie. At this time not all of the train had been unloaded. ARTC train control advised that no return path to Duralie would be granted until all wagons were unloaded, so unloading of the train continued to meet the ARTC direction. The train departed Stratford at 00:20 and arrived back to Duralie at 00:51. The late arrival back to Duralie is wholly due to the ARTC direction to not run the train with loaded wagons on the return journey.

- 16 March 2014 - A major electricity power outage occurred during the night of March 16 and the early morning of March 17. This resulted in a region wide electricity outage. Both Duralie and Stratford were impacted by this electricity outage. As a result over 6.5 hours of normal shuttle train operations were lost while Essential Energy restored power. This loss of electricity was the trigger to access the exceptional circumstances provision for the shuttle train to arrive back to Duralie after midnight on March 17.

The locomotives provided by Aurizon for use as shuttle trains, are GL Class (or equivalent noise performance), that are approved to operate on the NSW rail network in accordance with noise limits in the ARTC EPL No. 3142.

4.17.2 Commitments in the Noise Management Plan (for Duralie Shuttle Train Operations)

The previous GL Class shuttle train locomotives were replaced in late 2011 with only one GL class equivalent locomotive operating at the date of this audit. As a component of the renegotiation of contracts with Aurizon, Duralie Coal required that the locomotives used on the shuttle are approved to operate on the NSW rail network in accordance with the noise limits in the ARTC Environment Protection Licence No.3142, in accordance with Project Approval 08_0203 Schedule 3 condition 5.

The approved hours of operation of the Duralie shuttle train are between 6 am and midnight, and in exceptional circumstances, the Duralie shuttle train may operate on the North Coast Railway between midnight and 1 am in accordance with Project Approval Schedule 2 condition 8.

To minimise rail movements during the night-time (10 pm to 7 am) Duralie Coal will preferentially use daytime and evening hours to transport ROM coal from the Duralie Coal Mine to Stratford Mining Complex.

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The Duralie shuttle train operators use brakes and horns as required for safety in accordance with relevant operator protocols. Noise from the bunching and stretching of rail wagons can arise where braking is not co-ordinated between the two locomotives on a train (one at the front and one at the rear). Drivers of the Duralie shuttle train locomotives will continue to reduce the potential for braking noise impacts by coordinating their braking activities via radio to minimise bunching and stretching effects as part of normal shuttle operations.

Aurizon (the operator of the Duralie shuttle train) has advised that the locomotive crews will introduce the standard use of the town horn (as opposed to country horn) where practicable to minimise potential noise impacts from the use of train horns.

4.17.3 Environmental Assessment Rail Haulage Predictions and Commitments

The Environmental Assessment (dated January 2010) included the following prediction related to rail haulage:

- the number of rail movements from Duralie Coal Mine to Stratford Mining Complex will be slightly increased by the Duralie Extension Project.

The Environmental Assessment included the following commitment related to rail haulage:

Environmental Assessment Commitment	Action Related to the Commitment
Duralie Coal commits to replacing the existing locomotives used for ROM coal transport with GL class locomotives (or equivalent) which are quieter than the existing DCM locomotives from Year 2 of the Project (or sooner, subject to contract arrangements with ARTC). Prior to the introduction of the quieter locomotives, Duralie Coal Mine rail movements will continue to be restricted to the existing Duralie Coal Mine ROM train hours (7.00 am to 10.00 pm).	The locomotives provided by Aurizon for use as Shuttle Trains between Duralie Coal Mine and the Stratford Mining Complex were upgraded and are now GL Class (or equivalent noise performance), approved to operate on the NSW rail network in accordance with the noise limits in the ARTC's EPL No. 3142. The commitment to replacing the existing locomotives with GL Class or equivalent has been achieved.

The shuttle train is a push-pull configuration made up of 34 coal wagons and two locomotives (one at each end of the train).

The Aurizon shuttle locomotives provided for the Duralie Coal haulage are:

- One 6000 Class; and
- One 3200 Class.

The Aurizon Environment Protection Licence No. 3142 identified 6000 Class locomotives as approved for operation and therefore are considered by EPA to meet the objective of the locomotive noise criteria. Class 3200 locomotives, however, are identified by the ARTC EPL 3142 as *"introduced prior to approval processes"*. Sydney Trains (EPL 12208) noise controls are regulated the same as the ARTC) with locomotives Class 3200 approved (as of 28 June 2013). As such, both the 6000 and 3200 Class locomotives are equivalent to a GL Class locomotive. Considering the above, the locomotives used in the shuttle train by design meet accepted noise objectives and Duralie Coal Pty Ltd commitment to replacing the locomotives with GL Class or equivalent.

4.17.4 Shuttle Train Operations

4.17.3.1 Dust Emissions from Rail Transport

A Study of Dust Emissions from Rail Transport conducted by Katestone Environmental and Introspec Consulting, was conducted to satisfy Project Approval Schedule 3 condition 21A. The Study of Dust Emissions from Rail Transport Report dated April 2012 was submitted to the DP&I and concluded:

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- Dispersion modelling of coal dust emissions from coal trains conducted for the Duralie Extension Project that ground-level concentrations of dust were unlikely to exceed recognized health and amenity based air quality standards
- An inspection of the Duralie and Stratford Coal Mine rail loading and unloading facilities identified the following:
 - An effective two-stage water spray system is installed at Duralie Coal Mine that provides thorough wetting of the coal surface after loading and prior to rail transport
 - The generous capacity of the Bradken wagons used at Duralie Coal Mine allows minimal projection of the coal profile above the wagon top, thereby further reducing the effect on dust emission of air flow over the coal surface
 - No excessive drainage of water was observed from wagon doors during and after loading at the Duralie Coal Mine. It therefore appears that the Duralie Coal is not free draining and that the surface moisture is likely to be retained in the coal matrix for the maximum likely travel time between Duralie and Stratford Mining Complex
 - Very little dust was observed to be emitted during unloading coal at the Stratford Coal Mine rail unloading facility
- Based on physical inspection of the process and laboratory analysis undertaken, the two-stage water spray system is very effective in reducing dust levels from the surface of loaded wagons. Inspections and a review of previous studies indicate that dust from other parts of the rail operations is likely to be very minimal
- The current dust mitigation practice of two-stage watering at the Duralie rail load out facility was found to be appropriate for controlling potential dust emissions from laden trains and no further controls are recommended.

The rail haulage dust audit conducted by Todoroski Air Sciences in November 2013, reviewed the Shuttle Train operations to satisfy Project Approval Schedule 5 condition 9A(b). A summary of the Todoroski Report findings were:

- *“The current rail dust mitigation measures at Duralie Coal Mine for management of dust generation from coal loaded into the wagons for transport to the Stratford Mining Complex CHPP are outlined in the Air Quality and Greenhouse Gas Management Plan and include:*
- *The application of water to the coal surface as each wagon is loaded, approximately 90 litres of water is applied to the surface of the ROM coal in each wagon; and*
- *Re-wetting of the coal surface via sprayers when the fully loaded trains depart from the rail load-out facility.”*



Plate 4.17.3.2: Rail loading showing water spray treatment prior to haulage from Duralie.

4.17.3.2 Ambient air quality

Available ambient air quality monitoring data is collected by Duralie Coal Mine and Stratford Coal Mine near receptor dwellings. The average PM₁₀ recorded dust levels are below the key applicable criteria of 50 µg/m³ /24-hour.

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No complaints related to coal dust from rail transport have been recorded by Duralie Coal or the Stratford Mining Complex.

Dust was not evident during the rail load out operation at the Duralie Coal Mine rail loader. This is attributed to the moist nature of the ROM coal, and the use of water sprays on the surface of the coal being loaded into the wagons (see Plate 4.17.3.2). No dust was evident from the surface of the coal wagons or the rail line.

A train was observed unloading coal at the Stratford Coal Mine rail loop. It was noted that a water spray also operates during the unloading operation. The system is automated to prevent excess discharge onto the coal, and this prevents spillage over the top of the receival hopper.

No 'parasitic' coal was evident on any parts of the wagon after unloading and shows that the rail unloading operation work effectively to prevent coal carry over on the wagons, and avoids potential dust problems associated with coal coming off the wagons or depositing onto the tracks at a later time.

On the return train trip to from Stratford to Duralie no visible dust was observed escaping from the unloaded wagons.

Smoke emissions from the diesel engine of the locomotive were evident, under hard acceleration for a brief period of approximately 10 to 15 seconds.

4.17.3.3 Rail Haulage Dust Audit 2013 Conclusions

The rail haulage dust audit was unable to identify any visible dust emissions associated with the transport of ROM coal from Duralie Coal Mine to Stratford Mining Complex. No complaints were reported related to coal dust from rail haulage.

The Rail Haulage Dust Audit concluded:

- *"that dust emissions related to rail haulage from the Duralie Coal Mine to Stratford Coal Mine were insignificant.*
- *There were no aspects of the operation that would warrant changes to reduce emissions, as there were no tangible emissions of dust evident at any part of the process.*
- *It is not recommended that any changes be made to the existing monitoring network as the dust emissions from the rail haulage were found to be insignificant and therefore do not warrant further monitoring provided that existing practices are maintained in this regard."*

4.17.5 Rail Haulage Environmental Monitoring

Monitoring data related to rail haulage was audited in November 2013 by PalazziRail Consultants and subsequent assessment conducted during this audit was based on Shuttle Train data available on the Duralie Coal website and noise monitoring reports prepared by Vipac. Rail noise monitoring and reporting has been undertaken for general information purposes only (i.e. criteria are not Project Approval conditional requirements).

The Noise Management Plan section 4 requires that rail noise monitoring to be undertaken against rail noise criteria on a quarterly basis at existing Wards River and Craven monitoring locations. Quarterly Environmental Noise Quarterly Surveys report rail noise monitoring at existing Wards River (TM1) and Craven (TM2) monitoring locations between Duralie and Stratford Coal Mines in October 2012, January, April, July and October 2013, and January, April, July, and October 2014, conducted by Vipac.

Noise emissions from the Duralie Shuttle Train generally complied with the goal level of 85dB(A)_{L_{Max}} pass-by noise and 65dB(A)_{L_{Eq}} at the Craven monitoring location, except during the April 2013 survey where it failed to comply with the goal level of 65dB(A)_{L_{Eq}}.

The Wards River monitoring location failed to meet both 85dB(A)_{L_{Max}} and 65dB(A)_{L_{Eq}} goal levels for both the October 2012 and January 2013 attended surveys. It is considered that these exceedances were attributable to

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the influence of horn blasts from the locomotives during each of the train pass-by attended surveys at both the Wards River and Craven monitoring locations.

Table 18: Noise Level (LA_{max} and LA_{eq} (15-minute) at Rail Monitoring Locations under prevailing weather conditions

Monitoring Locations	Sound Pressure Level				Noise Criteria		Excursion			
	LA_{max}		$LA_{eq}(15\text{-minute})$		LA_{max}	$LA_{eq}(15\text{-minute})$	dB(A)		dB(A)	
	Oct 2012	Jan 2013	Oct 2012	Jan 2013			Oct 2012	Jan 2013	Oct 2012	Jan 2013
TM1 Wards River	90	88	65	66	85	65	5 dB(A)	3 dB(A)	1 dB(A)	1 dB(A)
TM2 Craven	79	81	64	65	85	65	0	0	0	0

All receivers complied with the LA_{eq} 15-hour noise goal at the TM1 (Wards River) location. Additionally the noise emanating from the Duralie shuttle was predicted to comply with the LA_{eq} 15-hour and LA_{max} noise goals at receivers 4, 5 & 8 based on the noise level monitored at TM2 (Craven) during the January, April and July 2014 noise surveys.

The extrapolation of the monitoring results to the facades of the 34 residential receivers and comparing the results against the LA_{max} 85 dBA and LA_{eq} 15hour 65 dBA noise goals, indicates that no exceedance of the daytime 65 dBA goal. The LA_{max} 85 dBA noise goal was predicted to have been exceeded at most of the residential receivers (1, 2, 4, 6, 7, 9-28, 31 and 34) typically by 1-2 dB.

Vipac conducted validation monitoring at Wards River Village, Molly Moo property and Craven during November 2014 to assess the LA_{max} 85 dBA noise goal compliance. The monitoring results indicated that:

- For Wards River Village – *“It is Vipac's professional opinion that the Duralie Shuttle fails to comply with the 85dB(A) LA_{max} (5% exceedance) in Wards River due to the operation of the shuttles rail horn. However, it is Vipac's opinion that with the exclusion of noise generated by the Duralie Shuttle's horn, the shuttle complies with the 85dB(A) LA_{max} criteria.”*
- For Craven – *“It is Vipac's professional opinion that the Duralie Shuttle fails to comply with the 85dB(A) LA_{max} (5% exceedance) in Craven due to the operation of the shuttles rail horn. As it is not possible to assess the unattended measurements by excluding the noise of the rail horn Vipac cannot assess the locomotive noise against the 85dB(A) LA_{max} noise criteria. However from the attended noise measurements conducted in Craven as part of the quarterly noise compliance surveys there has been no exceedances of the 85dB(A) LA_{max} noise criteria in the past two years.”*
- For Molly Moo – *“It is Vipac's professional opinion that the noise emissions from the Duralie Shuttle failed to comply with the 85dB(A) LA_{max} (5% exceedance) noise criteria at the Molly Moo monitoring location. This is attributed to the noise generated by the speed at which the shuttle train travels along the straight stretch of the railway line past the Molly Moo Property. It is also noted that there are no residential receivers in the vicinity of this monitoring location with the nearest residence on the Molly Moo property set back approximately 230m from the rail line. Vipac recommends that no further monitoring be conducted at this location as it does not represent any residential noise sensitive receivers and also due to the change in conditions when compared to Wards River Village.”*

4.17.6 Annual Review and Verification

The Annual Review addresses ROM Transport from the Duralie Coal Mine to Stratford Mining Complex by rail. The approved hours of operation of the Duralie shuttle train are between 6 am and midnight (i.e. 18 hours). In exceptional circumstances, the Duralie shuttle train may operate on the North Coast Railway between midnight and 1 am in accordance with Project Approval Schedule 2 condition 8.

There was a maximum daily movement of 4 trains with 1014 train movements (Duralie-Stratford-Duralie circuit) occurred during July 2011 to June 2012, 956 train movements (Duralie-Stratford-Duralie circuit) during July 2012 to June 2013, and 785 train movements (Duralie-Stratford-Duralie circuit) during July 2013 to June 2014. There

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was a maximum daily movement of 4 trains. Rail movements are recorded on the Duralie Coal website on a fortnightly basis.

Annual Review 3.12.3 addresses Rail noise monitoring conducted during January, March, July, and October 2013, January, April, July and September 2014 are reported in the Annual Reviews section 3.12.3.

In accordance with Project Approval (08_0203), Schedule 5, condition 9A Duralie Coal arranged a Rail Haulage Audit in December 2013. In completing the Audit the noise Auditor recommended that:

"With consideration to the mitigation requirements, it is recommended rail noise compliance levels are validated to confirm the extent of any exceedance of the LAmax 85 dBA pass-by criterion".

Noise monitoring of train noise levels is conducted with unattended loggers. There are frequent exceedances of the 85dBA noise limits in the ARTC Environment Protection Licence 3142 conditions. There has been some refining of the rail noise measurements by Vipac throughout the 2012-2014 period for the monitoring of pass-by noise received at the residents of Wards River Village.

[Note: Although the rail noise is not directly under Duralie Coal's control (as the locomotives are owned and operated by Aurizon under contract to Duralie Coal), the monitoring suggests that maximum pass-by noise levels may occasionally exceed the ARTC Environment Protection Licence 3142 limit at Wards River residences.]

4.17.6 Matters Raised by Relevant Agencies

Matters raised by relevant agencies included responses below regarding the rail haulage audit. The DP&E advised a further audit of rail haulage was not required as per correspondence received from the regulator on 22 October 2014. Vipac consultants, however, undertook an additional validation audit at Wards River Village (refer 4.17.4). The DP&E 2013 Audit had a finding regarding maintaining a fortnightly upload of train movement data which has been maintained and determined to be compliant.

The Great Lakes Council response to the agency consultation letter requested that the rail noise monitoring be reviewed for Wards River.

Independent Environmental Audit response to the Great Lakes Council request - The Rail Haulage Audits (Rail Haulage - PalazziRail 2013, Dust - Todoroski 2013 and Katestone 2012, and Noise - Wilkinson Murray 2013) concluded that the rail haulage from Duralie Coal Mine to Stratford Mining Complex, undertaken by Aurizon, is generally in compliance with the conditions of approval related to approved time frames and train movement limits, and in accordance with the best practice operating conditions for rail haulage. The proximity of the residents at Wards River to the North Coast Railway from Maitland to Brisbane are subjected to interstate containerised freight traffic (the predominant rail traffic on the North Coast Railway), passenger train traffic (three times daily each way i.e. 6 pass-byes) in addition to the Duralie to Stratford rail haulage of coal (average of 2-3 trains per day at regulated hours).

The review of community complaints lodged with Duralie Coal Mine indicated that one (1) complaint specifically related to Shuttle Train operation off-site was received in 2010-2011, and two (2) complaints were recorded during 2013 (26 January 2013 and 26 October 2013), specifically related to noise from train movements, both related to use of the horn at the road crossing north of Wards River.

- 26 January 2013 - Wards River Village - Coal train drivers blowing horn unnecessary noise pollution".
- 26 October 2013 - Wards River Village - Noise from train. Resident complaint in relation to use of horn by likely a particular Pacific National driver, suggested sign to remind drivers to use town horn at crossing.

To minimise rail and horn noise, Aurizon (the operator of the Duralie shuttle train) introduced:

- the standard use of the town horn (as opposed to country horn) where practicable (i.e. the country horn will be used where necessary for safety) to minimise potential noise impacts from the use of horns;

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- bunching and stretching of rail wagons through braking is minimised through drivers coordinating their braking activities via radio as part of normal shuttle operations.

The Rail Haulage Audits, review of rail haulage data, and observations made during this Independent Environmental Audit do not indicate that Duralie Coal Mine is operating outside the approved conditions of operation under its control for the project rail haulage of coal from Duralie Coal Mine to Stratford Mining Complex.

4.17.7 Conclusions

The operation of the Shuttle Train haulage of coal from Duralie Coal Mine site to the Stratford Mining Complex CHPP has been generally compliant with the requirements of the Project Approval conditions.

The summaries of findings of the Rail Haulage Noise Audit 2013 were:

- Current locomotives used in the shuttle train meet currently accepted noise objectives, in the context of the regulatory framework;
- The commitment to replacing the existing locomotives with GL Class or equivalent from Year 2 of the Duralie Extension Project or sooner has been achieved. The locomotives used in the shuttle train meet accepted noise objectives and the Duralie Coal commitment to replacing the existing locomotives with GL Class or equivalent (PallaziRail 2013);
- Train movements have been within the permitted limits and permitted timeframes;
- The Palazzirail Audit Report states in detail the processes used by Duralie Coal to minimise train operations during the night. The report suggests given the limited number of movements, it appears possible to transport the same amount of coal yet avoid any departures after 9:25 by instituting more movements on a Saturday;
- Noise monitoring indicated compliance with the 65 LA_{eq},15 hour daytime noise goal at all receivers; however, exceedances of the LA_{max} 85 dBA pass-by criterion by 1-2dBA has been indicated at 27 receivers;
- The current dust mitigation practice of two-stage watering at the Duralie rail load out facility was found to be appropriate for controlling potential dust emissions from laden trains and no further controls are recommended (Katestone 2012).
- Based on the findings of this audit report, it would not appear to be necessary to conduct further audits, provided the operator continues to implement its current controls to the rail haulage operations (Todoroski 2012);and
- From the review of complaints there appears to be no systemic complaints regarding the operation of the Duralie shuttle train.

4.18 Community Consultation

Community Consultation Compliance Status: No non-compliances identified

The Community Consultative Committee (CCC) for the Duralie Coal Mine Project was formed in accordance with Project Approval Schedule 5, condition 5. The Committee operates generally in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007).

Liaison with the local community is undertaken through the Community Consultative Committee (CCC).

A new committee was formed following approval of Duralie Extension Project in November 2010, with quarterly meetings held between November 2011 and December 2014.

The CCC Meetings are held quarterly at the Duralie Coal Mine Project site offices with site tours arranged for the members if required for information of the members or requested by the CCC for particular matters (e.g. general

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site inspection, mining operations – Clareval Pit, rehabilitation progress, irrigations areas, evaporative sprays, overburden emplacements etc)

Issues raised and/or discussed during the CCC meetings between November 2011 and December 2014 include but are not limited to:

- Duralie Coal Mine Project Overview of Activities
- Karuah River catchment
- Biodiversity and offsets
- Rehabilitation and land management
- Mine Noise
- Visual amenity
- Community enhancement funding
- Sponsorships
- Environmental monitoring
- Air quality

The CCC chairperson has provided a summary report of the committee operations to the Director General annually, in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects*.

4. 19 Community Complaints

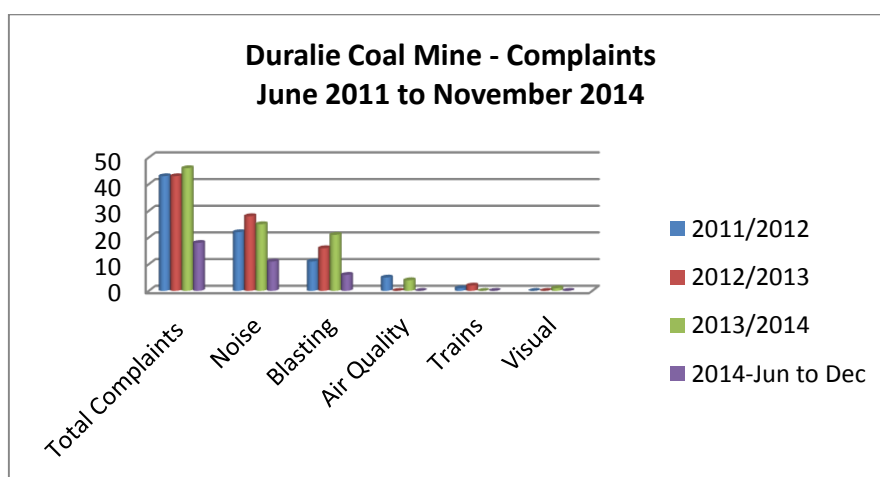
[Project Approval 08_0203 Schedule 5 condition 1(e)]

[Environment Protection Licence 11701 condition

A dedicated complaints telephone number - 1300 658 239 - is available 24 hours per day. The number is advertised within the Sensis White Pages Directory (Newcastle), a local telephone directory (Pink Pages) and in the local newspapers (Gloucester Advocate and Dungoch Chronicle) on a six monthly basis.

Duralie Coal Pty Ltd staff, when notified of a complaint, determine an appropriate response on the basis of the nature of the complaint. This may involve a site visit/inspection, liaison with personnel on site by telephone or other appropriate action. Response to all complaints is attempted within 24 hours of receipt and the responses are recorded in a Complaints Register, which is tabled at each Community Consultative Committee meeting and also available on the Duralie Coal website.

Complaints (by category) received by Duralie Coal Pty Ltd between June 2011 and December 2014 were:



The Duralie Coal Mine Project Environment Protection Licence (EPL) 11701 applies to the area over which the Department of Trade & Investment, Regional Infrastructure and Services (DTIRIS) Mining Leases 1427 and 1646 are issued. A requirement of the EPL is to record pollution complaints regarding complaints resulting from operations within the nominated Mining Lease areas. The DP&E Audit in 2013 recommended maintaining

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monthly upload of complaints register (Condition 10 Schedule 5) and this continues to be maintained by Duralie Coal.

Complaints relating to shuttle trains operating off the mining lease, and mining vehicles speeding on public roads are also recorded.

4.19.1 Conclusions

Community complaints have reduced over the 2011 to 2014 period with noise from the evaporative fans installed in 2012, and blasting being the majority of complaints. Investigation of blast complaints did not identify any exceedences of overpressure or vibration criteria. Noise from the evaporative fans is being addressed as part of the operational review for the Duralie mining operations and the location of the evaporative fans, noise attenuation and shielding (bundling) of the units on the overburden emplacements is being undertaken and continues to be further investigated.

5. Conclusions and Recommendations

The Independent Environmental Audit of the Duralie Coal Mine Project operations was conducted by Trevor Brown & Associates between 24 and 29 November 2014, indicated a high standard of compliance of the mining activities with the conditions of approval granted to the project under the Project Approval, Environment Protection Licence and Mining Leases.

The Duralie Coal Mine Project has been developed generally in accordance with the project described in the Environmental Assessments and predictions for noise, air quality, water quality, blasting and heritage management, and rail haulage. Commitments made in the Environmental Assessments and Management Plans have generally been implemented and conform to the proposed mine development and progressive rehabilitation of the mine site.

The audit identified the following matters where observations and recommendations that may improve the environmental management and reporting of the Duralie Coal Mine Project operations could be achieved. These matters are all administrative in nature and were not required to be subjected to a risk assessment (in accordance with the Draft Guidelines – Independent Environmental Audit of Mining Projects 2014 section 7.2):

Noise Recommendations

Recommendation Noise 1:

The Vipac Quarterly Environmental Noise Survey reports do not contain assessment of low frequency noise emissions in accordance with the Industrial Noise Policy. It is recommended that low frequency noise emissions should be assessed in the quarterly reports to satisfy Condition L4.5 of EPL 11701.

Recommendation Noise 2:

It is recommended that to incorporate low frequency assessment in the current noise monitoring report format analysis results should be changed on the left hand side of the graphical representation to the following, in order:

Total Leq dB(A)

Mine contribution Leq dB(A)

Mine contribution Leq dB(C)

Mine dB(C) – dB(A)

Mine contribution L1 (night time only).

Recommendation Noise 3:

It is recommended that the inversion data since commissioning of the real-time capability be analysed to determine the 90th percentile site-specific inversion strength in accordance with provisions in the INP. A summary report should then be forwarded to EPA/OEH for their consideration of reviewing the applicable inversion strength in EPL 11701. Incorporation of the site-specific value in the EPL would then necessitate changes to the real-time noise management triggers.

Recommendation Noise 4:

It is recommended the unattended logger surveys (typically 72 hour) be discontinued.

Recommendation Noise 5:

It is recommended to discontinue including model results in compliance reports.

Biodiversity Recommendation

Recommendation Biodiversity 1:

It is recommended that consultation between Duralie Coal Pty Ltd and the OEH should be undertaken to address the concerns expressed by OEH. The amendments to the survey design of the Giant Barred Frog Study are described in the Annual Giant Barred Frog Study Reports 2011 to 2014 prepared by Biosphere Environmental Consultants (Dr Arthur White). Any consultation with the OEH in relation to survey transects should include Dr Arthur White who was endorsed by DP&I in March 2012 as a qualified and experienced person for the preparation of the Giant Barred Frog Study and Giant Barred Frog Management Plan in accordance with Project Approval 08_0203 Schedule 3 conditions 30 and 32. The two documents, were approved in March 2012 and annual reports of the monitoring results were submitted to the OEH and DPI. The discussion with OEH related to statistical analysis and methodology of the population data should include Dr Ian Lenane to ensure clarification of issues and discussion of consistency of approach.

Rehabilitation Recommendation

Recommendation Rehabilitation 1:

It is recommended that final landform design remains generally consistent within the limitations of the maximum height of the waste overburden emplacements (i.e. 135 m AHD approved 5 December 2014) and include some visible relief (+/- 20m RL) to provide a more natural skyline on the completed rehabilitation areas. The final slope of the overburden emplacement should adopt a concave profile (rather than batters and benches) where practicable to manage surface runoff and reduce potential erosion risk on the completed areas.

Heritage Recommendation

Recommendation Heritage 1:

It is recommended that the maintenance program for the former Weismantels Inn European heritage site including any special requirements of the tenancy be described in the Heritage Management Plan.

Attachments

Attachment A Project Approval 08_0203 Conditions Table

**Attachment B Environment Protection Licence No. 11701
Conditions Table**

Attachment E Mining Lease 1427 and 1646 Conditions Table

Attachment A

Project Approval 08_0203

Consolidated Project Approval dated 10 November 2011

1 November 2012 Modification in Blue

Condition No.	Project Approval Condition	Verification	Comments	Compliance
	SCHEDULE 2 ADMINISTRATIVE CONDITIONS			
	OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT			
1	The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or rehabilitation of the project.			Noted
	TERMS OF APPROVAL			
2	<p>The Proponent shall carry out the project generally in accordance with the:</p> <p>(a) EA;</p> <p>(b) statement of commitments; and</p> <p>(c) conditions of this approval.</p> <p>Notes:</p> <ul style="list-style-type: none"> <i>The general layout of the project is shown in Appendix 2; and</i> <i>The statement of commitments is reproduced in Appendix 9.</i> 	<ul style="list-style-type: none"> Environmental Assessment <i>Duralie Open Pit Modification</i> dated January 2010 Environmental Assessment <i>Duralie Rail Hours Modification</i>, dated April 2012 Environmental Assessment <i>Duralie Extension Project Modification</i> 2014 	<p>The DCM project has been developed and operated generally in accordance with the proposed project described in:</p> <ul style="list-style-type: none"> Statement of Environmental Effects October 1998, and Development Consent granted on 5 February 1999, Modification of Consent granted on 24 September 2003 and Modification to Consent granted July 2006; Modification to Consent for Auxiliary Water Storage Dams granted on 3 December 2008. Environmental Assessment Duralie Open Pit Modification dated January 2010; and Environmental Assessment <i>Duralie Rail Hours Modification</i>, dated April 2012 	Compliant Ongoing
3	If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.			Noted
4	The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:		There have no specific directives received by Duralie from the Director-General between 2011 and 2014.	Noted

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Condition No.	Project Approval Condition	Verification	Comments	Compliance										
	(a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with this approval; and (b) the implementation of any actions or measures contained in these documents.													
	LIMITS ON APPROVAL													
5	The Proponent may carry out mining operations on site until 31 December 2021. <i>Note: Under this approval, the Proponent is required to rehabilitate the site and carry out additional undertakings to the satisfaction of both the Director-General and the Director-General of DTIRIS. Consequently, this approval will continue to apply in all other respects - other than the right to conduct mining operations - until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.</i>			Noted										
6	The Proponent shall not extract more than 3 million tonnes of coal from the site in a calendar year.		<div>The ROM coal production from the DCM has not exceeded the allowable 3 million tonnes per annum limit specified in this condition. Production for between 2011 and 2014 has been:<table><tr><th>Calendar Year</th><th>ROM Extracted</th></tr><tr><td>2011</td><td>1,535,174t</td></tr><tr><td>2012</td><td>2,120,094t</td></tr><tr><td>2013</td><td>2,997,702t</td></tr><tr><td>January to June 2014</td><td>929,996t</td></tr></table></div>	Calendar Year	ROM Extracted	2011	1,535,174t	2012	2,120,094t	2013	2,997,702t	January to June 2014	929,996t	Compliant
Calendar Year	ROM Extracted													
2011	1,535,174t													
2012	2,120,094t													
2013	2,997,702t													
January to June 2014	929,996t													
7	The Proponent shall ensure that: (a) all coal is transported from the site by rail; (b) no more than 5 laden trains leave the site each day; and (c) no more than 4 laden trains leave the site each day, when averaged over a 12 month period.	<ul style="list-style-type: none">Audit of Rail Haulage, Duralie Coal Mine, Palazzirail, 23 Dec 2013	<div>(a) All coal is transported from the Duralie site by rail; (b) The records of train movements from Duralie confirm that more than 5 laden trains have left the Duralie site on any given day between November 2012 and December 2014. (c) The average number of trains departing the Duralie site averaged approximately 2.3 per day between November 2012 and December 2014.</div>	Compliant										

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Duralie Coal Mine

Condition No.	Project Approval Condition	Verification	Comments	Compliance
8	The Proponent shall: (a) only dispatch shuttle trains from the site between 6am and 10pm; (b) only receive shuttle trains on site between 6am and midnight; and (c) only operate shuttle trains on the North Coast railway between midnight and 1am in exceptional circumstances.		(a) First departures of trains from Duralie occur at 6am and there are no records of any trains departing Duralie after 10pm. (b) No trains have been received at the Duralie site after midnight between November 2011 and December 2014. (c) There were two recorded events when the shuttle trains operated on the North Coast railway between midnight and 1am triggering the exceptional circumstances criteria.	Compliant Ongoing
8A	Within 12 hours of operating shuttle trains on the North Coast railway between midnight and 1am in exceptional circumstances, the Proponent shall provide a detailed explanation of the exceptional circumstances on its website.	<ul style="list-style-type: none"> Audit of Rail Haulage, Duralie Coal Mine, Palazzirail, 23 Dec 2013 	<p>There were two recorded events when the shuttle trains operated on the North Coast railway between midnight and 1am triggering the exceptional circumstances criteria:</p> <ul style="list-style-type: none"> 23 January 2014 – due to delay in departure from Duralie and unloading of wagons at Stratford due to ARTC directions. The shuttle train arrived back at Duralie at 0051 hours. 17 March 2014 – due to a major power outage and delay caused by restoration of power by Essential Energy. The shuttle train arrived back at Duralie after midnight. <p>Both events were recorded on the Shuttle Train Performance Summary on the website.</p>	Compliant Ongoing
	SURRENDER OF CONSENTS			
9	By the end of December 2011, or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents for the site in accordance with Section 104A of the EP&A Act.	<ul style="list-style-type: none"> Letter to DP&I re Surrender of DA 168/99, 9 Dec 2013 	DA 168/99 was surrendered to DP&I on 9 December 2013.	Compliant Closed
10	Prior to the surrender of these consents, the conditions of this approval shall prevail to the extent of any inconsistency with the conditions of these consents.			Noted
	STRUCTURAL ADEQUACY			
11	<p>The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.</p> <p>Notes:</p> <ul style="list-style-type: none"> Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works; and 	<ul style="list-style-type: none"> As-Built Site Inspection Report – Water Management, Gilbert and Associates, August 2003 As-Built Report Stage 2 – Diversion of Coal Shaft Creek, Duralie Coal Mine, 20 December 2004 Notice of Determination 	<p>Any new buildings or structures, and any alterations or additions to existing buildings and structures, will be constructed in accordance with the relevant requirements of the BCA.</p> <p>No new buildings or any alterations or additions to existing buildings occurred between November 2011 and December 2014.</p>	Compliant Ongoing

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
	<ul style="list-style-type: none"> Part 8 of the EP&A Regulation sets out the requirements for the certification of the project. 	<p>(Consent) DA 30/2009 for Placement of a Demountable Building to be used for offices on site, dated 21 Aug 2008</p> <ul style="list-style-type: none"> Construction Certificate for Placement of a Demountable Building to be used for offices on site, 9 Oct 2008 	<p>New aboveground diesel storage tanks were installed in accordance with Australian standards</p> <p>Construction Certificates were obtained from the Great Lakes Council dated 9 April 2003 for the main office administration building, and the coal bin /conveyors for the ROM coal hopper, rotary breaker, conveyor and trail loading bin.</p> <p>Reports were obtained on the adequacy of as-built water management structures in August 2003 and the diversion of Coal Shaft Creek in December 2004.</p> <p>April 2009</p> <p>A Notice of Determination (Consent) and Construction Certificate were obtained from GLC for the Placement of a demountable building to be used for offices on site, during 2008.</p>	
	DEMOLITION			
12	The Proponent shall ensure that all demolition work is carried out in accordance with <i>Australian Standard AS 2601-2001: The Demolition of Structures</i> , or its latest version.		No demolition of buildings or structures occurred between November 2011 and December 2014.	Compliant Ongoing
13	The Proponent shall ensure that all the plant and equipment used on site, or to transport coal from the site, is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.		Leighton Contractors undertake the mining activities at the Duralie Coal Mine site under contract to Gloucester Coal Pty Ltd, and all plant and equipment is managed and maintained to operate in an efficient manner by Leightons.	Compliant Ongoing
	STAGED SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM			
14	With the approval of the Director-General, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis. <i>Note: While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the operations on site are covered by suitable strategies, plans or programs at all times.</i>			Noted
15	Until they are replaced by an equivalent strategy, plan or program approved under this approval, the Proponent shall continue to implement the existing strategies, plans or programs that apply to any development on site.			Noted
	CONTRIBUTIONS TO COUNCIL			

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
16	<p>For the period from the end of December 2010 until the completion of mining operations on site, the Proponent shall pay GLC the following contributions each year:</p> <p>(a) \$59,688.09 for the maintenance of The Bucketts Way;</p> <p>(b) \$11,022.58 for a structural inspection of the bridges on The Bucketts Way (between intersection with Clarence Town Road and the mine access road);</p> <p>(c) \$120,000 for the Karuah Catchment Management Program; and</p> <p>(d) \$100,000 for the provision of community infrastructure.</p> <p>These contributions must be indexed according to the CPI at the time of each payment.</p> <p>If no mining operations occur on site in a calendar year, then the Proponent is not required to pay these contributions.</p>	<ul style="list-style-type: none"> Great Lakes Council Invoice 32687 Section 94 Annual Contribution for the Bucketts Way Maintenance 1 January 2013 to 31 December 2013 Great Lakes Council Invoice 32688 Annual Contribution for Bridge Inspections 1 January 2013 to 31 December 2013 Great Lakes Council Invoice 32689 Section 94 Contribution for Karuah Management Program 1 January 2013 to 31 December 2013 Great Lakes Council Invoice 32689 Section 94 Contribution for Community Infrastructure 1 January 2013 to 31 December 2013 	<p>The contributions to Great Lakes Council were paid on receipt of Tax Invoices by Gloucester Coal Pty Ltd:</p> <ul style="list-style-type: none"> Great Lakes Council Invoice 32687 Section 94 Annual Contribution for the Bucketts Way Maintenance 1 January 2013 to 31 December 2013 - \$62897.07 Great Lakes Council Invoice 32688 Annual Contribution for Bridge Inspections 1 January 2013 to 31 December 2013 - \$11,615.18 Great Lakes Council Invoice 32689 Section 94 Contribution for Karuah Management Program 1 January 2013 to 31 December 2013 - \$126,451.49 Great Lakes Council Invoice 32689 Section 94 Contribution for Community Infrastructure 1 January 2013 to 31 December 2013 - \$105,376.25 	Compliant
17	<p>For the period from the end of December 2010 until the completion of mining operations on site, the Proponent shall pay GSC the following contributions each year:</p> <p>(a) \$15,000 for specified community works that have been agreed to between GSC and the Proponent;</p> <p>(b) \$15,000 for the GSC Community Education Fund for an annual trade apprenticeship, traineeship, scholarship or equivalent; and</p> <p>(c) \$10,000 for the provision of community infrastructure.</p> <p>These contributions must be indexed according to the CPI at the time of each payment.</p> <p>If no mining operations occur on site in a calendar year, then the Proponent is not required to pay these contributions</p>	<ul style="list-style-type: none"> Gloucester Shire Council Tax Invoice, 12 Jan 2012 Gloucester Shire Council Tax Invoice, 9 May 2012 Gloucester Shire Council Tax Invoice, 31 Oct 2012 Gloucester Shire Council Tax Invoice, 29 Jan 2013 Gloucester Shire Council Tax Invoice, 2 May 2013 Gloucester Shire Council Tax Invoice, 30 July 2013 Gloucester Shire Council Tax Invoice, 25 Oct 2013 Gloucester Shire Council Tax Invoice, 29 Jan 2014 Gloucester Shire Council Tax Invoice, 29 Apr 2014 Gloucester Shire Council Tax Invoice, 25 Aug 2014 Gloucester Shire Council Tax Invoice, 29 Oct 2014 	<p>The contributions to Gloucester Shire Council were paid quarterly on receipt of Tax Invoices by Gloucester Coal Pty Ltd:</p> <ul style="list-style-type: none"> 16 January 2012 – \$46,537.08 9 February 2012 - \$46,839.23 9 May 2012 - \$46,830.30 30 June 2012 - \$46,942.86 31 October 2012 - \$47,282.88 30 January 2013 - \$47,590.15 2 May 2013 - \$48,643.27 30 July 2013 - \$48,272.30 25 October 2013 - \$48,583.79 29 January 2014 - \$49,069.78 29 April 2014 - \$49,382.92 25 August 2014 - \$49,633.65, 29 October 2014 - \$49,852.35 	Compliant
	SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS			

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Condition No.	Project Approval Condition	Verification	Comments	Compliance			
	ACQUISITION UPON REQUEST						
1	Upon receiving a written request for acquisition from an owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in Conditions 5 - 6 of Schedule 4. <i>Table 1: Land subject to acquisition upon request</i>		A number of the properties have been acquired by Duralie Coal following consultation and negotiation, but no written requests for acquisition had been received by Duralie Coal during the period 2011-2014. DCPL acquired the Holmes and Gibson properties between 2006 and 2009, but not as a request from the owners under this condition.	Compliant Ongoing			
	117 – Holmes				125(1) – Zulumovski		
	118 – Moylan				125(2) – Zulumovski		
	122 – White				128 – Hare Scott		
	NOISE						
	Noise Criteria						
2	Except for the land referred to in Table 1, the Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land. However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.	<ul style="list-style-type: none">Noise Management Plan, Version F, May 2007Quarterly Noise Compliance Assessments, Vipac	A number of the properties have been acquired by Duralie Coal following consultation and negotiation with the land owners, but no written requests for acquisition had been received by Duralie Coal during the period 2011-2014	Compliant Ongoing			
	<ul style="list-style-type: none">To identify the locations referred to in Table 2, see the figure in Appendix 3; andNoise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain Meteorological conditions) of the NSW Industrial Noise Policy						
	Noise Acquisition Criteria			Noted			
	Location	Day			Evening	Night	
		LAeq(15 minute)			LAeq(15 minute)	LAeq(15 minute)	LA1(1 minute)
	172	35			39	40	45
	126	35			35	39	45
	123	35			35	39	45
	173	35			36	37	45
	116	35			35	37	45
	127	35			35	37	45
	131(1)	35			35	37	45
	180(1)	35			36	36	45
	95	35			35	36	45
	144	35			36	35	45
	169	35			36	35	45
	177	35			36	35	45

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Condition No.	Project Approval Condition				Verification		Comments	Compliance								
	All other privately owned land	35	35	35	45											
3	<p>If the noise generated by the project exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land in accordance with the procedures in Conditions 5 - 6 of Schedule 4.</p> <p>Table 3: Noise acquisition criteria dB(A) LA_{eq(15min)}</p> <table><tr><th>Location</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>All privately owned land</td><td>40</td><td>40</td><td>40</td></tr></table> <p>Notes:</p> <ul style="list-style-type: none">Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy; andFor this condition to apply, the exceedences of the criteria must be systemic.				Location	Day	Evening	Night	All privately owned land	40	40	40			<p>The noise monitoring results and assessment in the AEMR's and Annual Reviews have confirmed that the noise generated by DCM hasnot exceeded the criteria in Table 3 and there have been requests for acquisition.</p>	Not triggered
Location	Day	Evening	Night													
All privately owned land	40	40	40													
	Additional Noise Mitigation Measures															
4	<p>Upon receiving a written request from the owner of any residence:</p> <p>(a) on the land listed in Table 1;</p> <p>(b) on the land listed as 123, 126, and 172 on the figure in Appendix 3;</p> <p>(c) on the land listed as R2, R4-12 on the figure in Appendix 3;</p> <p>(d) on privately-owned land where subsequent noise monitoring shows that the noise generated by the project is greater than or equal to LAeq(15 minute) 38 dB(A); or</p> <p>(e) on privately owned land between the Stratford and Duralie mines where the maximum passby rail traffic noise from the Project exceeds 85dBA,</p> <p>the Proponent shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner. These measures must be</p>						<p>No written requests for noise mitigation works were received by DCM between November 2011 and December 2014.</p>	Not triggered								

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
	reasonable and feasible. If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.			
	Rail Noise			
5	By the end of December 2011, or as otherwise agreed by the Director-General, the Proponent shall only use locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in the ARTC's EPL (No. 3142).	<ul style="list-style-type: none"> Letter from EPA re 82 and 90 Class Locomotives, 22 Feb 2000 Letter from FreightCorp re 82 and 90 Class Locomotive Noise Tests, 28 Feb 2000 	The locomotives provided by Aurizon for use as shuttle trains, are GL Class (or equivalent noise performance), that are approved to operate on the NSW rail network in accordance with the noise limits in the ARTC's EPL No. 3142.	Compliant
	Operating Conditions			
6	The Proponent shall: (a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational, low frequency and rail noise generated by the project; and (b) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval, to the satisfaction of the Director-General.	<ul style="list-style-type: none"> Letter from DP&I re Approval of Noise Management Plan, 28 Mar 2012 Noise Management Plan (NMP-R02-D), Mar 2012 Noise Management Plan (NMP-R02-E), Jun 2013 	The Noise Management Plan (NMP-R02-D) was approved DP&I 28 March 2012 and revised on 2 July 2013. The Noise Management Plan, included requirements in Project Approval Schedule 3 condition 6: (a) Section 6.1 - Best Management Practices. (b) A Sentinex real-time noise monitor was installed in June 2012 to continuously measure the noise emissions generated by mining operations. Noise alarms have been established and proactive improvements including orientation of the open pit benches and equipment units operating in the pit and on overburden emplacements.	Compliant Ongoing
	Noise Management Plan			
7	The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must: (a) be prepared in consultation with EPA, and submitted to the Director-General for approval within 3 months of the date of this approval, unless otherwise agreed by the Director-General; (b) describe the noise mitigation measures that would be implemented to ensure compliance with conditions 2–6 of Schedule 3 of this approval, including: <ul style="list-style-type: none"> a real-time noise management system that employs both reactive and proactive mitigation measures; a detailed program for the replacement or attenuation of existing plant on site; and 	<ul style="list-style-type: none"> Noise Management Plan (NMP-R02-E), Jun 2013 	Noise Management Plan (NMP-R02-D) was prepared to satisfy Project Approval 08_0203 Schedule 3 condition 7 and approved by DP&I on 29 March 2012. Revised Noise Management Plan (NMP-R02-E) was approved by DP&I 2 July 2013): (a) The Noise Management Plan was prepared in consultation with EPA and approved by DP&I; (b) Section 6 Noise Management Measures, addresses noise mitigation measures to be implemented; (c) Section 7 – Noise Monitoring Program outlines the general requirements, attended monitoring and real time noise monitoring programs, protocol for determining exceedences, and a program to monitor the actual sound power levels of the plant on site.	Compliant

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	<ul style="list-style-type: none"> the specific measures that would be implemented to minimise the rail noise impacts of the project, and in particular: <ul style="list-style-type: none"> the braking and train horn impacts of the project; and the use of the shuttle train during the approved night-time hours; and (c) include a noise monitoring program that: <ul style="list-style-type: none"> uses a combination of real-time and supplementary attended monitoring measures to evaluate the performance of the project; includes a program to evaluate the effectiveness of the noise mitigation measures referred to in 7(b) above; includes a protocol for determining exceedences of the relevant conditions of this approval; and includes a program to monitor the actual sound power levels of the plant on site, compare it with the benchmark levels used in the EA, and evaluate the effectiveness of any attenuation. <p><i>Note: The effectiveness of the Noise Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following this review and audit, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i></p>		<p>The DCM fleet of mobile plant including haul trucks, excavators, dozers, graders and other items are annually assessed for sound power levels (SWL). Noise assessments of mobile plant and equipment are conducted annually and where any exceedance is identified related to the specified target noise emission levels in the static test conditions maintenance of the equipment / mobile plant occurs to correct the issue.</p> <p>Vipac conducted Mobile Plant Noise Assessments in March 2013 and March 2014 with the sound power assessed using A-weight scale. The sound power levels (dBA re 1pW) for Duralie Coal Mine mobile plant are presented in Environmental Assessment Appendix A Noise and Blasting Assessment Table 16. Four mobile plant exceeded the specified target noise emission levels in the static test conditions. Three mobile plant exceeded the specified target noise emission levels in the dynamic test conditions .</p> <p>Maintenance of the equipment and mobile plant was undertaken by Leighton Contractors to address the noise emission issues or replacement of mobile plant with attenuated (eg XQ) plant for haul trucks.</p>	
	BLASTING			
	Blasting Criteria			

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8	<p>The Proponent shall ensure that the blasting on the site does not cause exceedances of the criteria in Table 4.</p> <p><i>Table 4: Blasting criteria</i></p> <table><tr><th>Location</th><th>Airblast (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr><tr><td rowspan="2">Residence on privately owned land</td><td>115</td><td>5</td><td>5% of total No. of blasts over 12 mths</td></tr><tr><td>120</td><td>10</td><td>0%</td></tr><tr><td>Mammy Johnson's Grave</td><td>-</td><td>5</td><td>0%</td></tr><tr><td>Former Weismantel Inn</td><td>-</td><td>10</td><td>0%</td></tr></table> <p>However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.</p>	Location	Airblast (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance	Residence on privately owned land	115	5	5% of total No. of blasts over 12 mths	120	10	0%	Mammy Johnson's Grave	-	5	0%	Former Weismantel Inn	-	10	0%	<ul style="list-style-type: none">EPL 11701 condition L7Blast Management Plan (BLMP-R02-B), May 2013EPL 11701 Variation 2014	<p>Blast management monitoring has been designed to assess potential impact to surrounding properties. The blast design and locations are planned and undertaken by the mining contractor.</p> <p>The Blast Management Plan) was prepared to satisfy Schedule 3 condition 16 and approved by DP&I on 6 March 2012. The Blast Management Plan was revised and approved on 27 September 2013</p> <p>Blast Management Plan dated May 2013 section 4.1 states:</p> <p><i>"Measurements of airblast overpressure and ground vibration for all blasts, is measured at the following monitoring locations (refer Figure 3):</i></p> <ul style="list-style-type: none"><i>Schultz residence (AB1), Bucketts Way (south west of mine);</i><i>Mahony residence (AAAB2), Monkerai Road; and</i><i>Fisher-Webster residence (AAAB3), Martins Crossing Road.</i> <p><i>In addition monitoring for ground vibration is undertaken at the former Weismantels Inn (blast monitoring site FW1) which is now owned by Yancoal."</i></p> <p>One overpressure exceedance (121.2dBL at Mahony Property. There is a private agreement in place with Mahoney so the criteria in condition 8 do not now apply. The overpressure exceedance was reported to DP&I on 18 October 2013. A further exceedance of 127.7dBL was recorded at the Mahony property on 16 June 2014.</p> <p>No other exceedances of overpressure or vibration criteria at the monitoring locations occurred between November 2011 and December 2014.</p>	Compliant Ongoing
	Location	Airblast (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance																			
	Residence on privately owned land	115	5	5% of total No. of blasts over 12 mths																			
		120	10	0%																			
	Mammy Johnson's Grave	-	5	0%																			
	Former Weismantel Inn	-	10	0%																			
Blasting Hours																							
9	<p>The Proponent shall only carry out blasting on site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the D-G.</p>	<ul style="list-style-type: none">Blast Management Plan (BLMP-R02-B), May 2013	<p>Blasting only occurs between 9 am and 5 pm, Monday to Saturday. No blasting occurs on Sundays, public holidays or any other time without the written approval of the EPA.</p>	Compliant																			
	Blasting Frequency																						
10	<p>The Proponent shall not carry out more than:</p> <p>(a) 1 blast a day on site, unless an additional blast is required following a blast misfire; and</p> <p>(b) 3 blasts a week on site, averaged over any 12</p>	<ul style="list-style-type: none">Blast Management Plan (BLMP-R02-B), May 2013	<p>Blasting has only occurred once per day between November 2011 and December 2014.</p> <p>2012-2013 reports 95 blasts over the year, i.e. 1.8 blasts per week</p>	Compliant																			

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	month period.			
	Property Inspections			
11	<p>If the Proponent receives a written request for the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit on site for a property inspection to establish the baseline condition of any buildings and/or structures on his/her land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:</p> <ul style="list-style-type: none"> establish the baseline condition of the buildings and/or structures on the land, or update the previous property inspection report; identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and <p>(b) give the landowner a copy of the new or updated property inspection report.</p>	<ul style="list-style-type: none"> Letters to Landowners re Entitlement to a Structural Inspection, Sep 2006 	<p>Letters re to advise landowners within 2 km of any planned active mining areas that they are entitled to a structural property inspection, were sent to R Mudford, S&K Gibson, R Hattam, S Doherty, S&J Lyall and E Holmes in September 2006.</p> <p>A request was received from Receptor 94 (Howards) for a property inspection in 2013. No structural damage attributable to the Duralie Coal Mine was identified and no action was required.</p>	Compliant Ongoing
	Property Investigations			
12	<p>If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim the Proponent shall:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and</p> <p>(b) give the landowner a copy of the property investigation report.</p> <p>If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.</p>			Not triggered

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	If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.			
	Operating Conditions			
13	<p>The Proponent shall:</p> <p>(a) implement best blasting practice on site to:</p> <ul style="list-style-type: none"> protect the safety of people and livestock in the surrounding area; protect public or private property in the surrounding area; and minimise the dust and fume emissions from blasting on site; and <p>(b) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Director-General.</p>	<ul style="list-style-type: none"> Blasting Procedure PM1568-009-Duralie Shot-firing and Explosive System Explosives Management Plan (M0052-SH-208, Leighton Contractors, 13 Jul 2011 Drill and Blast Instruction, (M0052), Leighton Contractors Code of Good Practice, Prevention and Management of Blast Generated NOx Gases in Surface Blasting, Australian Explosives Industry and Safety Group Inc, Jun 2011 Blast Management Plan (BLMP-R02-B), May 2013 	<p>The Blast Management Plan provides guidance and procedures for conducting blasts within 500m of the North Coast Railway with concurrence of ARTC. The protocol and procedure for blasting near the Main Northern railway track is outlined in the Duralie Shot-firing and Explosive System PM1568-009. The modified protocol ("Blasting in the Vicinity of Existing Railway Track") is provided in Appendix C of the Blast Monitoring Plan.</p> <p>Blasting is undertaken by Downer contractors for DCM.</p> <p>(a) The Blast Management Plan (BMP) addresses best blasting practice on site:</p> <ul style="list-style-type: none"> Section 6 – Safety addresses safety of people and livestock in the surrounding area; Section 3 – Management Measures addresses protection of public or private property in the surrounding area; Section 3.6 – Fume Management and section 3.7 Maintenance of Blast Zone address minimise the dust and fume emissions from blasting. <p>(b) A "Blasting Hotline" - 02 6538 4213 has been established providing the blasting schedule and any road closures at the mine. The "Hotline" notified in the Dungog Chronicle and Gloucester Advocate on twice annually, and included on the Duralie website</p>	Compliant
14	<p>The Proponent shall not carry out any blasting within 500 metres of:</p> <p>(a) a public road without the approval of Council; and</p> <p>(b) the North Coast Railway without the approval of ARTC.</p>	<ul style="list-style-type: none"> Blasting Procedure PM1568-009-Duralie Shot-firing and Explosive System Blast Management Plan (BLMP-R02-B), May 2013 	<p>The Blast Management Plan provides guidance and procedures for conducting blasts including:</p> <p>(a) No blasts to be conducted within 500 metres of a public road. Duralie Road is the only public road that may be subject to road closure related to blasting; and</p> <p>(b) No blasts to be conducted within 500m of the North Coast Railway without approval of ARTC. The protocol and procedure for blasting near the Main Northern railway track is outlined in the Duralie Shot-firing and Explosive System PM1568-009. The modified protocol ("Blasting in the Vicinity of Existing</p>	Compliant Ongoing

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
			Railway Track”) is provided in Appendix C of the Blast Monitoring Plan.	
15	<p>The Proponent shall not carry out blasting within 500 metres of any privately-owned land or land not owned by the Proponent unless:</p> <p>(a) the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement;</p> <p>(b) the Proponent has:</p> <ul style="list-style-type: none"> demonstrated to the satisfaction of the Director-General that the blasting can be carried out without compromising the safety of the people or livestock on the land, or damaging the buildings and/or structures on the land; and updated the Blast Management Plan to include the specific measures that would be implemented while blasting is being carried out within 500 metres of the land. 		<p>(a) The 500 m Blast Zone for approved operations is shown on Figure 4 of the Blast Management Plan. The 500 m Blast Zone includes one privately owned landholding that is a vacant without a private residence (Receptor 122 White).</p> <p>(b) The Blast Management Plan (BLMP – R02-B) approved by DP&I on 27 September 2013 addresses blasting within 500m of private property (section 3.2.2).</p> <p>Access to Receptor No. 122 property is limited to clear prior to blasting but a perimeter check is completed as described in section 3.2.2 of the Blast Management Plan. Efforts to negotiate with the land owner have to date been unsuccessful.</p>	Compliant Ongoing
	Blast Management Plan			
16	<p>The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Director-General. This plan must:</p> <p>(a) be prepared in consultation with EPA, and submitted to the Director-General for approval within 3 months of the date of this approval, unless otherwise agreed by the Director-General;</p> <p>(b) describe the blast mitigation measures that would be implemented to ensure compliance with conditions 8–15 of this Schedule;</p> <p>(c) describe the measures that would be implemented to ensure the public can get up-to-date information on the proposed blasting schedule on site or any road closures; and</p> <p>(d) include a blast monitoring program to evaluate the performance of the project.</p> <p><i>Note: The effectiveness of the Blast Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following this</i></p>	<ul style="list-style-type: none"> Blast Management Plan (BLMP-R02-B), Mar 2013 	<p>The Blast Management Plan) was prepared to satisfy Schedule 3 condition 16 and approved by DP&I on 6 March 2012. The Blast Management Plan was revised and approved on 27 September 2013</p> <p>(a) The revised Blast Management Plan was prepared in consultation with the EPA to satisfy Project Approval 08_0203 Schedule 3 condition 16, within 3months of the Project Approval and was approved by DP&I on 6 June 2012. The revised Blast Management Plan (BLMP – R02-B) was approved by DP&I 27 September 2013.</p> <p>(b) Section 3 – Management Measures describes the blast mitigation measures that would be implemented to ensure compliance with conditions</p> <p>(c) Section 3.2.1 – Notification of Blasting and Road Closures describes the measures that would be implemented to ensure the public can get up-to-date information;</p> <p>(d) Section 4 – Monitoring addresses the blast monitoring program to evaluate the performance of the project.</p>	Compliant

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	<i>review and audit the plan is to be revised to ensure it remains up to date (see Condition 4 Schedule 5).</i>															
	AIR QUALITY & GREENHOUSE GAS															
	Odour															
17	The Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.		No odours were detected during the site inspections on 24-28 November 2014. One odour related complaint was recorded on 31 May 2013 but the operational review concluded the mine was not the cause of the odour complaint.	Compliant Ongoing												
	Greenhouse Gas Emissions															
18	The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Director-General	<ul style="list-style-type: none">Air Quality and Greenhouse Gas Management Plan, Sep 2013	The Air Quality and Greenhouse Gas Management Plan Section 6.2 commits to monitoring the effectiveness of measures to reduce GHG emissions (and energy consumption) from the Duralie operations. EEO Public Report available on website, reports three projects have been implemented or commenced to improve energy efficiency at the Duralie Coal Mine site with an ongoing commitment for new opportunities to be assessed. NGERS Reports are prepared annually for the Duralie and Gloucester Coal facilities	Compliant Ongoing												
	Air Quality Assessment Criteria															
19	<p>The Proponent shall ensure that particulate matter emissions generated by the project do not exceed the criteria listed in Tables 5, 6 or 7 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.</p> <p><i>Table 5: Long term criteria for particulate matter</i></p> <table><tr><th>Pollutant</th><th>Averaging Period</th><th>Criterion</th></tr><tr><td>Total Suspended Particulate (TSP) matter</td><td>Annual</td><td>90 µg/m³</td></tr><tr><td>Particulate Matter <10µm (PM₁₀)</td><td>Annual</td><td>30 µg/m³</td></tr></table> <p><i>Table 6: Short term criterion for particulate matter</i></p> <table><tr><th>Pollutant</th><th>Averaging Period</th><th>Criterion</th></tr></table>	Pollutant	Averaging Period	Criterion	Total Suspended Particulate (TSP) matter	Annual	90 µg/m³	Particulate Matter <10µm (PM ₁₀)	Annual	30 µg/m³	Pollutant	Averaging Period	Criterion	<ul style="list-style-type: none">Air Quality and Greenhouse Gas Management Plan, Sep 2013	<p>D1 to D5 dust deposition gauges have been retained and an additional dust deposition gauge has been established at Wards River (at the request of a resident). Monthly dust is analysed for insoluble matter and as/combustible matter content.</p> <p>Dust levels recorded for the six dust deposition gauges have exhibited an average value of 1.0 g/m2/month. Where the deposition gauge results exceeded 4 g/m²/month all the elevated values were attributed to contamination from a combination of bird droppings, and insects. The results comply with the EPA upper limit of 4 g/m2/month and the annual average limit of 2.5 g/m²/month.</p> <p>Annual Reviews for; 2011-2012 , 2012-2013-and 2013-2014 reported air quality results compliant with the Schedule 3 condition 19 criteria.</p>	Compliant
Pollutant	Averaging Period	Criterion														
Total Suspended Particulate (TSP) matter	Annual	90 µg/m³														
Particulate Matter <10µm (PM ₁₀)	Annual	30 µg/m³														
Pollutant	Averaging Period	Criterion														

Condition No.	Project Approval Condition				Verification	Comments	Compliance																										
	Particulate Matter <10µm (PM ₁₀)	24 hour	50 µg/m ³																														
	Table 7: Long term criteria for deposited dust																																
	Pollutant	Averaging Period	Max increase in DD level	Max total DD level																													
	Deposited Dust	Annual	2g/m ³ /mth	4g/m ³ /mth																													
	Air Quality Acquisition Criteria																																
20	<p>If particulate matter emissions generated by the project exceed the criteria in Tables 8, 9 or 10 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner the Proponent shall acquire the land in accordance with the procedures in Conditions 5-6 of Schedule 4.</p> <p>Table 8: Long term acquisition criteria for particulate matter</p> <table><tr><td>Pollutant</td><td>Averaging Period</td><td>Criterion</td></tr><tr><td>Total Suspended Particulate (TSP) matter</td><td>Annual</td><td>90 µg/m³</td></tr><tr><td>Particulate Matter <10µm (PM₁₀)</td><td>Annual</td><td>30 µg/m³</td></tr></table> <p>Table 9: Short term acquisition criteria for particulate matter</p> <table><tr><td>Pollutant</td><td>Averaging Period</td><td>Criterion</td></tr><tr><td>Particulate Matter <10µm (PM₁₀)</td><td>24 hour</td><td>150 µg/m³</td></tr><tr><td>Particulate Matter <10µm (PM₁₀)</td><td>24 hour</td><td>50 µg/m³</td></tr></table> <p>Table 10 Long term acquisition criteria for deposited dust</p> <table><tr><td>Pollutant</td><td>Averaging Period</td><td>Max increase in DD level</td><td>Max total DD level</td></tr><tr><td>Deposited Dust</td><td>Annual</td><td>2g/m²/mth</td><td>4g/m²/mth</td></tr></table>				Pollutant	Averaging Period	Criterion	Total Suspended Particulate (TSP) matter	Annual	90 µg/m ³	Particulate Matter <10µm (PM ₁₀)	Annual	30 µg/m ³	Pollutant	Averaging Period	Criterion	Particulate Matter <10µm (PM ₁₀)	24 hour	150 µg/m ³	Particulate Matter <10µm (PM ₁₀)	24 hour	50 µg/m ³	Pollutant	Averaging Period	Max increase in DD level	Max total DD level	Deposited Dust	Annual	2g/m ² /mth	4g/m ² /mth	<ul style="list-style-type: none">Air Quality and Greenhouse Gas Management Plan, Sep 2013	<p>Deposited dust levels recorded for the six dust deposition gauges have exhibited an average value of 1.0 g/m²/month.</p> <p>Where the dust deposition gauge results exceeded 4 g/m²/month, all the elevated values were attributed to contamination from a combination of bird droppings, and insects.</p> <p>The dust deposition and PM10 results have generally complied with the EPA upper limit of 4 g/m²/month and the annual average limit of 2 g/m²/month, between November 2011 and December 2014.</p> <p>No requests for acquisition were received by DCM between November 2011 and December 2014.</p>	Not triggered
Pollutant	Averaging Period	Criterion																															
Total Suspended Particulate (TSP) matter	Annual	90 µg/m ³																															
Particulate Matter <10µm (PM ₁₀)	Annual	30 µg/m ³																															
Pollutant	Averaging Period	Criterion																															
Particulate Matter <10µm (PM ₁₀)	24 hour	150 µg/m ³																															
Particulate Matter <10µm (PM ₁₀)	24 hour	50 µg/m ³																															
Pollutant	Averaging Period	Max increase in DD level	Max total DD level																														
Deposited Dust	Annual	2g/m ² /mth	4g/m ² /mth																														

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	Additional Dust Mitigation Measures			
21	<p>Upon receiving a written request from the owner of any residence:</p> <p>(a) on the land listed as 125(1) and 125(2) in the figure in Appendix 3; or</p> <p>(b) on privately-owned land where subsequent air quality monitoring shows that the dust generated by the project is greater than or equal to the applicable criteria in Tables 5, 6 or 7 on a systemic basis, the Proponent shall implement additional dust mitigation measures (such as a first flush roof system, internal or external air filters, and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible.</p> <p>If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.</p>	<ul style="list-style-type: none"> Air Quality and Greenhouse Gas Management Plan, Sep 2013 	No requests for mitigation or acquisition were received by DCM in relation to particulate matter emissions between November 2011 and December 2014.	Not triggered
21A	<p>Within 3 months of the date of this approval, the Proponent shall submit a study of the dust emissions from the laden trains associated with the Project to the Director-General. This study must:</p> <p>(a) be carried out by a suitably qualified and experienced expert whose appointment has been endorsed by the Director-General;</p> <p>(b) include consultation with the EPA, the Department and the residents in close proximity to the railway line;</p> <p>(c) assess the scale, nature and significance of the dust emissions of the laden trains;</p> <p>(d) identify any reasonable and feasible mitigation measures that could be implemented to reduce the dust emissions from these trains;</p> <p>(e) recommend the implementation of any specific measures; and</p> <p>(f) be accompanied by the Proponent's response to any recommendations in the study.</p> <p>If, following review of the study, the Director-General directs the Proponent to implement additional mitigation measures to reduce the dust emissions of the laden trains associated with the Project, then the Proponent shall implement these measures to the satisfaction of the Director-General and,</p>	<ul style="list-style-type: none"> Letter from DP&I re Endorsement of Katestone Environmental and Introspec Consulting to Undertake the Study, Dec 2011 Letter to EPA re Duralie Coal Mine Study of Dust Emission from Laden Trains, 23 Jan 2012 Letter to DP&I re Duralie Coal Mine Study of Dust Emission from Laden Trains, 23 Jan 2012 Letter to Residents re Duralie Coal Mine Study of Dust Emission from Laden Trains, 23 Jan 2012 Study of Dust Emissions from Rail Transport, Katestone Environmental and Introspec Consulting, April 2012 	<p>A Study of Dust Emissions from Rail Transport conducted by Katestone Environmental and Introspec Consulting (dated April 2012) was commissioned by Duralie Coal Pty Ltd in accordance with Project Approval Schedule 3, condition 21A.</p> <p>The Study of Dust Emissions from Rail Transport was submitted to DP&I on 23 March 2012 and a revised report was submitted to the DP&I at the end of April 2012.</p> <p>The Study of Dust Emissions from Rail Transport addressed the condition requirements:</p> <p>(a) the report was prepared by Katestone Environmental and Introspec Consulting</p> <p>(b) consultation occurred with the EPA, DP&I and the residents in close proximity to the railway line;</p> <p>(c) section 6 Significance of Coal Dust Emissions from Coal Trains;</p> <p>(d) section 10 – Potential Train Dust Emission Mitigation Strategies;</p> <p>(e) section 10 – Potential Train Dust Emission Mitigation Strategies;</p> <p>(f) section 12 - Recommendations</p>	Compliant

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	within one month of such direction, update the Air Quality & Greenhouse Gas Management Plan for the Project to include a detailed program for the implementation of these measures and monitoring of compliance.			
	Operating Conditions			
22	<p>The Proponent shall:</p> <p>(a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the project, including any emissions from spontaneous combustion;</p> <p>(b) minimise any visible air pollution generated by the project;</p> <p>(c) regularly assess the real-time air quality monitoring and meteorological forecasting data and relocate, modify and/or stop operations on site to ensure compliance with the relevant conditions of this approval,</p> <p>to the satisfaction of the Director-General.</p>	<ul style="list-style-type: none"> EPL condition L6 Air Quality and Greenhouse Gas Management Plan (AQMP-R02-E), 27/09/13 	<p>Air Quality and Greenhouse Gas Management Plan (AQMP-R02-E), addressed operating conditions:</p> <p>:</p> <p>(a) section 6- Management Measures During the site inspection dust generation was well mitigated with one water cart operating, rainfall managed dust on the second day of inspection. Spontaneous combustion has not been observed to be a problem at DCM with some occurrences of minor heating within the exposed faces of the waste dump.</p> <p>b. Section 6.1.3 Reactive Measures and 6.1.4 Additional Mitigation Measures</p> <p>c. Section 5.2. Real-time meteorological station and forecasts checked daily for blast scheduling and review of operations</p>	Compliant
	Air Quality & Greenhouse Gas Management Plan			
23	<p>The Proponent shall prepare and implement an Air Quality & Greenhouse Gas Management Plan for the project to the satisfaction of the Director-General. This plan must:</p> <p>(a) be prepared in consultation with EPA, and submitted to the Director-General for approval within 3 months of the date of this approval, unless otherwise agreed by the Director-General; and</p> <p>(b) describe the measures that would be implemented to ensure compliance with conditions 17–22 of Schedule 3 of this approval, including the proposed real-time air quality management system; and</p> <p>(c) include an air quality monitoring program that:</p> <ul style="list-style-type: none"> uses a combination of real-time monitors, high volume samplers and dust deposition gauges to evaluate the performance of the project; and includes a protocol for determining exceedences with the relevant conditions of this approval. <p><i>Note: The effectiveness of the Air Quality & Greenhouse Gas Management Plan is to be reviewed and audited in accordance with the requirements in</i></p>	<ul style="list-style-type: none"> Air Quality & Greenhouse Gas Management Plan, 27 Sep 2013 	<p>The Air Quality & Greenhouse Gas Management Plan was prepared to satisfy Schedule 3 condition 23 and approved by DP&I on 29 March 2012. The Air Quality & Greenhouse Gas Management Plan was revised in September 2013 and includes:</p> <p>(a) The Air Quality & Greenhouse Gas Management Plan was prepared in consultation with the EPA to satisfy the requirements of this condition and approved by DP&I on 29 March 2012. The Air Quality & Greenhouse Gas Management Plan was revised in 27September 2013;</p> <p>(b) Section 4 – Air Quality Criteria and Performance Indicators</p> <p>(c) Section 7 – Dust Monitoring Program includes:</p> <ul style="list-style-type: none"> Section 7.1 Dust Deposition Section 7.2 HVAS Section 7.3 Real Time Monitoring Section 4 Air Quality Criteria and Performance Indicators 	Compliant

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	<i>Schedule 5. Following this review and audit the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>			
	METEOROLOGICAL MONITORING			
24	<p>During the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that:</p> <p>(a) complies with the requirements in <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> guideline; and</p> <p>(b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the <i>NSW Industrial Noise Policy</i>.</p>	<ul style="list-style-type: none"> Air Quality & Greenhouse Gas Management Plan, 27 Sep 2013 	<p>(a) The on-site meteorological station continuously monitors rainfall, temperature, relative humidity, evapotranspiration, net solar radiation; wind direction; and wind speed.</p> <p>(b) Two 10 m towers were installed at locations with an elevation differential greater than 50 m, to continuously measure temperature lapse rates.</p> <p>Review of Vipac quarterly noise monitoring reports (July 2013, April 2013, January 2013, October 2012) indicated poor correlation of directly measured temperature data to the weather station sigma-theta Pasquill stability category based predictions. Todoroski Air Services installed additional towers to address the issue of correlation, to provide additional temperature data. These works are still ongoing.</p>	Compliance Ongoing
	SOIL AND WATER			
	Water Discharges			
25	<p>The Proponent shall ensure that:</p> <p>(a) mine water or runoff from the irrigation area is not discharged directly into Mammy Johnsons River; and</p> <p>(b) all surface water discharges from the site comply with section 120 of the POEO Act or, if an EPL has been issued regulating water discharges from the site, the discharge limits (both volume and quality) set for the project in the EPL.</p>	<ul style="list-style-type: none"> Irrigation Management Plan, Sep 2013 Water Management Plan, Sep 2013 	<p>Water Management Plan prepared to satisfy Project Approval 08_0203 Schedule 3 condition 25 was approved by DP&I on 2 August 2012. The Water Management Plan was revised in September 2013 and approved by DP&I on 27 September 2013. The Water Management Plan and Irrigation Management Plan describe:</p> <p>(a) The main objectives of the dirty water control facilities across the DCM site are:</p> <ul style="list-style-type: none"> On site storage of all water to prevent escape to Coal Shaft Creek and Mammy Johnsons River; and Management of the stored quantity of dirty water by irrigation <p>Site inspection during this audit verified that mine water and runoff from irrigation areas is controlled and there was no evidence of any discharges directly to Mammy Johnsons River.</p> <p>(b) The only surface water discharge that occurred from the Duralie site between November 2011 and December 2014 was following heavy rainfall and a</p>	Compliant Ongoing

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			release from the first flush system that occurred in accordance with the design of the system. On-site surface water monitoring results were consistent with predictions made in the Environmental Assessment (2010) and generally comply with the EPL criteria.	
	Base Flow Offsets			
26	The Proponent shall offset the loss of any base flow to Mammy Johnsons River. This condition does not apply if the Director-General determines this loss to be negligible.		Monitoring of water courses and streams, surrounding the Duralie Coal Mine have not indicated loss of base flow (including the Mammy Johnsons River).	Compliant Ongoing
	Compensatory Water Supply			
27	<p>The Proponent shall provide compensatory water supply to any landowner of privately-owned land whose water licence entitlements are impacted (other than an impact that is negligible) as a result of the project, in consultation with NOW, and to the satisfaction of the Director-General.</p> <p>The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply must be provided (at least on an interim basis) within 24 hours of the loss being identified.</p> <p>If the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.</p> <p>If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the D-G.</p>		No compensatory water supply to any landowner of privately-owned land has been required as a result of any water licence entitlement impact that is as a result of the DCM project.	Not triggered
	Irrigation			
28	The Applicant shall carry out irrigation: (a) only in the irrigation area; and (b) in accordance with the irrigation system, including the irrigation management plan, in the approved Surface Water Management Plan under Condition 29 of Schedule 3.	<ul style="list-style-type: none"> • Irrigation Management Plan, IMP Revision F, 15 Dec 2008 • Auxiliary Water Storage Dams, Resource Strategies, 27 Oct 2008 • Irrigation Management Plan, IMP Revision F, 15 Dec 2008 • Water Management Plan, Sep 2013 • Irrigation Management Plan, Sep 2013 • Irrigation Monitoring Report, Horizon Environmental, 2014 	<p>An Irrigation Management Plan was prepared and approved by DP&I as part of the Water Management Plan September 2013.</p> <p>The Irrigation Management Plan Section 4 Irrigation System - states "DCPL will only conduct irrigation within the areas shown in the Duralie Extension Project Environmental Assessment, 2010 over the life of the DCM and in accordance with the irrigation system, including this IMP, in the SWMP".</p> <p>Irrigation is undertaken on dedicated irrigation areas using travelling irrigators and/or static sprinklers. The locations for placement of the irrigators is determined from the results obtained from the 2 hourly soil moisture</p>	Compliant Ongoing

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			measurements collected from the GBug system. The site inspections noted: (a) irrigation is only carried out on the irrigation area in the approved Surface Water Management Plan; (b) irrigation is carried out in accordance with the irrigation system, including the irrigation management plan	
	Water Management Plan			
29	<p>The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must be prepared in consultation with EPA and NOW by suitably qualified and experienced persons whose appointment has been approved by the Director-General, and submitted to the Director-General within 3 months of the date of this approval.</p> <p>In addition to the standard requirements for management plans (see Condition 2 of Schedule 5), this plan must include:</p> <p>(a) a Site Water Balance that:</p> <ul style="list-style-type: none"> includes details of: <ul style="list-style-type: none"> - sources of water supply; - water use on site; - water management on site; and - reporting procedures; and describes what measures would be implemented to minimise potable water use on site. 	<ul style="list-style-type: none"> Letter from DoP re Endorsement of Mr Lindsay Gilbert (Gilbert & Associates Pty Limited) and Dr Noel Merrick (Heritage Computing) as suitably qualified and experienced persons for the preparation of the WAMP, 18 Feb 2011 Water Management Plan (WAMP-R02-C), Aug 2012 Surface Water Assessment, Gilbert & Associates, Jul 2014 Water Management Plan (WAMP-R02-D), Sep 2013 Annual Water Balance Review, 2013, Gilbert & Associates 	<p>The Water Management Plan was prepared by prepared by Mr Lindsay Gilbert (Gilbert & Associates Pty Limited) and Dr Noel Merrick (Heritage Computing) who were endorsed as suitably qualified and experienced persons, in consultation with the EPA and NOW, to satisfy Project Approval 08_0203 Schedule 3 condition 29. The Water Management Plan was approved by DP&I on 2 August 2012. The Water Management Plan was revised and approved by DP&I on 27 September 2013.</p> <p>The Water Management Plan includes:</p> <ul style="list-style-type: none"> Appendix 1 - Site Water Balance; Appendix 2 - Surface Water Management Plan Appendix 3 – Groundwater Management Plan <p>(a) The Site Water Balance includes details of:</p> <ul style="list-style-type: none"> Section 5 – Water Sources; Section 6 – Water Use; Section 8 – Water Management System Performance; Section 10 – Reporting; <p>(b) Section 6.4 – Potable Water Use</p>	Compliant
29(b)	<p>a Surface Water Management Plan, that includes:</p> <ul style="list-style-type: none"> a detailed description of the water management system on site, including the: <ul style="list-style-type: none"> - clean water diversion systems; - erosion and sediment controls; - water storages; and - irrigation system; an irrigation management plan for the irrigation system under the water management system, which includes: <ul style="list-style-type: none"> - salinity trigger levels for controlling discharges from the irrigation areas to Coal Shaft Creek and the unnamed tributary, representing the 80th percentile value of the relevant data set for the creek/unnamed tributary and Mammy Johnsons River in accordance with the methodology in ANZECC/ARMCANZ (2000), 	<ul style="list-style-type: none"> Water Management Plan, Sep 2013 Water Management Plan Appendix B - Surface Water Management Plan Sep 2013 Irrigation Management Plan, Sep 2013 Irrigation Monitoring Report, Horizon Environmental, 2014 , Six monthly Surface Water Monitoring Reports Annual Biological Monitoring of Streams Adjacent to the DCM, 	<p>The Surface Water Management Plan prepared are Appendix B of the Duralie Water Management Plan was repared to satisfy Project Approval Schedule 3 condition 29(b) an d approved by DP&I in September 2012. The Plan was revised and approved in September 2013:</p> <ul style="list-style-type: none"> Section 3 describes the surface water hydrology and section 5 addresses the water management system including clean water diversion systems; erosion and sediment controls; water storages; and irrigation system; Section 6 provides the Irrigation Management Plan that includes salinity trigger levels and control of discharges and an automatic first flush system; 	Compliant

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	<p>Australian Water Quality Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy; and</p> <ul style="list-style-type: none"> - provision of an automated first flush system for the additional irrigation areas (Northern Areas) shown in the figure in Appendix 4; • a plan for identifying, extracting, handling, and the long-term storage of potentially acid forming material on site; • detailed plans, including design objectives and performance criteria, for: <ul style="list-style-type: none"> - the reconstruction of Coal Shaft Creek; - design and management of the final voids; - reinstatement of drainage lines on the rehabilitated areas of the site; and - control of any potential water pollution from the rehabilitated areas of the site; • performance criteria, including trigger levels for investigating any potentially adverse impacts, for the following: <ul style="list-style-type: none"> - the water management system; - surface water quality of the Unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River; - the stream and vegetation health of the Unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River; and - channel stability of the reconstructed Coal Shaft Creek; • performance criteria for surface water quality attributes relevant to water quality impacts on biological diversity and aquatic ecological integrity, including salinity, heavy metals, sediment load, pH, hardness and biological oxygen demand; • trigger levels representing the 80th percentile value of the relevant reference data set in accordance with the methodology in ANZECC/ARMCANZ (2000), Australian Water Quality Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy, to determine the levels for investigating any potentially adverse impacts; • a program to monitor: <ul style="list-style-type: none"> - the effectiveness of the water management system; - surface water flows and quality in the Unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River, including utilization of existing monitoring 	<p>Invertebrate Identification Australasia, March 2013</p>	<ul style="list-style-type: none"> • Section 7.2 addresses management measures for potentially acid forming material management and storage on site; • Section 7.3 addresses development of Coal Shaft Creek reconstruction plan and conceptual design of the post-mining alignment of Coal Shaft Creek. • Section 9 addresses assessment of performance criteria/indicators and measures for the water management system; surface water quality of the Unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River; the stream and vegetation health of the Unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River; and channel stability of the reconstructed Coal Shaft Creek; • Section 9 provides performance criteria for surface water quality attributes relevant to water quality impacts on biological diversity and aquatic ecological integrity, including salinity, heavy metals, sediment load, pH, hardness and biological oxygen demand; • section 9 and Table 16 address trigger levels representing the 80th percentile value of the relevant reference data set in accordance with the methodology in ANZECC/ARMCANZ (2000), Australian Water Quality Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy, to determine the levels for investigating any potentially adverse impacts; • section 8 provides a program to monitor the effectiveness of the water management system (section 8.2), surface water flows and quality in the Unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River, including utilization of existing monitoring sites together with an additional monitoring site in Mammy Johnsons River immediately downstream of the mixing zone of the confluence of Coal Shaft Creek and Mammy Johnsons River (section 8.5), the stream and riparian vegetation health of the unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River (section 8.6), and channel stability of the reconstructed Coal Shaft Creek (section 8.8); • section 8.7 provides a program of ecotoxicity testing of water in water storages on-site and at selected water monitoring sites in Mammy Johnsons River and 	

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	<p>sites together with an additional monitoring site in Mammy Johnsons River immediately downstream of the mixing zone of the confluence of Coal Shaft Creek and Mammy Johnsons River;</p> <ul style="list-style-type: none"> - the stream and riparian vegetation health of the unnamed Tributary, Coal Shaft Creek and Mammy Johnsons River; and - channel stability of the reconstructed Coal Shaft Creek; <ul style="list-style-type: none"> • a program of ecotoxicity testing of water in water storages on-site and at selected water monitoring sites in Mammy Johnsons River and macroinvertebrate sampling at selected monitoring sites in Mammy Johnsons River; • a plan to respond to any exceedences of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project; and 		<p>macroinvertebrate sampling at selected monitoring sites in Mammy Johnsons River;</p> <ul style="list-style-type: none"> • section 10 provides a Contingency Plan to respond to any exceedance of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the project. 	
29(c)	<p>a Groundwater Management Plan, which includes:</p> <ul style="list-style-type: none"> • groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts; • a program to monitor: <ul style="list-style-type: none"> - groundwater inflows to the open cut mining operations; - the impacts of the project on: <ul style="list-style-type: none"> o the alluvial aquifers; o base flows to Mammy Johnsons River; o any groundwater bores on privately-owned land; and - the seepage/leachate from water storages or backfilled voids on site; and • a program to validate the groundwater model for the project, and calibrate it to site specific conditions; and • a plan to respond to any exceedences of the performance criteria, and offset the loss of any base flow to Mammy Johnsons River caused by the project. <p><i>Note: The effectiveness of the Water Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following this review and audit the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5)</i></p>	<ul style="list-style-type: none"> • Bore Licence Certificates 20BL168404 • Water Management Plan Appendix C Sep 2013 • Groundwater Management Plan Sep 2013 • Environmental Monitoring Program, Version B, Groundwater, May 2008 • 2012 Annual Review • 2013 Annual Review • 2014 Annual Review 	<ul style="list-style-type: none"> • Groundwater Management Plan (GWMP-R02-C) was prepared as part of the Water Management Plan to satisfy Project Approval 08_0203 Schedule 3 condition 29(c) and approved by DP&I 27 September 2012. The Plan was revised and approved by DP&I on 27 September 2013 • Groundwater Management Plan section 6 provides the monitoring program that includes groundwater inflows to the open cut mining operations; the impacts of the project on the alluvial aquifers; base flows to Mammy Johnsons River; any groundwater bores on privately-owned land; and the seepage/leachate from water storages or backfilled voids on site; • Groundwater ingress into active mining areas is calculated as part of routine water balance evaluations, with pit pumped volumes and rainfall recorded and precipitation induced seepage estimated. • Groundwater Management Plan section 5 addresses the groundwater predictions and model validation process; • Groundwater Management Plan section 8 addresses potential contingency measures 	Compliant
	BIODIVERSITY			
	Giant Barred Frog			

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30	The Proponent shall ensure that the project has no more than a negligible impact on the local Giant Barred Frog population.			Noted
31	<p>The Proponent shall prepare a Giant Barred Frog Study to the satisfaction of the Director General. This study must:</p> <ul style="list-style-type: none"> (a) be prepared, in consultation with OEH, by a suitably qualified and experienced person, whose appointment has been endorsed by the Director-General; (b) be submitted to the Director-General for approval within 2 months of this approval; (c) investigate the extent of the Giant Barred Frog population in the Mammy Johnsons River Catchment; (d) assess the condition of the Giant Barred Frog habitat where it is recorded within the Catchment, including the presence of any Chytrid fungus; (e) analyse the age structure of the frog population and the health of tadpoles; and (f) document the relevant hydrological conditions both prior to and during the study, including rainfall, water flows and quality in Mammy Johnsons River, both upstream and downstream of the confluence of Mammy Johnsons River and Coal Shaft Creek, and in Coal Shaft Creek. 	<ul style="list-style-type: none"> • Proposed Giant Barred Frog 'Study', dated 6 March 2012 • Giant Barred Frog Management Plan dated Aug 2012 • Letter from SEWPaC re Approval of Giant Barred Frog Management Plan, 15 Aug 2012 • Letter from OEH re Approval of Proposed Giant Barred Frog Study, 6 Mar 2012 • Letter from DP&I re Approval of Proposed Giant Barred Frog Study, 6 Mar 2012 • Giant Barred Frog Study Report 2011 to 2012 • Giant Barred Frog Study Report 2012 to 2013 • Giant Barred Frog Study Report Oct 2013 to Jan 2014 	<p>The Giant Barred Frog 'Study' Report prepared by Biosphere Environmental Consultants (Dr Arthur White) was submitted to OEH in 2014. A response to Duralie Coal from OEH in relation to the Giant Barred Frog 'Study' Report had not been received by Duralie Coal at the date of this audit.</p> <ul style="list-style-type: none"> (a) The Giant Barred Frog Study was prepared by Dr Arthur White who was endorsed by DP&I in March 2012; (b) The proposed Giant Barred Frog 'Study' was approved by OEH and DP&I on 6 March 2012 and was planned to obtain habitat and biological information about the Giant Barred Frog in the Mammy Johnsons River catchment. (c) Baseline studies were completed in March 2011 to establish the extent of population distribution of the Giant Barred Frog in Mammy Johnson River. (d) The surveys conducted include assessment of habitat status and testing for the presence of Chytrid fungus; (e) age structure of the frog population and the health of tadpoles is included in the survey findings; (f) hydrological conditions including rainfall, water flows and quality in Mammy Johnsons River, both upstream and downstream of the confluence of Mammy Johnsons River and Coal Shaft Creek, and in Coal Shaft Creek are reported in the Giant Barred Frog Study Reports. 	Compliant
31A	<p>The Proponent shall review and expand the Giant Barred Frog Study approved under Condition 31 into a longitudinal study of the life cycle of the 'population' of the Giant Barred Frog over the lifetime of the mine and for a 5 year period after the mine ceases to operate (the Giant Barred Frog Long-term Study). The Giant Barred Frog Long-term Study must include to include:</p> <ul style="list-style-type: none"> (a) clarification as to what exactly constitutes 'the population' of the Giant Barred Frog for the purposes of monitoring, and that this is the population at the location most susceptible to impacts from the mine; (b) baseline data collected for sites (transects) below and 	<ul style="list-style-type: none"> • Letter from SEWPaC re Approval of Giant Barred Frog Management Plan, 15 Aug 2012 • Letter from OEH re Approval of Proposed Giant Barred Frog Study, 6 Mar 2012 • Letter from DP&I re Approval of Proposed Giant Barred Frog Study, 6 Mar 2012 • Letter from OEH re Giant Barred Frog 'Study' Report and Giant 	<p>Giant Barred Frog 'Study' prepared by Biosphere Environmental Consultants (Dr Arthur White) was approved by OEH, DP&I in March 2012 was planned to obtain habitat and biological information about the Giant Barred Frog in the Mammy Johnsons River catchment.</p> <ul style="list-style-type: none"> (a) Giant Barred Frog Management Plan section 3 Giant Barred Frog Biology, Distribution and Conservation Status; (b) Giant Barred Frog Management Plan section 3.2 Giant Barred Frog Distribution and Conservation Status, and Giant Barred Frog Study section 5 presents baseline data collected for survey sites 	Compliant Ongoing

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	<p>above the site to be used for comparison with data collected in the future;</p> <p>(c) testing to determine if any changes to Giant Barred Frog populations identified downstream of the site on the monitoring transects are a result of impacts from the mining operation;</p> <p>(d) a requirement for detailed capture/recapture studies using 'Pollocks robust design' at sites above and below the confluence of Coal Shaft Creek and Mammy Johnsons River, and at a series of control sites in the upper reaches of the catchment;</p> <p>(e) a requirement that individual frogs encountered during the study should be tagged (or scanned);</p> <p>(f) a requirement that transects be of a fixed length (at least 200m), and that the area searched on each occasion be the same;</p> <p>(g) a requirement that transects are to be randomly selected;</p> <p>(h) a requirement that testing be conducted on a minimum of three nights, on four occasions per season (12 visits to each transect in each season) over the life of the mine, and for a 5 year period after the mine ceases to operate;</p> <p>(i) a requirement that individual frogs encountered during the study be swabbed for the presence of the Chytrid fungus;</p> <p>(j) a requirement that weather conditions and search effort should be recorded during each census at the transect site.</p>	<p>Barred Frog Management Plan, dated 8 Dec 2014 (received after the Independent Environmental Audit)</p> <ul style="list-style-type: none"> Giant Barred Frog Management Plan (GBFMP-R02-C) 2012 Giant Barred Frog 'Study' March 2012 	<p>below and above the Duralie Coal Mine site is used for comparison with data collected in the surveys;</p> <p>(c) Giant Barred Frog Study section 6 presents the Monitoring Program to determine if any changes to Giant Barred Frog populations identified downstream of the site on the monitoring transects are a result of impacts from the mining operation;</p> <p>(d) Giant Barred Frog Management Plan section 4 addresses capture/recapture studies of Giant Barred Frog and tadpoles below the confluence of Coal Shaft Creek and Mammy Johnsons River, and at control sites Areas 6 and 7 in the upper reaches of the catchment;</p> <p>(e) Giant Barred Frogs encountered during the study surveys were tagged and released;</p> <p>(f) 200m transects searched were randomly selected in the Mammy Johnson River catchment. Sections that did not appear to contain habitat for the Giant Barred Frog were discarded, the survey sites required were then chosen at random. Complete randomisation was not possible because of unavailable land access and long-term land ownership issues;</p> <p>(g) survey monitoring has occurred over at least three nights during the Giant Barred Frog Study surveys during the frog breeding season between 2011 and 2014 (12 visits to each transect);</p> <p>(h) individual frogs and tadpoles encountered during the study have been swabbed for the presence of the Chytrid fungus;</p> <p>(i) weather conditions and survey team effort has been recorded during each census at the transect sites, between 2011 and 2014.</p>	
32	<p>The Proponent shall prepare and implement a Giant Barred Frog Management Plan to the satisfaction of the Director-General. This plan must:</p> <p>(a) be prepared in consultation with OEH by a suitably qualified / experienced person, whose appointment has been endorsed by the Director-General;</p> <p>(b) be submitted to the Director-General for approval within 3 months of the date of this approval;</p> <p>(c) include a summary of the Giant Barred Frog Study;</p>	<ul style="list-style-type: none"> Letter from DP&I re Approval of Dr Arthur White, Mar 2012 Giant Barred Frog Management Plan, Jun 2012 Letter from DP&I re Approval of Giant Barred Frog Management Plan, 6 Mar 2012 Letter from SEWPaC Approval of Giant Barred Frog 	<p>The Giant Barred Frog Management Plan (GBFMP-R02-C) was prepared to satisfy the requirements of Project Approval 08_0203 Schedule 3 condition 32 and to reflect the Commonwealth Project Approval conditions issued by SEWPaC, dated 22 December 2010. The Project Approval 08_0203 by Order of The Land and Environment Court of NSW dated 10 November 2011. The Giant Barred Frog Management Plan was approved by DP&I on 6 March 2012 and SEWPaC on 15 August 2012.</p>	Compliant

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	<p>(d) establish performance measures for evaluating the impact of the project on the local Giant Barred Frog population;</p> <p>(e) describe the measures that would be implemented to minimise the potential spread of Chytrid fungus, including training of staff in site hygiene management in accordance with the NPWS <i>Hygiene Protocol for the Control of Disease in Frogs 2001</i>;</p> <p>(f) include a program to monitor the potential impact of the project on the local frog population, which includes:</p> <ul style="list-style-type: none">detailed performance indicators for the project, with reference to the performance measures established in (d) above;annual monitoring of the frog population and its habitat during the breeding season along Mammy Johnson River both upstream and downstream of the confluence of Mammy Johnsons River and Coal Shaft Creek;trigger levels for further investigation; and <p>(g) a contingency plan that would be implemented if monitoring suggests the frog population downstream of the confluence of Mammy Johnsons River and Coal Shaft Creek is declining due to the project, which may include a revision of the first flush salinity trigger or the implementation of additional water quality controls.</p>	<p>Management Plan (GBFMP-R02-C) 2012, 15 Aug 2012</p> <ul style="list-style-type: none">Giant Barred Frog 'Study' March 2012	<p>a) Giant Barred Frog Management Plan was prepared by Dr. Arthur White (Biosphere Environmental Consultants), in consultation with the OEH.</p> <p>b) Approval of Giant Barred Frog Management Plan by OEH and DP&I 6 March 2012.</p> <p>c) Giant Barred Frog Management Plan section 4 – Proposed Giant Barred Frog 'Study' to obtain habitat and biological information about the Giant Barred Frog in the Mammy Johnsons River catchment. This Study, was approved by SEWPaC, 15 August 2012.</p> <p>d) Giant Barred Frog Management Plan Section 10 – Annual Review and Improvement of Environmental Performance;</p> <p>e) Giant Barred Frog Management Plan, section 8 – Management Measures and Section 8.6 Hygiene Protocols and section 8.7 Protocol for Sick and Dead Frogs;</p> <p>f) Giant Barred Frog Management Plan, Section 6 – Giant Barred Frog Monitoring Program;</p> <p>g) Giant Barred Frog Management Plan, Section 9 – Contingency Plan.</p>							
	Biodiversity Offsets									
33	<p>The Proponent shall implement the offset strategy and achieve the broad completion criteria in Table 12 to the satisfaction of the Director-General.</p> <p>Table 12: Offset Strategy Completion Criteria</p> <table><tr><th>Domain</th><th>Completion Criteria</th></tr><tr><td>Enhancement Areas i.e. existing remnant vegetation</td><td>Areas of existing remnant vegetation within the offset area (290 ha) have been conserved and enhanced.</td></tr><tr><td>Revegetation Areas</td><td>354 ha of revegetated woodland/open woodland habitat areas and 36 ha of revegetated</td></tr></table>	Domain	Completion Criteria	Enhancement Areas i.e. existing remnant vegetation	Areas of existing remnant vegetation within the offset area (290 ha) have been conserved and enhanced.	Revegetation Areas	354 ha of revegetated woodland/open woodland habitat areas and 36 ha of revegetated		<p>Implementation of the Biodiversity Offset Strategy has commenced, with remanent vegetation on land adjacent to Mammy Johnson River that links vegetation areas of the offset area with the Rehabilitation area being managed for the Duralie Coal Mine.</p>	Compliant Ongoing
Domain	Completion Criteria									
Enhancement Areas i.e. existing remnant vegetation	Areas of existing remnant vegetation within the offset area (290 ha) have been conserved and enhanced.									
Revegetation Areas	354 ha of revegetated woodland/open woodland habitat areas and 36 ha of revegetated									

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		<p>forest habitat areas as a self-sustaining ecosystem.</p> <p>The methodology for determining a self-sustaining ecosystem shall be to the satisfaction of the Director-General.</p> <p>Woodland/open woodland and forest revegetation areas that provide habitat resources for the threatened species by including the flora species referred to in approval conditions 35 to 38.</p>			
	Direct links between the Offset Area and Rehabilitation area	Native vegetation has been established which directly links vegetation areas of the offset area with the Rehabilitation area.			
	Habitat for Threatened Fauna Species				
34	<p>The Proponent shall ensure that the offset area:</p> <p>(a) provides suitable habitat for all the threatened fauna species recorded in the surface development area, namely the Swift Parrot, Brown Treecreeper (eastern subspecies), Speckled Warbler, Grey-crowned Babbler (eastern subspecies), Varied Sittella and Squirrel Glider; and</p> <p>(b) includes the following habitat types:</p> <ul style="list-style-type: none"> • Woodland/open woodland; • Forest; and • Riparian forest. <p><i>Swift Parrot / Brown Treecreeper/ Grey-crowned Babbler</i></p>		<ul style="list-style-type: none"> • Biodiversity Management Plan 27 Sep 2013 	<p>a. Biodiversity Management Plan describes the management of offset areas to ensure suitable habitat for identified species. Specifically Section 6.4 defines the nest box program with nest boxes designed to maximise the likelihood that local hollow-dwelling fauna will use them for shelter and breeding. The first nest boxes were installed in February 2013 with monthly monitoring commencing in March 2013. The Annual Reviews reported that monthly monitoring would continue for the 12 months followed by six monthly monitoring in autumn and spring.</p> <p>b. Biodiversity Management Plan Figure 5 and Appendix C define the offset area vegetation types with all communities required to be offset present in equal or greater area.</p>	Compliant Ongoing
35	<p>The Proponent shall ensure that the offset area:</p> <p>(a) provides appropriate habitat resources for the Swift Parrot, Brown Treecreeper and Grey-crowned Babbler;</p> <p>(b) contains a total of 174ha of the following vegetation types¹:</p> <ul style="list-style-type: none"> • Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North Coast; • Grey Box - Forest Red Gum - Grey Ironbark open forest of the hinterland ranges of the 		<ul style="list-style-type: none"> • Biodiversity Management Plan Figure 5 and Appendix C 	<p>(a) Biodiversity Management Plan Figure 5 and Appendix C define the offset area habitat types and sightings of Swift Parrot, Brown Treecreeper and Grey crowned Babbler.</p> <p>(b) Biodiversity Management Plan Figure 5 and Appendix C define the offset area vegetation types with all communities required to be offset, present in equal or greater area.</p> <ul style="list-style-type: none"> • 406.3ha of Spotted Gum community , • 166.7 ha of Grey Box community , • 1.4 ha Sydney Peppermint community, 	Compliant Ongoing

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	<p>North Coast; and</p> <ul style="list-style-type: none"> Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin; and <p>(d) the revegetation areas within the offset area contains:</p> <ul style="list-style-type: none"> Winter flowering eucalypts (such as Spotted Gum [<i>Corymbia maculata</i>], Narrow-leaved Ironbark [<i>Eucalyptus crebra</i>], White Stringybark [<i>Eucalyptus globoidea</i>] as habitat resources for the Swift Parrot. Species typical of eucalypt woodlands and dry open forest with a grassy understorey, including stringy barks or other rough-barked eucalypts as habitat resources for the Brown Treecreeper. Species typical of open eucalypt woodlands (such as Spotted Gum [<i>Corymbia maculata</i>], Red Ironbark [<i>Eucalyptus fibrosa</i>], Grey Ironbark [<i>Eucalyptus siderophloia</i>] as habitat resources for the Grey-crowned Babbler; and Appropriate understorey species (such as tussock grasses). <p><i>Speckled Warbler</i></p>		<p>Biodiversity Management Plan Figure 5 and Appendix C define the offset area vegetation types with all communities required to be offset present in equal or greater area</p>	
36	<p>The Proponent shall ensure that the offset area:</p> <p>(a) provides appropriate habitat resources for the Speckled Warbler;</p> <p>(b) contains a total of 126ha of Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North Coast; and</p> <p>(c) the revegetation areas within the offset area includes Eucalyptus species, tussock grasses and shrub species as habitat resources for the Speckled Warbler.</p> <p><i>Varied Sittella</i></p>	<ul style="list-style-type: none"> Biodiversity Management Plan Figure 5 and Appendix C 	<p>(a) Biodiversity Management Plan Offset areas provide suitable habitat for the Speckled Warbler.</p> <p>(b) The Offset areas includes 403.2ha of Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops</p> <p>(c) revegetation areas within the offset area includes Eucalyptus species, tussock grasses and shrub species as habitat resources for the Speckled Warbler</p> <p>Site Inspection of the offset area confirmed specified vegetation types.</p>	Compliant Ongoing
37	<p>The Proponent shall ensure that the offset area:</p> <p>(a) provides appropriate habitat resources for the Varied Sittella;</p> <p>(b) contains a total of 172ha of the following vegetation types:</p> <ul style="list-style-type: none"> Grey Box - Forest Red Gum - Grey Ironbark open forest of the hinterland ranges of the North Coast; and Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North 	<ul style="list-style-type: none"> Biodiversity Management Plan Figure 5 and Appendix C 	<p>(a) Biodiversity Management Plan Offset Areas provide appropriate habitat for the Varied Sittella. It contains:</p> <ul style="list-style-type: none"> 179.6ha of Grey Box - Forest Red Gum - Grey Ironbark open forest of the hinterland ranges of the North Coast; 403.2ha of Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops and <p>(c) revegetation areas within the offset area includes species typical of eucalypt forests and woodlands,</p>	Compliant Ongoing

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	Coast; and (c) the revegetation areas within the offset area includes species typical of eucalypt forests and woodlands, especially rough-barked species, smooth-barked gums and Acacia species as habitat resources for the Varied Sittella. <i>Squirrel Glider</i>		especially rough-barked species, smooth-barked gums and Acacia species as habitat resources for the Varied Sittella. Site Inspection of the offset area confirmed the presence of the specified vegetation types	
38	The Proponent shall ensure that the offset area: (a) provides appropriate habitat resources for the Squirrel Glider; (b) contains a total of 128ha of the following vegetation types: <ul style="list-style-type: none"> Spotted Gum - Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops, North Coast; and Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin. (c) the revegetation areas within the offset area includes species typical of woodland/forest (such as Spotted Gum [<i>Corymbia maculata</i>], Red Ironbark [<i>Eucalyptus fibrosa</i>], Grey Ironbark [<i>Eucalyptus siderophloia</i>]) as habitat resources for the Squirrel Glider.	<ul style="list-style-type: none"> Biodiversity Management Plan Figure 5 and Appendix C 	(a) Nest boxes / hollows for the Squirrel Glider have been installed in the Offset Area management areas; (b) Greater than 128ha of the specified vegetation types have been included in the Offset Areas: (c) 233.6ha Spotted Gum- Grey Ironbark forest dry open forest of the lower foothills of the Barrington Tops; (d) 7.7ha of Sydney Peppermint - Smooth-barked Apple shrubby open is included in the Bowers Road North Open Cut Offset Area and Duralie Extension offset area; (e) Revegetation within the Offset Areas will include over 200ha of typical woodland species typical of woodland/forest (such as Spotted Gum [<i>Corymbia maculata</i>], Red Ironbark [<i>Eucalyptus fibrosa</i>], Grey Ironbark [<i>Eucalyptus siderophloia</i>]) as habitat resources for the Squirrel Glider.	Compliant Ongoing
39	Hollow bearing habitat features must be introduced into the areas of habitat resources and the revegetation areas identified in approval condition 38. <i>Note: For clarity, the total areas included in approval conditions 35 to 38 are not cumulative, whereby the area of habitat resources provided for one of the fauna species identified in approval condition 35 may be the same for all species mentioned in approval conditions 35 to 38.</i>	<ul style="list-style-type: none"> Biodiversity Management Plan Figure 5 and Appendix C 	Hollows for Squirrel Gliders are being introduced into offset areas. Based on monthly monitoring program results of 18 nest boxes installed, 12 indicate habitation within 4months and 3 of 18 are occupied with Squirrel Gliders	Compliant Ongoing
	Endangered Ecological Communities			
40	The Proponent shall ensure that the offset area contains at least: <ul style="list-style-type: none"> 2 ha of Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions. 10 ha of River-Flat Eucalypt Forest on Coastal 	<ul style="list-style-type: none"> Biodiversity Management Plan Figure 5 and Appendix C 	Biodiversity Management Plan (Version D) -Figure 5 demonstrates coverage within the Offset areas and Appendix C details of the offset areas characteristics: <ul style="list-style-type: none"> >2 ha of Freshwater Wetlands on Coastal Floodplains on the NSW North Coast, Sydney Basin and South East Corner Bioregions. 	Compliant Ongoing

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	<p>Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (Cabbage Gum Floodplain Forest).</p> <ul style="list-style-type: none"> 19 ha of Lowland Forest on Floodplain in the NSW North Coast Bioregion. <p><i>Note: See the mapped areas in the figure in Appendix 5.</i></p>		<ul style="list-style-type: none"> 10 ha of River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (Cabbage Gum Floodplain Forest). 19 ha of Lowland Forest on Floodplain in the NSW North Coast Bioregion. <p>Refer to section 4.11.1 for Offset Area characteristics.</p>	
	Operating Conditions			
41	<p>The Proponent must:</p> <ul style="list-style-type: none"> (a) not destroy, damage, remove or harm any native flora or fauna in the offset area; or (b) not carry out in the offset area or the vicinity of the offset area any activity that may cause, or is likely to result in, or will or might threaten the viability of, native flora or fauna in the offset area, or threaten the success of the offset strategy; and (c) ensure that its agents, contractors, licensees and invitees (and use best endeavours to ensure that any other persons) also comply with condition 41(a) and (b). 		<p>Operating conditions for the offset area are described in the approved Biodiversity Management Plan:</p> <ul style="list-style-type: none"> (a) Section 6.12 states that "Duralie Coal staff and contractors are to avoid damage to native vegetation and fauna wherever possible"; (b) Section 6 defines management strategies to protect offset areas; (c) Compliance with the requirement of Project Approval Schedule 3 condition 41(a) is managed through contracts and/or work permit processes required to be completed by Duralie Coal staff and contractors prior to any work procedures conducted in the offset areas. 	Compliant Ongoing
	Long Term Security of Offset			
42	<p>Within 12 months of the date of this approval, unless otherwise agreed by the Director-General, the Proponent shall either:</p> <ul style="list-style-type: none"> (a) enter into a conservation agreement pursuant to s69B of the <i>National Parks and Wildlife Act 1974</i> relating to the offset area, recording the obligations assumed by the Proponent under the conditions of this approval in relation to the offset area, and register that agreement pursuant to s 69F of the <i>National Parks and Wildlife Act 1974</i>; or (b) cause to be registered against the titles of the offset area a public positive covenant and/or restriction on the use of the land, in favour of the Director-General, requiring the proponent to implement and observe the conditions of this approval in relation to the offset area. <p>The conservation agreement or the public positive covenant and/or restriction on the use of the land, in relation to the offset area, shall remain in force in perpetuity.</p>	<ul style="list-style-type: none"> Letter from DP&I re Extension of Time for Conservation Agreement, 18 Apr 2013 	<p>The mechanism for securing the biodiversity offset area with a conservation agreement or public positive covenant and/or restriction on the use of the land, in relation to the offset area, that remain in force in perpetuity the long-term (as required by still the subject of consultation between DCPL and the DP&E.</p> <p>The process and outcome of any conservation agreement and registering against the titles of the offset area a public positive covenant and/or restriction on the use of the land, in favour of the Director-General had not been approved by DP&E at the date of this audit.</p>	Administrative Non-compliance - In progress

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	Biodiversity Management Plan			
43	<p>The Proponent shall prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:</p> <ul style="list-style-type: none"> (a) be prepared in consultation with OEH by suitably qualified and experienced persons whose appointment has been approved by the Director-General; (b) be submitted to the Director-General for approval within 3 months of the date of this approval; (c) describe how the offset strategy and its implementation will be integrated with other strategies, plans and programs required under this approval, including the Giant Barred Frog Management Plan, Water Management Plan and Rehabilitation Management Plan, and their implementation; 	<ul style="list-style-type: none"> • Letter from DP&I re endorsement of Dr David Freudenburger for Preparation of the Biodiversity Management Plan, 6 Feb 2012 • Biodiversity Management Plan, (GLC-10-13-C), Sep 2012 • Biodiversity Management Plan (GLC-10-13-D), 27 Sep 2013 • Letter from DP&I re Approval of the Biodiversity Management Plan, 27 Sep 2013 	<p>A Biodiversity Management Plan was prepared to satisfy Project Approval 08_0203 Schedule 3 condition 43, was approved by DP&I on 29 March 2012 and SEWPAC, 27 28 August 2012:</p> <ul style="list-style-type: none"> (a) The Biodiversity Management Plan was prepared in consultation with OEH by Dr David Freudenburger (endorsed by DP&I on 6 February 2012, as a suitably qualified expert to undertake the preparation of the required Biodiversity Management Plan); (b) Biodiversity Management Plan submitted to DP&I on 29 March 2012; (c) Section 1.2 – Relationship of this Plan with other Duralie Coal Mine Management Plans describes how the offset strategy and its implementation is integrated with other strategies, plans and programs 	Compliant
43	<p>(d) include:</p> <ul style="list-style-type: none"> • a description, based on field surveys, and in consultation with OEH, of the biodiversity values of the vegetation communities in the offset area, including remnant vegetation and derived grasslands, including as habitat for the threatened species that are recorded in the surface development area; • a description of the biodiversity values to be lost through clearing of vegetation communities in the surface development area, including remnant vegetation and derived grasslands, including as habitat for the threatened species that are recorded in the surface development area; • a description of the short, medium and long term measures that would be implemented to: <ul style="list-style-type: none"> – implement the Offset Strategy; – maintain and enhance biodiversity values in the offset area to offset the loss of biodiversity values in the surface development area; – provide and enhance suitable habitat in the offset area for the threatened species that are recorded in the surface development area; – manage the remnant vegetation and habitat on the site (including in the offset area); • detailed completion criteria, as well as performance 	<ul style="list-style-type: none"> • Letter from DP&I re endorsement of Dr David Freudenburger for Preparation of the Biodiversity Management Plan, 6 Feb 2012 • Biodiversity Management Plan, (GLC-10-13-C), Sep 2012 • Biodiversity Management Plan (GLC-10-13-D), 27 Sep 2013 • Letter from DP&I re Approval of the Biodiversity Management Plan, 27 Sep 2013 	<p>(d) The Biodiversity Management Plan includes:</p> <ul style="list-style-type: none"> • Section 4.1 Existing Environment Duralie Coal Mine • Section 4.1.8 – Biodiversity Values to be Lost through Clearing of Vegetation / Habitat • Section 6.1 – Site Trajectories and Sustainable Ecosystems; • Section 8 – Performance and Completion Criteria for Offset Areas • Section 5.4 Vegetation Clearance Plan <p>Implementation of the requirements of the Biodiversity Management Plan commenced following approval of the Plan by DP&I and SEWPAC. Management and treatment of weed infestations on the offset areas has been implemented.</p> <p>Webb Bros were contracted to conduct an audit of company-owned land to quantify management programs, including weeds. A review of off-site properties was conducted during 2013 in accordance with the requirements of the Weed Management Plan.</p>	Compliant Ongoing

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	<p>criteria for the measuring the short, medium and long term success of the Offset Strategy;</p> <ul style="list-style-type: none"> the measures described in the EA and in the expert report of Dr Goldney dated 7 April 2011 in Land and Environment Court proceedings No 10090 of 2011 to avoid or mitigate impacts on biological diversity, native flora and fauna and threatened species; a detailed description of the measures that would be implemented in the short, medium and long term to implement the Offset Strategy, including the procedures to be implemented for: <ul style="list-style-type: none"> implementing revegetation and regeneration within the offset area, including establishment of canopy, understorey and ground strategy; the introduction of hollow bearing habitat features; controlling weeds and feral pests, including the engagement of appropriately qualified contractors; managing grazing and agriculture, including provision to exclude livestock grazing from existing treed areas and Endangered Ecological Communities within the offset area; controlling vehicular access to minimise the potential for vehicle strike of native fauna; and bushfire management; a description of the measures that would be implemented in the short, medium and long term to manage the remnant vegetation and habitat on site, including the procedures to be implemented for: <ul style="list-style-type: none"> protecting vegetation and soil outside the disturbance areas; rehabilitating creeks and drainage lines on the site (both inside and outside the disturbance areas), to ensure no net loss of stream length and aquatic habitat; managing salinity; undertaking pre-clearance surveys including for threatened species; if pre-clearance surveys identify any breeding pair of threatened species, including the Varied Sittella, deferral of clearing of their habitat until the breeding site is vacated; managing impacts on fauna; 			

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	<ul style="list-style-type: none"> – landscaping the site, and particularly the land adjoining public roads, to minimise visual and lighting impacts; – collecting and propagating seed; – salvaging and reusing material from the site for habitat enhancement; – controlling weeds and feral pests, including engagement of appropriately qualified contractors; – controlling vehicular access to minimise the potential for vehicle strike of native fauna; and – bushfire management; • a Vegetation Clearing Plan (VCP) that must include the following: <ul style="list-style-type: none"> – clear delineation of disturbance areas and restriction of clearing to the minimum area necessary to undertake the approved activities. – a methodology for recording the approximate size and number of hollow bearing trees to be removed and their replacement with the same number of nesting boxes of appropriate sizing within similar vegetation within the Project site or offset lands. – a methodology for the management of hollow bearing trees during vegetation clearing to minimize impacts on hollow dependent fauna which may be present. – provision for a suitably trained or qualified person to the satisfaction of the Director-General to be present during the felling of identified hollow bearing trees to provide assistance with the care of any injured fauna. – provision for the checking of any animals found and recording of the species, number and condition (age class, pregnant or lactating females etc) and for details to be provided to the National Parks and Wildlife Service and Department within 3 months of the clearing event. – provision for the annual inspection of the nesting boxes for the life of the mine. An inspection report shall be prepared and include a review of the condition and use of the nesting boxes. – provision for the checking of vegetation to be cleared for threatened species and recording of the species, number and condition and for details to be provided 			

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	<p>to the National Parks and Wildlife Service and the Department within 3 months of the clearing event.</p> <ul style="list-style-type: none"> a description of the contingency measures that would be implemented to improve the performance of the offset strategy and the detailed performance criteria that are not being met in any given year; and details of who would be responsible for monitoring, reviewing, and implementing the plan; a program to monitor and report on the effectiveness of the measures in the Biodiversity Management Plan and conditions 33–43 of this approval, and the performance of the Offset Strategy, with summary reporting to be carried out annually and comprehensive reporting every three years following the independent environmental audit (see condition 8 of Schedule 5). 			
44	<p>Within 6 months of the approval of the Biodiversity Management Plan, the Proponent shall lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond shall be determined by:</p> <p>(a) calculating the full cost of implementing the offset strategy; and</p> <p>(b) employing a suitably qualified quantity surveyor to verify the calculated costs, to the satisfaction of the Director-General.</p> <p>If the offset strategy is completed to the satisfaction of the Director-General, the Director-General will release the conservation bond.</p> <p>If the offset strategy is not completed to the satisfaction of the Director-General, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory implementation of the offset strategy.</p>	<ul style="list-style-type: none"> Letter from DP&I re endorsement of Dr David Freudenburg for Preparation of the Biodiversity Management Plan, 6 Feb 2012 Biodiversity Management Plan, (GLC-10-13-C), Sep 2012 Biodiversity Management Plan (GLC-10-13-D), 27 Sep 2013 Letter from DP&I re Approval of the Biodiversity Management Plan, 27 Sep 2013 	<p>Arrangements for the conservation of offset areas for perpetuity have not been finalised due to lack of agreement with OEH regarding mechanism to protect offset lands.</p> <p>Duralie calculated the cost for the implementation of the Biodiversity Management Plan over first 3 years and the costs were verified.</p> <p>The Conservation Bond was submitted to DP&I as Bank guarantee in December 2013</p>	Compliant Ongoing
45	<p>After each Independent Environmental Audit (see Condition 8 of Schedule 5), the Proponent shall review and adjust the sum of the bond to the satisfaction of the Director-General.</p>			Noted
	HERITAGE			

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
	<p>The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:</p> <ul style="list-style-type: none"> (a) be prepared in consultation with OEH, the Aboriginal community, Heritage Branch, Council, and any local historical organisations; (b) be submitted to the Director-General for approval within 3 months of the date of this approval, unless otherwise agreed by the Director-General; (c) describe the program/procedures that would be implemented for: <ul style="list-style-type: none"> • recording, salvaging and/or managing the Aboriginal sites and potential archaeological deposits within the project disturbance area; • conserving, managing and monitoring Aboriginal sites DM2, DM4, DM6, DM 9, DM 10 and 38-1-0033; • minimising the potential impacts of the project on Aboriginal site 38-1-0034, DM7 and DM8; • responding to the discovery of any new Aboriginal objects or skeletal remains during the project; • enabling the Aboriginal community to access the archaeological sites on site; and • involving the Aboriginal community in the conservation and management of Aboriginal cultural heritage on the site. (d) include the following for the Weismantel Inn: <ul style="list-style-type: none"> • a baseline dilapidation survey; • photographic and archival recording; • a program to monitor the effects of the project on the inn; and • a contingency plan that would be implemented if the monitoring indicates that the project is adversely affecting the condition of the inn. <p>Notes:</p> <ul style="list-style-type: none"> • To identify the heritage sites referred to in this condition, see the figure in Appendix 6. <p>The effectiveness of the Heritage Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following this review and audit the plan is to be revised to ensure it remains up to date (see Condition 4 in Schedule 5)</p>	<ul style="list-style-type: none"> • Letter from DP&I re Approval of Heritage Management Plan, 29 Mar 2012 • Heritage Management Plan (HMP-R02-B), 29 Mar 2012 • Heritage Management Plan (HMP-R02-C), Jun 2013 • Archival recording — Weismantel's Inn, Bucketts Way NSW, Michael Pearson, Heritage Management Consultants Pty Ltd. 3 June 2011 	<ul style="list-style-type: none"> (a) The Heritage Management Plan (HMP-R02-C) was prepared in consultation with the OEH, Aboriginal community, Heritage Branch, Council, and any local historical organisations to satisfy Project Approval 08_0203 Schedule 3 condition 46. (b) The Heritage Management Plan was submitted to DP&I and approved on 29 March 2012; (c) Section 6.1- Aboriginal Heritage Sites; (d) Appendix A, Michael Pearson, Heritage Management Consultants Pty Ltd. 3 June 2011, photographic and archival recording of the former Weismantels Inn. The former Inn is owned by DCPL and is currently tenanted, thereby ensuring building and grounds maintenance. 	Compliant


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Condition No.	Project Approval Condition	Verification	Comments	Compliance
	TRANSPORT			
	Access			
47	Prior to the closure of Cheerup Road and the portion of Duralie Road within the project area, the Proponent shall construct a suitable access road to property No. 143 (Madden) to the satisfaction of the Director-General. However, this condition does not apply if the Proponent purchases the property.		Duralie purchased an area of the Property No. 143 (Madden) to the west of the Mining Lease boundary, that was affected by Cheerup Road and Duralie Road. Access to the property is no longer required from Cheerup Road.	Not applicable
48	The Proponent shall keep accurate records of: (a) the amount of coal transported from the site each month, and make these records publically available on its website at the end of each calendar year; and (b) number of train movements to and from the site each day; <ul style="list-style-type: none"> date and time of each train movement to the site between 10pm and midnight; and instances when the shuttle train is operated on the North Coast railway between midnight and 1am in exceptional circumstances. and make these records publically available on its website on a fortnightly basis. 	<ul style="list-style-type: none"> www.duraliecoal.com.au/environment/ Shuttle_train_performance; and Shuttle_train_coal_ttransported 	Records of transport of coal from the DCM site are posted on the DCM website and provide: (a) the amount of coal transported from the site each month (refer to Shuttle Train Coal Transported). (b) number of train movements to and from the site each day, date and time of each train movement to the site between 10pm and midnight; and instances when the shuttle train is operated on the North Coast railway between midnight and 1am in exceptional circumstances are updated on the DCM website (refer to Shuttle Train Performance Summary) Shuttle Train summary data was accessed the Duralie website and confirmed the data was updated fortnightly.	Compliant Ongoing
	VISUAL			
	Visual Amenity and Lighting			
49	The Proponent shall: (a) minimise visual impacts, and particularly the off-site lighting impacts, of the project; and (b) ensure that all external lighting associated on site complies with <i>Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting</i> , to the satisfaction of the Director-General.	<ul style="list-style-type: none"> AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting Lighting Management Plan, 13 Dec 2003 Community Complaints Register Jul 2012 to Jun 2013 	The management of light spill from the mining operations is undertaken in accordance with the Lighting Management Plan. a) Mitigation measures to reduce potential light impacts on the surrounding area have included: <ul style="list-style-type: none"> Progressive rehabilitation of disturbed areas Lighting of operational areas occurs with directional lighting only; Lighting screened (shielded) where necessary to limit spillage to adjacent residences and eliminate driver glare along Johnson Creek Road; Haul trucks will operate with dipped headlights; Limited use of fixed lighting within the train load out bin area during night time due to the restriction on trains leaving the site; (b) External lighting on the Duralie site complies with AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting.	Compliant Ongoing

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			One complaint related to light scatter from mobile lighting tower was received by Duralie Coal Mine 12 November 2012. The mobile light tower was moved to address the light problem.	
	Additional Visual Mitigation Measures			
50	<p>Upon receiving a written request from the owner of:</p> <p>(a) the land listed as 125(1), 125(2), and 116 on the figure in Appendix 3; or</p> <p>(b) any residence on privately-owned land which has, or would have, significant direct views of the mining operations on site, the Proponent shall implement visual mitigation measures (such as landscaping treatments or perimeter bunding) on the land in consultation with the owner. These measures must be reasonable and feasible, and directed toward minimising the visibility of the mining operations from the residence on the land.</p> <p>If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.</p>		<p>a) Duralie Coal now owns the residence (125) that had significant views of the mine operations.</p> <p>b) No written requests for visual mitigation measures have been received by Duralie Coal between November 2011 and December 2014.</p>	Not triggered
51	<p>Unless the Director-General agrees otherwise, the Proponent shall:</p> <p>(a) screen the views of the project as far as is practicable from the section of Bucketts Way marked in red on the figure in Appendix 7 within 6 months of the date of this approval, in consultation with the RTA, Council and any relevant landowners; and</p> <p>(b) maintain the screen during the life of the project, to the satisfaction of the Director-General</p>	 <p>Screen established to reduce views of the mine activities from the portion of The Bucketts Way.</p>	A commitment in the Environmental Management Strategy (Version H) 18 June 2013 for a vegetation /boarded screen to be established to reduce views of the mine activities from the portion of The Bucketts Way where the DCM will be visible to traffic travelling along the road, was erected in 2013.	Compliant
	WASTE			
52	<p>The Proponent shall:</p> <p>(a) minimise the waste generated by the project; and</p> <p>(b) ensure that the waste generated by the project is appropriately stored, handled and disposed of,</p>	<p>Letter from DP&I re Approval of Waste Management Plan, 6 Mar 2012</p> <p>Waste Management Plan, 6 Mar 2012</p>	<p>Waste Management Plan, (WMP-R02-A) prepared to satisfy Project Approval 08_0203 Schedule 3 condition 52 was submitted to DP&I and approved on 6 March 2012.</p> <p>a. Site inspection confirmed waste were adequately managed with suitable bins for waste segregation</p>	Compliant Ongoing

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	to the satisfaction of the Director-General.		located adjacent to the administration building and workshops. b. During site inspection solid wastes were observed to be managed adjacent to the workshop area and administration building area with separate bins available for waste segregation. The solid waste disposal is managed by JR Richards and Sons on contract to the mine. Disposal of waste tyres occurs within the overburden emplacements in the areas of the open pit that are backfilled and register of disposal locations is maintained.							
	BUSHFIRE MANAGEMENT									
53	The Proponent shall: (a) ensure that the project is suitably equipped to respond to any fires on site; and (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the surrounding area.		Leighton Mining water truck is fitted with high pressure hose and water spray equipment which could be used for fire-fighting and there is a box trailer with water tank and pumps for fire-fighting available at the DCM workshop area. DCPL undertakes hazard reduction burns, in consultation with neighboring property owners and the local Rural Fire Brigade; and fuel loads on cleared areas of the mine site are reduced by cattle agistment and/or periodic slashing. A written report is submitted annually to the Great Lakes Bush Fire Management Committee and Rural Fire Service based in Tuncurry, describing the fire management works undertaken at DCM over the 12 month period.	Compliant Ongoing						
	REHABILITATION									
	Rehabilitation Objectives									
55	The Proponent shall rehabilitate the site to the satisfaction of the Director-General of DTIRIS. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA (and depicted conceptually in the figures in Appendix 7), and comply with the objectives in Table 11. <i>Table 11: Rehabilitation Objectives</i> <table><tr><th>Feature</th><th>Objective</th></tr><tr><td>Mine site (as a</td><td>Safe, stable & non-polluting</td></tr><tr><td>Surface infrastructure</td><td>To be decommissioned and removed, unless the Director-General agrees</td></tr></table>	Feature	Objective	Mine site (as a	Safe, stable & non-polluting	Surface infrastructure	To be decommissioned and removed, unless the Director-General agrees		Rehabilitation has been completed on shoulders of the site access road, clean water diversion drain (e.g. MWD, AD1, AD2), rail siding embankments, dam embankments and the Coal Shaft Creek diversion. Rehabilitation is now focusing on progressing the waste rock emplacements. This is consistent with the Environmental Assessment Year 2-3.	Compliant Ongoing
Feature	Objective									
Mine site (as a	Safe, stable & non-polluting									
Surface infrastructure	To be decommissioned and removed, unless the Director-General agrees									

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	Coal Shaft Creek Diversion	Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining			
	Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of local native plant species; and a landform consistent with the surrounding environment			
	Final Void	Safe, stable and non-polluting			
	Community	Minimise the adverse socio-economic effects associated with mine closure			
	Progressive Rehabilitation				
56	The Proponent shall carry out the rehabilitation of the site progressively, that is, as soon as reasonably practicable following disturbance.			DCM is carrying out rehabilitation of the site progressively, as soon as reasonably practicable following disturbance. The 2013 Annual Review reports that the total disturbance footprint has been reduced (216.5ha, compared to 231ha 2011/12), with 37.5 ha of rehabilitation completed in the 2012/13 reporting period.	Noted
	Rehabilitation Management Plan				
57	<p>The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Director-General of DTIRIS. This plan must:</p> <ul style="list-style-type: none"> (a) be prepared in consultation with the Department, OEH, NOW, Council and the CCC; (b) be prepared in accordance with any relevant DRE guideline; (c) build, to the maximum extent practicable, on the other management plans required under this approval; (d) provide for scientific knowledge gained during the rehabilitation, to be made publicly available; and (e) be submitted to the Director-General of DTIRIS for approval within 3 months of the date of this approval, unless otherwise agreed by the Director-General 		<ul style="list-style-type: none"> • Mining Operations Plan ML 1427 and MLA 359 - 2010 to 2017 • Rehabilitation Management Plan (RMP-H), 28 Feb 2013 	<p>The Rehabilitation Management Plan was:</p> <ul style="list-style-type: none"> (a) prepared in consultation with the Department, OEH, NOW, Council and the CCC to satisfy Project Approval 08_0203 Schedule 3 condition 57 was approved by DP&I, DTIRIS and SEWPaC on 28 February 2013. (b) prepared in accordance with any relevant DRE guideline (c) references other Environmental Management Plans (d) Rehabilitation and monitoring of disturbed areas, and progress of restoration of overburden emplacements will be reviewed reported annually through the Annual Review process (e) Revised Rehabilitation Management Plan approved by DTIRIS 31 May 2013. 	Compliant
	SCHEDULE 4 ADDITIONAL PROCEDURES				
	NOTIFICATION OF LANDOWNERS				

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1	<p>Within 1 month of the date of this approval, the Proponent shall notify in writing the owners of:</p> <ul style="list-style-type: none"> (a) the land listed in Table 1 in Condition 1 of Schedule 3 that they have the right (under Condition 1 of Schedule 3) to require the Proponent to acquire their land at any stage during the project; (b) any residence on the land listed in Table 1 in Condition 1 or in Condition 4(b) or (c) of Schedule 3 that they are entitled (under Condition 4 of Schedule 3) to ask for additional noise mitigation measures to be implemented at their residence at any stage during the project; (c) any privately-owned land within 2 kilometres of the approved open cut mining pit on site that they are entitled (under Condition 11 of Schedule 3) to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous inspection report updated; (d) any residence on the land listed as 125(1) and 125(2) on the figure in Appendix 3 that they are entitled (under Condition 21 of Schedule 3) to ask for additional dust mitigation measures to be implemented at their residence at any stage during the project; and (e) the owner the land listed as 125(1), 125(2), and 116 on the figure in Appendix 3 or any residence on privately-owned land which has (or would have) significant direct views of the mining operations on site, that they are entitled (under Condition 50 of Schedule 3) to ask for additional visual mitigation measures to be implemented on their land at any stage during the project. 	<ul style="list-style-type: none"> • Letters to Landowners re Acquisition of Property, Sep 2006 	<p>Letters re the right to require DCPL to acquire land at any stage of the development were sent to R Mudford, S&K Gibson, R Hattam, S Doherty, S&J Lyall and E Holmes in September 2006.</p>	Compliant
1A	<p>Within 1 month of the approval of the first modification to the conditions of this approval, the Proponent shall prepare a Consultation Plan for the implementation of additional noise mitigation measures at the residences listed in Condition 4(c) of Schedule 3. This plan must provide for:</p> <ul style="list-style-type: none"> (a) notifying the land owners of these residences that they are entitled to ask for additional noise mitigation measures to be implemented at their residence at any stage during the project; (b) explaining the sorts of mitigation measures that 	<ul style="list-style-type: none"> • Consultation Plan, 30 Nov 2013 	<p>A Consultation Plan was prepared by Duralie Coal for the implementation of additional noise mitigation measures at the residences listed in Condition 4(c) of Schedule 3 and approved by the Director-General in November 2013.</p>	Compliant

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	<p>could be implemented to these residences;</p> <p>(c) following up the initial notification of these owners with detailed discussions about the potential implementation of suitable mitigation measures; and</p> <p>(d) explaining to these land owners that they have the rights to refer the matter to the D-G for resolution if there is a dispute about what measures should be implemented or the implementation of any agreed measures.</p> <p>The Plan is to be made publically available on the Proponent's website and the plan shall be implemented to the satisfaction of the Director-General</p>			
2	<p>Within 2 weeks of obtaining monitoring results showing:</p> <p>(a) an exceedence of the relevant criteria in any condition in Schedule 3, the Proponent shall notify the affected landowner and tenants in writing of the exceedence, and provide monitoring results to each of these parties until the project is complying with the relevant criteria again;</p> <p>(b) an exceedence of the relevant noise acquisition criteria in Condition 3 of Schedule 3, the Proponent shall notify the relevant owner in writing that they have the right (under Condition 3 of Schedule 3) to require the proponent to acquire their land;</p> <p>(c) an exceedence of the relevant noise mitigation criteria in Condition 4(d) or (e) of Schedule 3, the Proponent shall notify the relevant owner in writing that they are entitled (under Condition 4 of Schedule 3) to ask for additional noise mitigation measures to be installed at their residence;</p> <p>(d) an exceedence of the relevant air quality criteria in Schedule 3, the Proponent shall send the affected landowners and tenants (including the tenants of any mine-owned land) a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and</p> <p>(e) an exceedence of the relevant air quality criteria in Condition 20 of Schedule 3, the Proponent shall notify the relevant owner in writing that they have the right (under Condition 20 of Schedule 3) to require the Proponent to acquire their land; and</p>		<p>The quarterly attended noise monitoring indicated that the acquisition noise criteria were not exceeded on all occasions, and the noise monitoring was reported in the Annual Reviews.</p>	Not triggered

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	(f) an exceedence of the relevant dust mitigation criteria in Condition 21 of Schedule 3, the Proponent shall notify the relevant owner in writing that they are entitled (under Condition 21 of Schedule 3) to ask for additional dust mitigation measures to be implemented at their residence.			
	INDEPENDENT REVIEW			
3	<p>If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.</p> <p>If the Director-General is satisfied that an independent review is warranted, then within 2 months of the Director-General's decision the Proponent shall:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:</p> <ul style="list-style-type: none"> consult with the landowner to determine his/her concerns; conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 3; and if the project is not complying with these criteria, then identify the measures that could be implemented to ensure compliance with the relevant criteria; and <p>(b) give the Director-General and landowner a copy of the independent review.</p>			Not triggered
4	<p>If the independent review determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.</p> <p>If the independent review determines that the project is not complying with the relevant criteria in Schedule 3, then the Proponent shall:</p> <p>(a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until the project complies with the relevant criteria; or</p> <p>(b) secure a written agreement with the landowner to allow exceedences of the relevant criteria,</p>			Not triggered

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	to the satisfaction of the Director-General. If the independent review determines that the project is not complying with the relevant acquisition criteria in Schedule 3, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in Conditions 5–6 below.			
	LAND ACQUISITION			
5	<p>Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:</p> <p>(a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the project, having regard to the:</p> <ul style="list-style-type: none"> existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and presence of improvements on the land and/or any approved building or structure which has been physically commenced on the land at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional noise mitigation measures under Condition 4 of Schedule 3; <p>(b) the reasonable costs associated with:</p> <ul style="list-style-type: none"> relocating within the Great Lakes or Gloucester local government areas, or to any other local government area determined by the Director-General; and obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and <p>(c) reasonable compensation for any disturbance caused by the land acquisition process.</p> <p>However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.</p>		<p>Duralie Coal acquired properties 125 and part of 128 (with a Private Agreement) since the Project Approval 2010.</p> <p>No further written requests from landowners with acquisition rights have been received during the November 2011 to December 2014 period.</p>	Not triggered

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	<p>Upon receiving such a request, the Director-General will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:</p> <ul style="list-style-type: none"> consider submissions from both parties; determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above; prepare a detailed report setting out the reasons for any determination; and provide a copy of the report to both parties. <p>Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.</p> <p>However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report disputing the independent valuer's determination, and any other relevant submissions.</p> <p>Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.</p> <p>If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.</p>			
6	The Proponent shall pay all reasonable costs associated with the land acquisition process described in Condition 5 above, including the costs associated with obtaining			Noted

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	Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.			
	SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING			
	ENVIRONMENTAL MANAGEMENT			
	Environmental Management Strategy			
1	<p>The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:</p> <ul style="list-style-type: none"> (a) be submitted to the Director-General for approval within 3 months of the date of this approval, unless otherwise agreed by the Director-General; (b) provide the strategic framework for the environmental management of the project; (c) identify the statutory approvals that apply to the project; (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project; (e) describe the procedures that would be implemented to: <ul style="list-style-type: none"> • keep the local community and relevant agencies informed about the operation and environmental performance of the project; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the project; • respond to any non-compliance; • respond to emergencies; and (f) include: <ul style="list-style-type: none"> • copies of any strategies, plans and programs approved under the conditions of this approval; and • a clear plan depicting all the monitoring required to be carried out under the conditions of this approval. 	<ul style="list-style-type: none"> • Environmental Management Strategy (revised), 30 June 2013. • Air Quality and Greenhouse Gas Management Plan (revised), 29 March 2012. • Biodiversity Management Plan (revised), 29 March 2012. • Blast Management Plan (revised 6 March 2012). • Giant Barred Frog Study and Giant Barred Frog Management Plan, State 6 March 2012. • Heritage Management Plan (revised), 30 June 2013. • Noise Management Plan (revised), 30 June 2013. • Waste Management Plan, 6 March 2012. • Water Management Plan (revised), 2 August 2012. • Rehabilitation Management Plan (revised), 30 June 2013. 	<ul style="list-style-type: none"> (a) The Environmental Management Strategy (EMS) prepared for Duralie was approved by DP&I on 21 July 2011. The Environmental Management Strategy was revised on 6 March 2012 to include the Consequential Order by the Land and Environment Court. The Environmental Management Strategy addresses each of the requirements of the MCoA Schedule 5 condition 1. (b) Section 4 - Environmental Impacts and Mitigation Strategies; (c) Section 3 - Statutory Requirements; (d) Section 4 - Site Environmental Management Structure; (e) Section 8 Community Objectives and Section 9 Complaints, Consultation and Conflict Resolution; (f) Section 4 - Appendix C Environmental Management Plans 	Compliant

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
	Management Plan Requirements			
2	<p>The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) detailed baseline data;</p> <p>(b) a description of:</p> <ul style="list-style-type: none"> the relevant statutory requirements (including any relevant approval, licence or lease conditions); any relevant limits or performance measures/criteria; the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; <p>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p> <p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> impacts and environmental performance of the project; effectiveness of any management measures (see (c) above); <p>(e) a contingency plan to manage any unpredicted impacts and their consequences;</p> <p>(f) a program to investigate and implement ways to improve the environmental performance of the project over time;</p> <p>(g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> incidents; complaints; non-compliances with statutory requirements; and exceedences of the impact assessment criteria and/or performance criteria; and <p>(h) a protocol for periodic review of the plan.</p> <p><i>Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted.</i></p>	<ul style="list-style-type: none"> Environmental Management Strategy (revised), 30 June 2013. Air Quality and Greenhouse Gas Management Plan (revised), 29 March 2012. Biodiversity Management Plan (revised), 29 March 2012. Blast Management Plan (revised 6 March 2012). Giant Barred Frog Study and Giant Barred Frog Management Plan, State 6 March 2012. Heritage Management Plan (revised), 30 June 2013. Noise Management Plan (revised), 30 June 2013. Waste Management Plan, 6 March 2012. Water Management Plan (revised), 2 August 2012. Rehabilitation Management Plan (revised), 30 June 2013. 	<p>Reviewed management Plans as published on website, http://www.duraliecoal.com.au/environment/management-plans-strategies-and-programs.php, generally included sections in the documents that met the requirements of Schedule 5 condition 2.</p>	Compliant

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	Annual Review			
3	<p>By the end of December 2011, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:</p> <ul style="list-style-type: none"> (a) describe the development (including rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the <ul style="list-style-type: none"> • the relevant statutory requirements, limits or performance measures/criteria; • the monitoring results of previous years; and • the relevant predictions in the EA; (c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the project; (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the next year to improve the environmental performance of the project. 	<ul style="list-style-type: none"> • Annual Review 2011-2012 • Annual Review 2012-2013 • Annual Review 2013-2014 	<p>The Annual Reviews have been prepared by Duralie Coal in accordance with the requirements of Project Approval Schedule 5 condition 3 and were submitted to the relevant agencies and the CCC:</p> <p>(a) Section 1.2 – Consents, Leases, Licenses and Other Approvals</p> <p>(b) to (f) Section 2 Summary of Operations and Section 3 Environmental Management and Performance</p> <p>The Annual Reviews have been prepared for July to June periods.</p>	Compliant Ongoing
	Revision of Strategies, Plans and Programs			
4	<p>Within 3 months of:</p> <ul style="list-style-type: none"> (a) the submission of an annual review under Condition 3 above; (b) the submission of an incident report under Condition 6 below; (c) the submission of an audit under Condition 8 below; or (d) any modification to the conditions of this approval (unless the conditions require otherwise), the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the 		<p>Management Plans have been reviewed regularly post Annual Review and condition modifications of critical approvals and submitted to the relevant agencies as required.</p>	Compliant Ongoing

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	satisfaction of the Director-General. <i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.</i>			
	Community Consultative Committee			
5	<p>The Proponent shall establish and operate a new Community Consultative Committee (CCC) for the project in general accordance with the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects</i> (Department of Planning, 2007, or its latest version), and to the satisfaction of the Director-General. This CCC must be operating within 3 months of the date of this approval.</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval; In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community; and With the approval of the Director-General, this CCC may be combined with the current CCC for the Stratford coal mine. 		<p>The CCC was formed in accordance with Schedule 5, Condition 5 of the Project Approval for the Duralie Extension Project. The Committee operates in such a manner as to generally satisfy the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects</i> (Department of Planning, 2007).</p> <p>The attendees at the 2014 Meetings were:</p> <p>CCC Chairman: Ms Margaret MacDonald-Hill</p> <p>Members of CCC: Alan Fisher-Webster, Brian Eastoe, Donald Carroll, Rod Williams</p> <p>Great Lakes Council Cr Karen Hutchinson</p> <p>Government Agency representatives: Ben Harrison Dept of Planning & Infrastructure</p> <p>Duralie Coal Representatives: Tony Dwyer, Doug Gordon, Michael Plain, Alan Andrews, Jo Wiffen, Corinna Merrick, Rachael Windrum</p> <p>The CCC has met each 3 months and minutes for the meetings have been prepared by DCM and distributed to the CCC members.</p>	Compliant
	REPORTING			
	Incident Reporting			
6	The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-	<ul style="list-style-type: none"> EPA Annual Return to DECC for 4 Sep 2012 to 3 Sep 2014 Incident Report to EPA/DP&I re First Flush Incident 18 Nov 2013 Blast exceedances in EPL Annual Return 	<p>Environmental Management Strategy (EMS) Version H approved by DP&I 18 June 2013 defines reporting requirements.</p> <p>Reportable incidents are included in the Annual Report to the EPA Annual Returns and the Annual Reviews to DP&I. Reportable incidents during the 2012-2014 period were:</p>	Compliant Ongoing

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	General and any relevant agencies with a detailed report on the incident.		<ul style="list-style-type: none"> Blast incident 18 October 2013 notified to DP&I within appropriate timeframes.. First Flush Incident 18 Nov 2013, following heavy rainfall event 	
	Regular Reporting			
7	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Director-General.		Website reviewed and all required management plans, monitoring data and public reports were easily accessible and up-to-date.	Compliant Ongoing
	AUDITING			
	Independent Environmental Audit			
8	<p>By the end of December 2011, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:</p> <ul style="list-style-type: none"> (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General; (b) include consultation with the relevant agencies; (c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the approvals in (c) above; and (e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the approvals in (c) above. <p><i>Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.</i></p>	<ul style="list-style-type: none"> Letter from DoP re Endorsement Independent Specialists for Independent Environmental Audit, 14 Oct 2011 Independent Environmental Audit Report, Trevor Brown & Associates, Nov 2011 Letter from DP&I re Endorsement of Independent Specialists for Independent Environmental Audit, 22 Oct 2014 	<p>The approval of the independent specialists for the audit of Duralie Coal Mine was received on 14 October 2011.</p> <p>Independent Environmental Audit was conducted by Trevor Brown & Associates and the report submitted to DoP in November 2011.</p> <p>This 2014 Independent Environmental Audit has been conducted in accordance with the requirements of Schedule5 condition 8:</p> <ul style="list-style-type: none"> (a) Approval of the audit team for the 2014 Independent Environmental Audit was received from DP&E on 22 October 2014. The site inspection for the audit was conducted between 24 and 29 November 2014. (b) Consultation with the relevant agencies (EPA/OEH, DP&E, DRE, NOW Great Lakes Council, was conducted in November 2014. (c) Assessment of the environmental performance of the project and assess compliance with the requirements the Project Approval, EPL, Mining Lease (including any assessment, plan or program required under these approvals) has been conducted and reported in section 4 of this Independent Environmental Audit Report; (d) Recommendations and conclusions are presented in section 5 of this Independent Environmental Audit Report. 	Compliant

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
9A	<p>By the end of December 2013, and with every Independent Environmental Audit thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of a Rail Haulage Audit of the project. This audit must:</p> <ul style="list-style-type: none"> (a) be conducted by a suitably qualified, experienced and independent experts whose appointment has been endorsed by the Director-General; (b) review the existing rail haulage operations and determine whether all reasonable and feasible measures are being implemented to minimise the: <ul style="list-style-type: none"> • noise and dust impacts of these operations; • use of the shuttle train during the approved night-time hours; • dispatch of trains from the site between 9.25pm and 1am the following day; and (c) recommend appropriate measures or actions to improve the efficiency of these rail haulage operations and minimise their associated impacts; and (d) evaluate the use of the exceptional circumstances provision in condition 8 of schedule 2, and the associated reporting on any use of this provision on the Proponent's website (see condition 8A in schedule 2). 	<ul style="list-style-type: none"> • Letter from DP&I re Approval of Independent Experts to Conduct the Rail Haulage Audit, Oct 2013 • Duralie Coal Mine Audit of Rail Haulage, PalazziRail, 23 Dec 2014 • Rail Haulage Dust Audit, Duralie Coal Mine, Todoroski Air Sciences, 13 Jan 2014 • Duralie Coal Mine Rail Haulage Dust Audit, Dec 2013 • Email from DP&E re Duralie Coal Mine Audit (no rail audit required), 10 Oct 2014 	<p>A Rail Haulage Audit was conducted to satisfy this condition in November 2013:</p> <ul style="list-style-type: none"> (a) The audit was conducted by Bill Palazzi of PalazziRail a suitably qualified, experienced and independent expert endorsed by the Director-General; (b) The audit reviewed the existing rail haulage operations to determine measures implemented to minimise: <ul style="list-style-type: none"> • Noise impacts (Wilkinson Murray Consultants); • Dust impacts (Todoroski Air Sciences); • use of the shuttle train during the approved night-time hours (PalazziRail); • dispatch of trains from the site (PalazziRail); (c) recommend appropriate measures or actions (all experts); and (d) exceptional circumstances provision in condition 8 of schedule 2, and the associated reporting placed on the Duralie website under Shuttle Train Performance. <p>NOTE: DP&E advised that the Duralie Coal Mine Audit of Rail Haulage, PalazziRail, 23 Dec 2013 was acceptable to address this condition and would not require to be repeated with this Independent Environmental Audit in December 2014.</p>	Compliant
9B	<p>Within 6 weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the D-G, together with its response to any recommendations contained in the audit report.</p>		<p>All management plans indicate that findings of Independent Environmental Audit November 2011 were addressed.</p>	Compliant
	ACCESS TO INFORMATION			
10	<p>Within 1 month of the date of this approval, the Proponent shall:</p> <ul style="list-style-type: none"> (a) make copies of the following publicly available on its website: <ul style="list-style-type: none"> • the documents referred to in Condition 2 Schedule 2; • all relevant statutory approvals for the project; • all approved strategies, plans, programs and studies required under the conditions of this approval; • the monitoring results of the project, reported in accordance with the specifications in any approved 		<p>Current environmental management plans, monitoring results, AEMR and audit reports and complaints register are available on the GCPL website http://www.gloucestercoal.com.au/environment-dcm.php.</p>	Compliant

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Condition No.	Project Approval Condition	Verification	Comments	Compliance
	<p>strategies, plans, programs or studies required under the conditions of this or any other approval;</p> <ul style="list-style-type: none">• a complaints register, which is to be updated on a monthly basis;• the agenda papers and minutes of CCC meetings;• the annual reviews required under this approval;• any audit of the project required under this approval, and the Proponent's response to the recommendations in any audit report;• any other matter required by the Director-General; and <p>(b) keep this information up-to-date, to the satisfaction of the Director-General.</p>			

Attachment B

Environment Protection Licence 11701

EPL 11701	Condition	Verification	Comments	Compliance												
1	Administrative Conditions															
A1	What the licence authorises and regulates															
A1.1	<div>This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation. Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.</div> <table><tr><th>Schedule Activity</th><th>Fee Based Activity</th><th>Scale</th></tr><tr><td>Coal Works</td><td>Coal Works</td><td>>2Mt to 5Mt</td></tr><tr><td>Extractive Activities</td><td>Land-based extractive activity</td><td>0-30000T, processed stored or extracted</td></tr><tr><td>Mining for Coal</td><td>Mining for Coal</td><td>>2Mt-3.5Mt produced</td></tr></table>	Schedule Activity	Fee Based Activity	Scale	Coal Works	Coal Works	>2Mt to 5Mt	Extractive Activities	Land-based extractive activity	0-30000T, processed stored or extracted	Mining for Coal	Mining for Coal	>2Mt-3.5Mt produced		Duralie Coal was compliant with the scheduled activity and fee based activities referred to in this condition at the date of this audit	Compliant
Schedule Activity	Fee Based Activity	Scale														
Coal Works	Coal Works	>2Mt to 5Mt														
Extractive Activities	Land-based extractive activity	0-30000T, processed stored or extracted														
Mining for Coal	Mining for Coal	>2Mt-3.5Mt produced														
A1.2	Notwithstanding the activity scales noted above, the licensee must not extract more than 3 million tonnes of coal from the premises in a calendar year.			Noted												
A2	Premises or plant to which this licence applies															
A2.1	The licence applies to the following premises: Duralie Coal Mine Stroud Road NSW 2415 Mining Lease 1427 and 1646			Compliant												
	Information supplied to the EPA															
	Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence. In this condition the reference to "the licence application" includes a reference to: a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with issuing of this licence.			Noted												

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EPL 11701	Condition	Verification	Comments	Compliance																										
2	Discharges to Air and Water and Applications to Land																													
P1	Location of monitoring/discharge points and areas																													
P1.1	<div><div>The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.</div><table><thead><tr><th>EPA ID No.</th><th>Type of Monitoring Point</th><th>Location Description</th></tr></thead><tbody><tr><td>8</td><td>Dust monitoring (PM₁₀ HVS)</td><td>Hi-Vol 1 located generally south of the mine - noted as Point 8 on the plan titled "EPL 11701 Environmental Monitoring Locations"</td></tr><tr><td>9</td><td>Dust monitoring (PM₁₀ - HVS)</td><td>Hi-Vol 2 located generally south of the mine - noted as Point 8 on the plan titled EPL11701 Environmental Monitoring Locations</td></tr><tr><td>24</td><td>Dust deposition monitoring</td><td>Dust Deposition Gauge 3 - noted as Point 24 on the plan EPL1701 Environmental Monitoring Locations</td></tr><tr><td>25</td><td>Dust deposition monitoring</td><td>Dust Deposition Gauge 4 - noted as Point 24 on the plan EPL11701 Environmental Monitoring Locations</td></tr><tr><td>26</td><td>Dust deposition monitoring</td><td>Dust Deposition Gauge 5 - noted as Point 24 on the plan EPL11701 Environmental Monitoring Locations</td></tr><tr><td>32</td><td>Dust Monitoring and PM₁₀ (High Volume Sampler)</td><td>Hi-Vol 3 located generally south of the mine - noted as Point 8 on the plan titled EPL11701 Environmental Monitoring Locations</td></tr><tr><td>33</td><td>Dust Monitoring and PM₁₀ and TEOM</td><td>TEOM1 located generally north of the mine - noted as Point 33 on the plan titled EPL11701 Environmental Monitoring Locations"</td></tr><tr><td>34</td><td>Dust Monitoring and PM₁₀ (High Volume Sampler)</td><td>Hi-Vol 5 located generally south of the mine - noted as Point 8 on the plan titled EPL1701 Environmental Monitoring Locations</td></tr></tbody></table></div>	EPA ID No.	Type of Monitoring Point	Location Description	8	Dust monitoring (PM ₁₀ HVS)	Hi-Vol 1 located generally south of the mine - noted as Point 8 on the plan titled "EPL 11701 Environmental Monitoring Locations"	9	Dust monitoring (PM ₁₀ - HVS)	Hi-Vol 2 located generally south of the mine - noted as Point 8 on the plan titled EPL11701 Environmental Monitoring Locations	24	Dust deposition monitoring	Dust Deposition Gauge 3 - noted as Point 24 on the plan EPL1701 Environmental Monitoring Locations	25	Dust deposition monitoring	Dust Deposition Gauge 4 - noted as Point 24 on the plan EPL11701 Environmental Monitoring Locations	26	Dust deposition monitoring	Dust Deposition Gauge 5 - noted as Point 24 on the plan EPL11701 Environmental Monitoring Locations	32	Dust Monitoring and PM ₁₀ (High Volume Sampler)	Hi-Vol 3 located generally south of the mine - noted as Point 8 on the plan titled EPL11701 Environmental Monitoring Locations	33	Dust Monitoring and PM ₁₀ and TEOM	TEOM1 located generally north of the mine - noted as Point 33 on the plan titled EPL11701 Environmental Monitoring Locations"	34	Dust Monitoring and PM ₁₀ (High Volume Sampler)	Hi-Vol 5 located generally south of the mine - noted as Point 8 on the plan titled EPL1701 Environmental Monitoring Locations	The air quality monitoring program for Duralie includes each of the EPA Points.	Compliant
EPA ID No.	Type of Monitoring Point	Location Description																												
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EPL 11701	Condition	Verification	Comments	Compliance																														
P1.2	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.																																	
P1.3	<div><p>The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.</p><p>Water and land</p><table><tr><th>EPA ID</th><th>Type of Monitoring Point</th><th>Location Description</th></tr><tr><td>3</td><td>Discharge quality monitoring</td><td>Mine Water Dam - noted as Point 3 on the plan titled EPL 11701 Environmental Monitoring Locations</td></tr><tr><td>4</td><td>Discharge quality monitoring</td><td>Open Cut - noted as Point 4 on the plan titled EPL 11701 Environmental Monitoring Locations</td></tr><tr><td>15</td><td>Discharge quality monitoring</td><td>Rail Siding south monitoring location - noted as Point 15 on plan titled EPL 11701 Environmental Monitoring Locations</td></tr><tr><td>20</td><td>Discharge quality monitoring</td><td>Rail Siding north monitoring location - noted as Point 20 on the plan titled EPL 11701 Environmental Monitoring Locations,</td></tr><tr><td>27</td><td>Discharge to waters and quality monitoring</td><td>Box Cut / Waste Emplacement monitoring location - noted as Point 27 on plan titled EPL 11701 Environmental Monitoring Locations</td></tr><tr><td>30</td><td>Ambient water monitoring</td><td>Coal Shaft Creek downstream - noted as Point 30 on the plan titled EPL 11701 Environmental Monitoring Locations</td></tr><tr><td>31</td><td>Ambient water monitoring</td><td>"Upstream" in Mammy Johnsons River at gauging board - noted as Point 31 on the plan titled EPL11701 Environmental Monitoring Locations</td></tr><tr><td>35</td><td>Ambient water monitoring</td><td>"Downstream" in Mammy Johnsons River at 'Highnoon' - noted as Point 35 on plan titled EPL 11701 Environmental Monitoring Locations</td></tr><tr><td>36</td><td>Discharge to waters and discharge quality</td><td>Irrigation area catch drain (North Drain) north of Main Water Dam at point of interlock - noted as</td></tr></table></div>	EPA ID	Type of Monitoring Point	Location Description	3	Discharge quality monitoring	Mine Water Dam - noted as Point 3 on the plan titled EPL 11701 Environmental Monitoring Locations	4	Discharge quality monitoring	Open Cut - noted as Point 4 on the plan titled EPL 11701 Environmental Monitoring Locations	15	Discharge quality monitoring	Rail Siding south monitoring location - noted as Point 15 on plan titled EPL 11701 Environmental Monitoring Locations	20	Discharge quality monitoring	Rail Siding north monitoring location - noted as Point 20 on the plan titled EPL 11701 Environmental Monitoring Locations,	27	Discharge to waters and quality monitoring	Box Cut / Waste Emplacement monitoring location - noted as Point 27 on plan titled EPL 11701 Environmental Monitoring Locations	30	Ambient water monitoring	Coal Shaft Creek downstream - noted as Point 30 on the plan titled EPL 11701 Environmental Monitoring Locations	31	Ambient water monitoring	"Upstream" in Mammy Johnsons River at gauging board - noted as Point 31 on the plan titled EPL11701 Environmental Monitoring Locations	35	Ambient water monitoring	"Downstream" in Mammy Johnsons River at 'Highnoon' - noted as Point 35 on plan titled EPL 11701 Environmental Monitoring Locations	36	Discharge to waters and discharge quality	Irrigation area catch drain (North Drain) north of Main Water Dam at point of interlock - noted as		The surface water monitoring program for the Duralie Mine operations includes the nominated EPA Points 3, 4, 15, 20, 27, and 30, 31,35, 36 and 37.	Compliant
EPA ID	Type of Monitoring Point	Location Description																																
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EPL 11701	Condition			Verification	Comments	Compliance																					
		monitoring	Point 36 on plan titled EPL 11701 Environmental Monitoring Locations																								
	37	Discharge to waters and discharge quality monitoring	Irrigation area catch drain (South Drain) south of Main Water Dam at point of interlock - noted as Point 37 on plan titled EPL 11701 Environmental Monitoring Locations																								
3	Limit Conditions																										
L1	Pollution of waters																										
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the <i>Protection of the Environment Operations Act 1997</i>			<ul style="list-style-type: none"><i>Protection of the Environment Operations Act 1997</i>, section 120		Noted																					
L2	Concentration limits																										
L2.1	To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table's.					Noted																					
L2.2	For each monitoring/discharge point or utilisation area specified in the table's below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.					Noted																					
L2.3	Water and/or Land Concentration Limits Point 27 <table><tr><th>Pollutant</th><th>Unit of Measure</th><th>100%ile conc</th></tr><tr><td>pH</td><td>pH units</td><td>6.5-8.5</td></tr><tr><td>Electrical Conductivity</td><td>µS/cm</td><td>1326</td></tr><tr><td>Total Suspended Solids</td><td>mg/L</td><td>30</td></tr></table> Points 36 and 37 <table><tr><th>Pollutant</th><th>Unit of Measure</th><th>100%ile conc</th></tr><tr><td>pH</td><td>pH units</td><td>6.5-8.5</td></tr><tr><td>Electrical Conductivity</td><td>µS/cm</td><td>1326</td></tr></table>			Pollutant	Unit of Measure	100%ile conc	pH	pH units	6.5-8.5	Electrical Conductivity	µS/cm	1326	Total Suspended Solids	mg/L	30	Pollutant	Unit of Measure	100%ile conc	pH	pH units	6.5-8.5	Electrical Conductivity	µS/cm	1326			Noted
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L3	Waste																										
L3.1	The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the				No waste generated outside of the Duralie Mine premises are received at the premises.	Compliant																					

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EPL 11701	Condition	Verification	Comments	Compliance																																																																						
	premises to be disposed of at the premises, except as expressly permitted by the licence.																																																																									
L3.2	This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.			Noted																																																																						
L3.3	Except as provided by any other condition of this licence, only the hazardous waste listed below may be generated at and/or stored at the premises. Waste oil generated at and stored on the premises not exceeding 30,000 litres at any time.		Waste oil is generated by Leighton Contractors for the Duralie Mine activities, from the maintenance of vehicles and equipment at the Duralie Workshop. Waste oil does not exceed 30,000 litres at any time.	Compliant																																																																						
L4	Noise limits																																																																									
L4.1	Operational noise from the premises must not exceed: <table><thead><tr><th>Location</th><th>Day LA EQ (15min)</th><th>Evening LA EQ (15 min)</th><th>Night LA EQ (15 min)</th><th>Night LA 1 (1 min)</th></tr></thead><tbody><tr><td>172 -Lyal</td><td>35</td><td>39</td><td>40</td><td>45</td></tr><tr><td>126 –Hannan Pxlalu P/L</td><td>35</td><td>35</td><td>39</td><td>45</td></tr><tr><td>123 –Oleksiuk & Carmady</td><td>35</td><td>35</td><td>39</td><td>45</td></tr><tr><td>176 –Trigg & Holland</td><td>35</td><td>36</td><td>37</td><td>45</td></tr><tr><td>116 -Weismantle</td><td>35</td><td>35</td><td>37</td><td>45</td></tr><tr><td>127 – Fisher-Webster</td><td>35</td><td>35</td><td>37</td><td>45</td></tr><tr><td>131(1) - Relton</td><td>35</td><td>35</td><td>37</td><td>45</td></tr><tr><td>180(1) Thompson</td><td>35</td><td>36</td><td>36</td><td>45</td></tr><tr><td>95 – Smith & Ransley</td><td>35</td><td>35</td><td>36</td><td>45</td></tr><tr><td>144 - Weigosinski</td><td>35</td><td>36</td><td>35</td><td>45</td></tr><tr><td>169 - Williams</td><td>35</td><td>36</td><td>35</td><td>45</td></tr><tr><td>177 - Thompson</td><td>35</td><td>36</td><td>35</td><td>45</td></tr><tr><td>All other privately owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></tbody></table>		Location	Day LA EQ (15min)	Evening LA EQ (15 min)	Night LA EQ (15 min)	Night LA 1 (1 min)	172 -Lyal	35	39	40	45	126 –Hannan Pxlalu P/L	35	35	39	45	123 –Oleksiuk & Carmady	35	35	39	45	176 –Trigg & Holland	35	36	37	45	116 -Weismantle	35	35	37	45	127 – Fisher-Webster	35	35	37	45	131(1) - Relton	35	35	37	45	180(1) Thompson	35	36	36	45	95 – Smith & Ransley	35	35	36	45	144 - Weigosinski	35	36	35	45	169 - Williams	35	36	35	45	177 - Thompson	35	36	35	45	All other privately owned land	35	35	35	45	Quarterly environmental compliance surveys are conducted by Vipac and attended noise monitoring results address the day, evening and night time noise received at the residents are reported to the EPA and summarised in the Annual Return and Annual Review to the DP&E.	Compliant Ongoing
Location	Day LA EQ (15min)	Evening LA EQ (15 min)	Night LA EQ (15 min)	Night LA 1 (1 min)																																																																						
172 -Lyal	35	39	40	45																																																																						
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L4.2	To determine compliance: a) with the Leq(15 minute) noise limits in condition L4.1, the noise measurement equipment must be located: · approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or · within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable · within approximately 50		Ambient noise level measurements are conducted in accordance with the requirements of the EPA (and the Office of Environment and Heritage (OEH)), Australian Standard AS1055-1989, Acoustics Description and Measurement of Environmental Noise, Part 1 General Procedures" and the NSW Industrial Noise Policy (INP).	Compliant																																																																						

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EPL 11701	Condition	Verification	Comments	Compliance
	metres of the boundary of a National Park or a Nature Reserve. b) with the LA1(1 minute) noise limits in condition L4.1, the noise measurement equipment must be located within 1 metre of a dwelling façade. c) with the noise limits in condition L4.1, the noise measurement equipment must be located: · at the most affected point at a location where there is no dwelling at the location; or · at the most affected point within an area at a location prescribed by conditions L4.2(a) or L4.2(b).			
L4.3	For the purpose of condition L4.1; · Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays. · Evening is defined as the period 6pm to 10pm. · Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.		Vipac noise compliance monitoring reports describe operator-attended noise surveys at each monitoring location to quantify ambient noise levels and the contributed levels of noise emitted from current DCM operations, have been conducted for day, evening and night for each monitoring location in accordance with this condition.	Compliant
L4.4	A non-compliance of condition L4.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured: · at a location other than an area prescribed by conditions L4.2(a) and L4.2(b); and/or · at a point other than the most affected point at a location.			Noted
L4.5	For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.	<ul style="list-style-type: none"> Industrial Noise Policy, section 4 		Noted
L4.6	The noise limits listed in L4.1 do not apply if the Licensee has a written agreement with the relevant landowner to exceed these limits, and the Licensee has provided written evidence of this to the EPA.		Duralie Coal has a written agreement with the Mahony in relation to noise attributable to the mine operations.	Compliant
L4.7	For the purposes of determining the noise generated at the premises a Class 1 or 2 noise monitoring equipment as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA in writing, must be used.	<ul style="list-style-type: none"> AS IEC61672.1-2004 AS IEC61672.2-2004 	Vipac Reports section 3.2 describe the instrumentation used for the noise monitoring: Noise measurements were taken with a Bruel & Kjaer (B&K) 2250 integrating sound level meter (SLM), fitted with a B&K 4189 1/2 inch diameter Electret microphone and a windshield. This instrument has performance characteristics within the requirements of Class 1 accuracy in accordance with AS 1259 and AS IEC 61672 and has the capability to measure steady, fluctuating, intermittent and/or impulsive sound, and to compute and display percentile noise levels for the measuring period.	Compliant

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EPL 11701	Condition	Verification	Comments	Compliance
L4.8	The noise limits set out in condition L4.1 apply under all meteorological conditions except for the following: a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or b) Temperature inversion conditions up to 3°C/100m and wind speeds greater than 2 metres/second at 10 metres above ground level; or c) Temperature inversion conditions greater than 3°C/100m.		Meteorological conditions are recorded at the time of any attended noise monitoring conducted at and around the Duralie site. The weather conditions are reported in the noise monitoring reports. Typically at Duralie Coal Mine site, temperature inversion strength and occurrence is determined by utilizing the inversion tower data provided by the Duralie Coal Mine and calculating the lapse rate and Pasquill Stability Categories to conform with requirements of this condition. Refer to comments in section 4.2.4.2 of this audit report in relation to temperature inversion.	Noted
L4.9	Temperature inversion conditions (vertical temperature gradient in degrees C) are to be determined by direct measurement over a minimum 50m height interval as referred to in Part E2 of Appendix E to the NSW Industrial Noise Policy. <i>Note: This condition does not come into force until Pollution Reduction Program 1 is completed.</i>			Noted
L5	Blasting			
L5.1	The overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	<ul style="list-style-type: none"> • 2012 Annual Review Appendix 5 • 2013 Annual Review Appendix 5 • 2014 Annual Review Appendix 5 • Blast Management Plan, 	All blast monitoring result were less than 120dBL except for two blasts at the Mahony (18 October 2013 recorded 121.2dBL and 16 June 2014 127.7dBL). Duralie Coal has a private agreement with Mahony.	Compliant Ongoing
L5.2	The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.		Blast monitoring indicated that less than 5% of total blasts exceeded 115dBL between November 2011 and December 2014.	
L5.3	Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	<ul style="list-style-type: none"> • 2012 Annual Review Appendix 5 • 2013 Annual Review Appendix 5 • 2014 Annual Review Appendix 5 • Blast Management Plan, 	No blast vibration monitoring result exceeded 10mm/s between November 2011 and December 2014.	Compliant Ongoing
L5.4	Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.		No blast vibration monitoring results exceeded 5mm/s ppv between November 2011 and December 2014.	Compliant Ongoing
L5.5	Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec at any time at Mammy Johnsons Grave or exceed 10mm/sec at the former Weismantel's Inn.		No blast vibration monitoring results exceeded 5mm/s ppv at Mammy Johnsons Grave or Weismantels Inn between November 2011 and December 2014.	Compliant Ongoing

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	Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.			
	Blasting operations at the premises may only take place between 9:00am to 5:00pm Monday to Saturday. (Where compelling safety reasons exist, the Authority may permit a blast to occur outside the abovementioned hours. Prior written (or facsimile) notification of any such blast must be made to the Authority).		Any blasting at the Duralie site is carried out during daylight hours between 9am and 5pm, Monday to Saturday, with no blasts conducted on Sundays or public holidays.	Compliant Ongoing
L5.7	Blast monitoring locations (cultural heritage site): The grave site of Mammy Johnson is a noise sensitive receiver and the blast limits specified in conditions L5.1, L5.2 and L5.5 apply at this grave site regardless of ownership, proximity, location or tenure.			Noted
L6	Potentially offensive odour			
L6.1	The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises. <i>Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.</i>	<ul style="list-style-type: none"> Protection of the Environment Operations Act 1997 section 129 	No emission of offensive odour beyond the boundary of the Duralie Coal Mine has been recorded between November 2011 and December 2014.	Compliant Ongoing
4	Operating Conditions			
O1	Activities must be carried out in a competent manner			
O1.1	Licensed activities must be carried out in a competent manner. This includes: a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.			Noted
O2	Maintenance of plant and equipment			
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) must be operated in a proper and efficient manner.		All vehicles and equipment used on the Duralie site is operated by Leighton Contractors and is maintained in the onsite workshop to ensure efficient and operation.	Noted
O3	Dust			
O3.1	Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.		Dust emissions are managed on site with the use of water carts on internal haul roads and management of activities during high wind periods.	Compliant Ongoing

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EPL 11701	Condition	Verification	Comments	Compliance
O3.2	The licensee must implement best practice air quality management on site, including regularly assessing the real-time air quality monitoring and meteorological forecasting and implementing all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated from the premise		real-time air quality monitoring and meteorological forecasting is used onsite to minimise the off-site dust emissions generated from the premise.	Compliant Ongoing
O4	Effluent application to land			
O4.1	Waste water utilisation areas must effectively utilise the waste water applied to those areas. This includes the use for pasture or crop production, as well as ensuring the soil is able to absorb the nutrients, salts, hydraulic load and organic materials in the solids or liquids. Monitoring of land and receiving waters to determine the impact of waste water application may be required by the EPA.			Noted
O4.2	Runoff from Irrigation Areas Runoff from irrigation areas must not be permitted to run to either Coal Shaft Creek downstream of operations or to Mammy Johnsons River if it has an electrical conductivity of greater than 1326 uS/cm or if the electrical conductivity in Mammy Johnsons River at "High Noon" (EPA point 35) is greater than 400uS/cm. <i>Note: Project Approval 08_0203 also allows for runoff from irrigation areas that drain to the unnamed creek north of the premises but only at a salinity level less than the 80th percentile electrical conductivity value for this unnamed creek (prior to irrigation commencing) and if salinity in Mammy Johnsons River is less than 400 uS/cm. There must be no discharge from this irrigation area until this licence has been varied to allow such a discharge.</i>		The release of water from the Type II irrigation area on 18 November 2014 occurred in accordance with the approved Irrigation Management Plan section 4.6 First Flush System, and was not deemed a breach of the EPL 11701 Condition O4.2 (Runoff from irrigation areas). The release incident was notified by Duralie Coal because the EC in Mammy Johnsons River was still above the EPL criteria of 400µS/cm. Hence the release occurred with the discharge water being of better quality than the river, not a release of polluted water from the Duralie Coal Mine Site.	Compliant Ongoing
O4.3	The licensee must keep records showing each occasion that runoff from the irrigation areas was discharged to Coal Shaft Creek and/or Mammy Johnsons River and the corresponding monitoring data recorded at Points 27, 35, 36 and 37 (as is appropriate for each individual discharge point). These records must be tabulated and show the maximum salinity value for each individual discharge event. These tabulated results must be supplied to the EPA annually with the Annual Return.		Records are kept of any event that results in runoff from irrigation areas being discharged to Mammy Johnson River or Coal Shaft Creek, and monitoring data from Points 27, 35, 36 and 37.	Compliant Ongoing
O5	Emergency response			
O5.1	The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the	<ul style="list-style-type: none"> Project Emergency Response Plan (ERP) Leighton (M0052-SH-202) Emergency Management Plan, 8 Apr 2010 	Gloucester Coal / Duralie Coal have an Emergency Management Plan dated 8 April 2010 that applies to response to all activities under the control of Gloucester Coal on its sites. Leighton mining contractors are responsible for response to emergencies in the Duralie mine	Compliant

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EPL 11701	Condition	Verification	Comments	Compliance
	premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.		operations area and have a Project Emergency Response Plan and Environmental Management Plan for the site operations.	
O6	Processes and management			
O6.1	The licensee must ensure any hazardous and/or restricted and/or liquid waste is not mixed with any other type of waste or with any other material.			Noted
O6.2	A wastewater management system must be constructed and utilised to manage the collection, storage, treatment, use and disposal of sewage effluent and other wastewater.		Sewerage effluent and other wastewater from the bath house is treated in a septic system and irrigated to a dedicated area to the south of the administrative building and contractor car park. The irrigation system for the treated effluent is consistent with the EPA Guideline.	Compliant
O6.3	An area must be provided for the use of effluent from the sewage treatment plant. The design of the system must be in accordance with the EPA's Guideline "Utilisation of Treated Effluent by Irrigation."	<ul style="list-style-type: none"> Use of Effluent by Irrigation, DEC Oct 2004 	The disposal of effluent from the sewerage treatment plant occurs to a grassed area adjacent to the Administration buildings in accordance with the EPA Guideline "Utilisation of Treated Effluent by Irrigation."	Compliant
O7	Other operating conditions			
O7.1	Giant Barred Frog Protection from Water Pollution Background Concern has been expressed about the quality of runoff from irrigation areas having an adverse affect on the "Endangered" Giant Barred Frog population within Mammy Johnsons River. Project Approval 08_0203 Condition 30 requires the licensee "shall ensure that the (Duralie Mine Extension) Project has no more than a negligible impact on the local Giant Barred Frog population". Project Approval 08_0203 required a Giant Barred Frog study, to determine baseline information on the local frog population. The Project Approval also required the preparation of a Giant Barred Frog Management Plan which includes the requirement to monitor the local frog population annually and determine if the requirements of condition 30 are being met and a contingency plan if monitoring suggests the Giant Barred Frog population downstream of the confluence of Mammy Johnsons River and Coal Shaft Creek is declining due to the project, which may include a revision of the first flush salinity limits detailed at Condition L2 of this licence.		Refer to comments in Project Approval 08_0203 conditions 31 and 31A, and section 4.11.5 of this audit report. The DP&E Annual Review section 3.10.1 provides a summary of the Giant Barred Frog survey for the 1 July to 30 June period.	Ongoing

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EPL 11701	Condition	Verification	Comments	Compliance
	<p>In order to assess potential impacts of the irrigation activities conducted on the premises, the EPA requires copies of frog monitoring survey reports.</p> <p>Deliverables</p> <p>The licensee must provide with the Annual Return each year a summary of the annual Giant Barred Frog survey compared to previous year's surveys. This summary must be in the form of a table and must aggregate frog numbers for "control sites", "upstream sites in Agricultural Areas", and "downstream sites" for each year and in the same cell provide a +/- percentage value indicating how the frog numbers have compared to the previous year's data. The summary must also include statements from the frog expert employed by the licensee:</p> <ul style="list-style-type: none"> * as to how the age class structure of the frog population downstream of operations compares to the age class structure found in 2011/2012 baseline study, * as to how the juvenile or sub-adult recruitment rates compare to those found in the 2011/2012 baseline study, * if irrigation activities at the premises have caused more than a negligible impact on the local Giant Barred Frog population.O7.2 			
O7.2	<p>Bunding</p> <p>All above ground tanks containing material that is likely to cause environmental harm must be banded or have an alternate spill containment system in place.</p>		All fuel tanks on the Duralie Coal Mine site are banded in accordance with AS1940.	Compliant
O7.3	<p>Noise from Trains</p> <p>The licensee shall only:</p> <ul style="list-style-type: none"> a) dispatch shuttle trains from the site between 6am and 10pm; b) receive shuttle trains on site between 6am and midnight; and c) operate shuttle trains on the North Coast railway between midnight and 1am in exceptional circumstances. <p>The licensee must keep records of the:</p> <ul style="list-style-type: none"> a) number of train movements to and from the site each day; b) date and time of each train movement to the site between 10pm and midnight; and c) instances when the shuttle train is operated on the North Coast railway between midnight and 1am in exceptional circumstances, including the reasons for the exceptional circumstances. <p><i>Note: This condition has been added to be consistent with the Modification of Project Approval 08_0203 issued on 1 November 2012.</i></p> 		<p>Shuttle trains from the Duralie Coal Mine site:</p> <ul style="list-style-type: none"> a) are only dispatched between 6am and 10pm; b) received on site between 6am and midnight; and c) only operate shuttle trains on the North Coast railway between midnight and 1am in exceptional circumstances. <p>Records are kept and available on the Duralie Coal website of the:</p> <ul style="list-style-type: none"> a) number of train movements to and from the site each day; b) date and time of each train movement to the site between 10pm and midnight; and c) instances when the shuttle train is operated on the North Coast railway between midnight and 1am in exceptional circumstances, including the reasons for the exceptional circumstances. 	Compliant Ongoing
5	Monitoring and Recording Conditions			

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EPL 11701	Condition	Verification	Comments	Compliance																
M1	Monitoring records																			
M1.1	The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.			Noted																
M1.2	All records required to be kept by this licence must be: a) in a legible form, or in a form that can readily be reduced to a legible form; b) kept for at least 4 years after the monitoring or event to which they relate took place; and c) produced in a legible form to any authorised officer of the EPA who asks to see them.			Noted																
M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: a) the date(s) on which the sample was taken; b) the time(s) at which the sample was collected; c) the point at which the sample was taken; and d) the name of the person who collected the sample.		Records of samples collected for the purposes of this licence are retained by Duralie Coal: a) date on which the sample was taken; b) time at which the sample was collected; c) point at which the sample was taken; and d) name of the person who collected the sample	Compliant Ongoing																
M2	Requirement to monitor concentration of pollutants discharged																			
M2.1	For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:			Noted																
M2.2	<div>Air Monitoring Requirements Points 8 and 9<table><tr><td>Pollutant</td><td>Unit of Measure</td><td>Frequency</td><td>Sampling Method</td></tr><tr><td>PM₁₀</td><td>µg/m³</td><td>Every 6 days</td><td>24 hour composite sample</td></tr></table> Points 24, 25 and 26<table><tr><td>Pollutant</td><td>Unit of Measure</td><td>Frequency</td><td>Sampling Method</td></tr><tr><td>Particulates - Deposited Matter</td><td>g/m²/mth</td><td>Once a month (min. of 4 weeks)</td><td>AM-19</td></tr></table> Point 32</div>	Pollutant	Unit of Measure	Frequency	Sampling Method	PM ₁₀	µg/m ³	Every 6 days	24 hour composite sample	Pollutant	Unit of Measure	Frequency	Sampling Method	Particulates - Deposited Matter	g/m ² /mth	Once a month (min. of 4 weeks)	AM-19		Air quality monitoring is conducted in accordance with condition M2.2.	Compliant Ongoing
Pollutant	Unit of Measure	Frequency	Sampling Method																	
PM ₁₀	µg/m ³	Every 6 days	24 hour composite sample																	
Pollutant	Unit of Measure	Frequency	Sampling Method																	
Particulates - Deposited Matter	g/m ² /mth	Once a month (min. of 4 weeks)	AM-19																	

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EPL 11701	Condition				Verification	Comments	Compliance
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	Particulates - Deposited Matter	g/m²/mth	Once a month (min. of 4 weeks)	AM-19			
	PM ₁₀	µg/m³	Every 6 days	24 hour composite sample			
	Point 33						
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	PM ₁₀	µg/m³	Continuous	24 hour composite sample			
	Point 34						
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	Particulates - Deposited Matter	g/m²/mth	Once a month (min. of 4 weeks)	AM-19			
	PM ₁₀	µg/m³	Every 6 days	24 hour composite sample			
	Point 33						
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	PM ₁₀	µg/m³	Continuous	24 hour composite sample			
Point 34							
Pollutant	Unit of Measure	Frequency	Sampling Method				
Particulates - Deposited Matter	g/m²/mth	Once a month (min. of 4 weeks)	AM-19				
PM ₁₀	µg/m³	Every 6 days	24 hour composite sample				
M2.3	Water and/ or Land Monitoring Requirements						
	Points 3 and 4					Water quality monitoring is conducted in accordance with condition M2.3.	Compliant Ongoing
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	EC	µS/cm	Once a month (min. of 4 weeks)	Grab sample			
	pH	pH					
	TSS	mg/L					
	Points 15						
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	TSS	mg/L	Each overflow event	Grab sample			
	Point 20						

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EPL 11701	Condition				Verification	Comments	Compliance
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	TSS	mg/L	Each overflow event	Grab sample			
	Point 27, 30 and 31						
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	EC	µS/cm	Special Frequency 1	Grab sample			
	pH	pH	Special Frequency 1				
	TSS	mg/L	Special Frequency 1				
	Point 35, 36 and 37						
	Pollutant	Unit of Measure	Frequency	Sampling Method			
	EC	µS/cm	Continuous	Grab sample			
	pH	pH	Special Frequency 1				
	TSS	mg/L	Special Frequency 1				
	Note: For the purposes of the tables above: Special frequency 1 means: a) A sample taken monthly; and b) A sample taken daily during any discharges (overflows) from discharge points 27, 36 and 37.						
M3	Testing methods - concentration limits						
M3.1	Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with: a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.						Noted

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EPL 11701	Condition	Verification	Comments	Compliance
	<i>Note: The Protection of the Environment Operations (Clean Air) Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".</i>			
M3.2	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.			Noted
M4	Environmental monitoring			
M4.1	To determine compliance with the Noise Limits conditions shown in this licence attended monitoring must be undertaken in accordance with the Noise Limits conditions of this licence and a) At the four (4) nearest non mine owned noise affected premises listed in the Noise Limits conditions of this licence, (not subject to a private agreement) where agreement between the licensee and the affected landowner to carry out noise monitoring is possible. b) At each one of the locations listed in the Noise Limits conditions of this licence if a complaint is received by the licensee, or the EPA regarding noise and an authorised officer of the EPA requests monitoring at that site; c) Quarterly beginning 1 January each year, during each evening and night period as defined in the Noise Limits conditions of this licence.	<ul style="list-style-type: none"> Environmental Quarterly Survey, October 2014,Vipac Environmental Quarterly Survey, July 2014,Vipac Environmental Quarterly Survey, April 2014,Vipac Environmental Quarterly Survey, January 2014,Vipac Environmental Quarterly Survey, October 2013,Vipac Environmental Quarterly Survey, July 2013,Vipac Environmental Quarterly Survey, April 2013,Vipac Environmental Quarterly Survey, January 2013,Vipac Environmental Quarterly Survey, October 2012,Vipac 	Attended noise monitoring is conducted , during each evening and night period, quarterly by Vipac in accordance with the Noise Management Plan, at the nearest non-mine owned residences.	Compliant
M5	Weather monitoring			
M5.1	For each monitoring point specified below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure and sample at the frequency specified opposite in the other columns.			Compliant

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EPL 11701	Condition			Verification		Comments	Compliance
	Parameter	Unit of Measure	Frequency	Averaging Period	Sampling Method	<p>A meteorological monitoring station has been established on the Duralie Coal Mine site on the hill above the Auxiliary Dam 1. Additional supplementary towers for temperature inversion monitoring have also been established.</p> <p>The meteorological monitoring station includes units to monitor each of the required parameters.</p>	
	Air Temperature	° Celsius	Continuous	1 hour	AM-4		
	Wind direction	Degrees	Continuous	15 minute	AM-2 &AM-4		
	Wind speed	m/s	Continuous	15 minute	AM-2 &AM-4		
	Sigma Theta	Degrees	Continuous	15 minute	AM-2 &AM-4		
	Rainfall	Mm	Continuous	15 minute	AM-4		
	Relative Humidity	%	Continuous	1 hour	AM-4		
	Temperature lapse over a minimum vertical height interval of 50m	° Celsius	Continuous	1 hour	AM-4		
M6	Recording of pollution complaints						
M6.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.						Noted
M6.2	<p>The record must include details of the following:</p> <p>a) the date and time of the complaint;</p> <p>b) the method by which the complaint was made;</p> <p>c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;</p> <p>d) the nature of the complaint;</p> <p>e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and</p> <p>f) if no action was taken by the licensee, the reasons why no action was taken.</p>			<ul style="list-style-type: none"> Complaints Register s 2012 to 2014 		<p>All complaints are recorded in the Complaints Register with:</p> <p>a) date and time of the complaint;</p> <p>b) method by which the complaint was made;</p> <p>c) personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;</p> <p>d) nature of the complaint;</p> <p>e) action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and</p> <p>f) if no action was taken by the licensee, the reasons why no action was taken.</p>	Compliant Ongoing
M6.3	The record of a complaint must be kept for at least 4 years after the complaint was made.					All records of a complaint are retained by Duralie in the Complaints Register.	Compliant
M6.4	The record must be produced to any authorised officer of the EPA who asks to see them.						Noted
M7	Telephone complaints line						
M7.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to					A dedicated complaints telephone number - 1300 788 131 - is available 24 hours per day. The number is advertised within the Sensis White Pages	Compliant

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EPL 11701	Condition	Verification	Comments	Compliance
	activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.		Directory (Newcastle), a local telephone directory (Pink Pages) and in the local newspapers (Gloucester Advocate and Dungog Chronicle) on a six monthly basis.	
M7.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.			
M7.3	The preceding two conditions do not apply until 3 months after: a) the date of the issue of this licence or b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.			Noted
M8	Blasting			
M8.1	All blast shots must be recorded on video from a position allowing the collars of the shot, and where possible, any face, and/or toe, to be seen on the video. The licensee must retain a copy of this video for at least 12 months after the blast was initiated.		Video monitoring of blasts on-site occurs in accordance with EPL condition M8.1. Each blast is recorded on video from a position allowing the collars of the shot, and where possible, any face, and/or toe, to be seen on the video. A copy of each video is retained by Duralie Coal for at least 12 months after the blast was initiated.	Compliant
M8.2	The licensee must monitor overpressure level and ground vibration peak particle velocity from blasting undertaken in, or on the premises, at each of the following locations: a) Land owned by E and V Shultz shown as AB1 on plan titled "EPL11701 Environmental Monitoring Locations", a copy of which has been filed on EPA file LIC07/10-14; b) Land owned by A Fisher-Webster shown as AAAB3 on plan titled "EPL11701 Environmental Monitoring Locations", a copy of which has been filed on EPA file LIC07/10-14; c) Land owned by P Moylan shown as AAAB4 on plan titled "EPL11701 Environmental Monitoring Locations", a copy of which has been filed on EPA file LIC07/10-14. Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.	<ul style="list-style-type: none"> Blast Monitoring Results 2011 to 2014 	Blast monitoring is conducted at the nominated locations plus identified in condition M8.2 plus vibration monitoring at the former Weismantels Inn: <ul style="list-style-type: none"> E and V Schultz residence (AB1), Bucketts Way (south west of mine); Fisher-Webster residence (AAAB3), Martins Crossing Road; Mahony residence (AAAB2), Monkerai Road; and ground vibration at the former Weismantels Inn 	Compliant
M9	Other monitoring and recording conditions			
M9.1	A Noise Compliance Assessment Report must be submitted to the EPA within 30 days of the completion of the quarterly monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant which: a) Assesses compliance with the noise limits included at condition L5.1; and	<ul style="list-style-type: none"> Duralie Coal Mine Environmental Quarterly Survey, Vipac, Oct 2014 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Jul 2014 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Apr 2014 	Noise Compliance Assessment Reports conducted quarterly by Vipac Engineers and Scientists have been prepared and submitted to the EPA within 30 days of completion of the reports. a) section 6.2 of the reports assess compliance with the noise limits included at condition L5.1; and	Compliant

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EPL 11701	Condition	Verification	Comments	Compliance
	b) Outlines any management actions taken within the monitoring period to address any exceedances of the limits contained in condition L5.1.	<ul style="list-style-type: none"> Duralie Coal Mine Environmental Quarterly Survey, Vipac, Jan 2014 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Oct 2013 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Jul 2013 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Apr 2013 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Jan 2013 Duralie Coal Mine Environmental Quarterly Survey, Vipac, Oct 2012 	b) Outlines management actions taken within the monitoring period to address any exceedances of the limits contained in condition L5.1.	
6	Reporting Conditions			
R1	Annual return documents			
R1.1	The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: a) a Statement of Compliance; and b) a Monitoring and Complaints Summary. At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.		Annual Returns have been prepared on the approved forms comprising a Statement of Compliance and a Monitoring and Complaints Summary at the end of each reporting period.	Compliant
R1.2	An Annual Return must be prepared in respect of each reporting period, except as provided below.		Annual Returns have been prepared for each reporting period.	Compliant
R1.3	Where this licence is transferred from the licensee to a new licensee: a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period. <i>Note: An application to transfer a licence must be made in the approved form for this purpose.</i>			Not applicable
R1.4	Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on: a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.			Not applicable

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Duralie Coal Mine

EPL 11701	Condition	Verification	Comments	Compliance
R1.5	The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').		Annual Returns for each reporting period has been supplied to the EPA within 60 days of the end of the reporting period (i.e. 4 September to the following 3 September)	Compliant
R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.		A copy of the Annual Return if retained by Duralie Coal in the Environment Files.	Compliant Ongoing
R1.7	Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder.		Within the Annual Return, the Statement of Compliance has been certified and the Monitoring and Complaints Summary has been signed by the licence holder.	Compliant Ongoing
R2	Notification of environmental harm			
R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.			Noted
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.			Noted
R3	Written report			
R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: a) where this licence applies to premises, an event has occurred at the premises; or b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.		<p>During the reporting period the EPA requested reports on the following complaints which were received via the EPA hotline:</p> <ul style="list-style-type: none"> Noise complaint received directly by Duralie Coal Mine on 7th May 2014, and via NSW EPA on 6th May 2014. Blast fume complaint received via NSW EPA and reported to Duralie Coal Mine on 19th May 2014, regarding a blast on 5-May-2014. Noise complaint received directly by Duralie Coal Mine and via NSW EPA on Wednesday 21st May 2014. Two dust complaints received via NSW EPA and advice provided to Duralie Coal on Wednesday 21st May 2014. As requested by the EPA the two complaints were addressed in this single report. 	Noted
R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request..			Noted
R3.3	The request may require a report which includes any or all of the following information: a) the cause, time and duration of the event; b) the type, volume and concentration of every pollutant discharged as a result of the event; c) the name, address and business hours telephone number of employees or agents of the licensee, or a		The incident reports provided by Duralie Coal to the EPA have a description of: a) the cause, time and duration of the event; b) type pollutant discharged as a result of the event; c) name, address and business hours telephone number of employee/person who witnessed the event;	Compliant Ongoing

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Duralie Coal Mine

EPL 11701	Condition	Verification	Comments	Compliance
	specified class of them, who witnessed the event; d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and g) any other relevant matters.		d) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; f) details of measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and g) any other relevant matters.	
R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.			Noted
7	General Conditions			
G1	Copy of licence kept at the premises or plant			
G1.1	A copy of this licence must be kept at the premises to which the licence applies.		A copy of the EPL is available on the site.	Compliant
G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.			Noted
G1.3	The licence must be available for inspection by any employee or agent of the licensee working at the premises.			Noted
8	Pollution Studies and Reduction Programs			
U1	PRP 1 Weather Monitoring			
U1.1	The licensee must ensure there is a suitable meteorological station operating on the premises that; a) Complies in all respects with the requirements of the Approved Methods for Sampling of Air Pollutants in NSW; and b) Is capable of continuous real-time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy. Completion date - 28 February 2012. The licensee must ensure there is a suitable meteorological station operating on the premises that; a) Complies in all respects with the requirements of the Approved Methods for Sampling of Air Pollutants in NSW; and b) Is capable of continuous real-time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy. Completion date - 28 February 2012.		Refer to EPL condition M5.1 A meteorological monitoring station has been established on the Duralie Coal Mine site on the hill above the Auxiliary Dam 1. Additional supplementary towers for temperature inversion monitoring have also been established. The meteorological monitoring station includes units to monitor each of the required parameters.	Compliant

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Duralie Coal Mine

EPL 11701	Condition	Verification	Comments	Compliance
U2	Particulate Matter Control Best Practice Implementation – Wheel Generated Dust			
U2.1	The Licensee must achieve and maintain a dust control efficiency of 80% or more on all active haul roads by 22 March 2013. Control efficiency is calculated as: CE = E (uncontrolled) - E (controlled) x 100 E (uncontrolled) Where E = the emission rate of the activity			Noted
U2.2	To assess compliance with Condition U2.1, the Licensee must: <ul style="list-style-type: none"> measure uncontrolled and controlled haul road emissions on at least 3 occasions using a mobile dust monitoring system; continuously measure and record 'additional site data' including: <ul style="list-style-type: none"> vehicle movement routes, including loaded weight direction, number of vehicle movements vehicle weights, vehicle speed, procedural information on the method of watering, meteorological conditions, and water and suppressant application time, duration, rate and volume, determine if a site specific relationship can be derived between the measured control efficiency and the additional site data. <p>The measurement of uncontrolled and controlled haul road PM10 emissions must be undertaken under varying meteorological conditions, including at those times when analysis of meteorological data indicates that elevated levels of dust are most likely at the Premises.</p> <p><i>Note: The EPA acknowledges that in order to determine uncontrolled PM10 emissions, the section of haul road to be sampled will need to be left untreated for a period of up to 48 hours prior to the sampling taking place.</i></p>	<ul style="list-style-type: none"> Duralie Coal Mine PRP U2 Monitoring Plan - Wheel Generated Dust, July 2014 	<p>Pacific Environment Limited prepared the Wheel Generated Dust report that addressed:</p> <ul style="list-style-type: none"> PM₁₀ emissions from haul roads were measured using the mobile system REX (Road Emissions eXpert). REX measures the concentration of PM from vehicles travelling on unpaved roads. By comparing data collected from haul roads with and without controls, control efficiencies can be calculated. In this way, REX can measure the average control efficiency (%) for each haul road section. All active haul roads are sampled and a number of circuits are completed on the day of sampling. A section of road is left uncontrolled for at least 12 hours prior to sampling and this is also sampled during each circuit. meteorological conditions are continuously measured at the onsite weather station during the monitoring periods. The data collected at DCM generally supports some of the conclusions drawn in from the ACARP study in relation to meteorological conditions. Namely that particular attention should be paid to haul road management measures when any of the following meteorological conditions are present or predicted: <ul style="list-style-type: none"> Temperatures are above 25 oC. Relative humidity is 40% or below. Solar radiation is 600 W/m2 or above. 	Compliant
U2.3	The Licensee must submit a report to the EPA which documents the results of the assessment undertaken in accordance with Condition U2.1. The report must include an assessment of: <ul style="list-style-type: none"> the dust control effectiveness, the dust levels recorded, and 		Wheel Generated Dust Monitoring Plan was prepared by Pacific Environment Limited on 27 July 2014 and submitted to the PA prior to 15 August 2014. The report describes the direct measurements of haul road dust control efficiency completed over three seasons, Spring, Summer and Autumn.	Compliant

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EPL 11701	Condition	Verification	Comments	Compliance
	<ul style="list-style-type: none"> any relationship established between control effectiveness and the additional site data. <p>The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager Hunter, at PO Box 488G, NEWCASTLE by 15 August 2014.</p>		<p>The report concluded that:</p> <p>By increasing the watering rate on 21 January 2013, when elevated temperatures resulted in dustier conditions, Duralie Coal Mine maintained a high level of haul road control efficiency. Existing standard operating practices are therefore sufficient to achieve haul road control efficiency targets outlined in EPL 11701 Condition U2.</p>	
U2.4	<p>The report required by condition U2.3 must be made publicly available by the Licensee on the Licensee's website by 29 August 2014.</p>	<ul style="list-style-type: none"> Duralie Coal Mine PRP U2 Monitoring Plan - Wheel Generated Dust, 27 July 2014 	<p>The Particulate Matter Control Best Practice Implementation – Wheel Generated Dust Monitoring Plan was prepared by Pacific Environment Limited on 27 July 2014 and made available on the Duralie Coal website.</p>	Compliant
U3	Particulate Matter Control Best Practice Implementation – Disturbing and Handling Overburden under Adverse Weather Conditions			
U3.1	<p>The licensee must alter or cease the use of equipment on overburden and the loading and dumping of overburden during adverse weather conditions to minimise the generation of particulate matter from 22 March 2013.</p>	<ul style="list-style-type: none"> Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, 31 May 2013 		Noted
U3.2	<p>To assess compliance with Condition U3.1, the Licensee must:</p> <ul style="list-style-type: none"> Monitor operational activities (location and intensity of overburden handling activities) to determine if adverse conditions will result in unacceptable dust levels beyond the site boundary. Measure the dust (PM10) concentration at Monitoring Point 33 to determine if the adverse conditions are resulting in elevated dust concentrations beyond the site boundary and also to determine if the alteration / cessation decreased these dust levels. Document the actions taken and the resultant dust levels. 	<ul style="list-style-type: none"> Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, 31 May 2013 	<p>The Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, was prepared by Pacific Environment Limited on 31 May 2013. Section 3 of the report addresses:</p> <ul style="list-style-type: none"> monitoring of operational activities (location and intensity of overburden handling activities) to determine if adverse conditions will result in unacceptable dust levels beyond the site boundary; measurement of the PM10 concentration at Monitoring Point 33 to determine if the adverse conditions are resulting in elevated dust concentrations beyond the site boundary; and documents action taken during adverse weather conditions. 	Compliant
U3.3	<p>The Licensee must submit a report to the EPA which documents the results of the actions taken in accordance with Condition U3.1. The report must include an assessment of the effectiveness of changes made to mining activities due to adverse weather and document meteorological conditions and the resultant dust levels. The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager Hunter, at PO Box 488G, NEWCASTLE by 15 August 2014.</p>	<ul style="list-style-type: none"> Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, 31 May 2013 	<p>The Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, was prepared by Pacific Environment Limited on 31 May 2013, and the document was submitted to the EPA prior to 15 August 2014.</p>	Compliant

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Duralie Coal Mine

EPL 11701	Condition	Verification	Comments	Compliance
U3.4	The report required by Condition U3.3 must be made publicly available by the Licensee on the Licensee's website by 29 August 2014 .	<ul style="list-style-type: none"> Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, 31 May 2013 	The Duralie Coal Mine PRP U3 Monitoring Plan – Overburden Handling and Adverse Weather, prepared by Pacific Environment Limited on 31 May 2013 was made publically available on the Duralie Coal website prior to 29 August 2014.	Compliant
U4	Particulate Matter Control Best Practice Implementation - Trial of Best Practice Measures for Disturbing and Handling Overburden			
U4.1	<p>The Licensee must submit a report documenting an investigation and trial of best practice measures for the control of particulate matter from the use of equipment on overburden and the loading and dumping of overburden. Best practice measures may include, but should not be limited to, the following:</p> <ul style="list-style-type: none"> • use of foggers; • use of water sprays; and • reduction of drop heights. <p>The report must document the investigation and trial of each best practice measure. It must quantify the particulate matter control effectiveness and discuss the practicability of each best practice measure.</p> <p>The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager Hunter, at PO Box 488G, NEWCASTLE by 14 April 2014.</p>	<ul style="list-style-type: none"> Duralie Coal Mine PRP U4 Trial of Best Practice for Disturbing and Handling Overburden, 29 July 2014 	<p>The Duralie Coal Mine PRP U4 Trial of Best Practice for Disturbing and Handling Overburden report was prepared by Pacific Environment Limited documenting an investigation and trial of best practice measures for the control of particulate matter from the use of equipment on overburden and the loading and dumping of overburden. Best practice measures may include, but should not be limited to, the following:</p> <ul style="list-style-type: none"> • use of foggers; • use of water sprays; and • reduction of drop heights. <p>A preliminary report was submitted on 17 April 2014 and the final report following further correspondence was submitted 29 July 2014.</p> <p>The submission of the document to the EPA occurred after the due date of 14 April 2014.</p>	Compliant

Attachment C

Mining Lease 1427 and 1646

Environmental management conditions 2 -7, 10, and 12 to 15

ML No.	Condition	Verification	Comments	Compliance
2	Environmental Harm (a) The lease holder must implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of any activities under this lease. (b) For the purposes of this condition: (i) environment means components of the earth, including: land, air and water, and any layer of the atmosphere, and any organic or inorganic matter and any living organism, and human-made or modified structures and areas, and includes interacting natural ecosystems that include components referred to in paragraphs (A)—(C). (ii) harm to the environment includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution, contributes to the extinction or degradation of any threatened species, populations or ecological communities and their habitats and causes impacts to places, objects and features of significance to Aboriginal people.			Noted
3	Mining Operations Plan (a) Mining operations must not be carried out otherwise than in accordance with a Mining Operations Plan (MOP) which has been approved by the Director-General. (b) The MOP must: (i) identify areas that will be disturbed by mining operations; (ii) detail the staging of specific mining operations; (iii) identify how the mine will be managed to allow mine closure;	Guidelines document GUI.08060002, Department of Mineral Resources (DMR) Mining Operations Plan, Dec 2010 to 31Dec 2017 Letter to DII re Rehabilitation Security Deposit, December 2010	The Mining Operations Plan for December 2010 to December 2017 was approved on 20 May 2011: (a) Mining Operation Plan was prepared for the Duralie Open Cut Coal Mine, Mining Lease (ML) 1427 and Mining Lease Application (MLA) 359 on 1 December 2010, and submitted to DII on 2 December 2010. (b) The MOP addresses each of the requirements of condition 3(b): i. Section1.2 – Proposed and Future Operations	Compliant

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Duralie Coal Mine

ML No.	Condition	Verification	Comments	Compliance
	<p>(iv) identify how mining operations will be carried out in order to prevent and or minimise harm to the environment;</p> <p>(v) reflect the conditions of approval under:</p> <ul style="list-style-type: none"> the Environmental Planning and Assessment Act 1979 the Protection of the Environment Operations Act 1997 and any other approvals relevant to the development including the conditions of this lease; and have regard to any relevant guidelines adopted by the Director-General. <p>(c) The leaseholder may apply to the Director-General to amend an approved MOP at any time.</p> <p>(d) It is not a breach of this condition if:</p> <p>(i) the operations constituting the breach were necessary to comply with a lawful order or direction given under the Mining Act 1992, the Environmental Planning and Assessment Act 1979, Protection of the Environment Operations Act 1997, Mine Health and Safety Act 2004 / Coal Mine Health and Safety Act 2002 and Mine Health and Safety Regulation 2007 / Coal Mine Health and Safety Regulation 2006 or the Occupational Health and Safety Act 2000; and</p> <p>(ii) the Director-General had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.</p> <p>(e) A MOP ceases to have effect 7 years after date of approval or other such period as identified by the Director-General</p>		<p>ii. Section 3 - Proposed Mining Activities</p> <p>iii. Section 5 – Final Rehabilitation</p> <p>iv. Section 7 – Environmental Management Controls</p> <p>(c) Amended Plans for the mining operations were submitted to the Director-General when the Duralie Extension Project changes to the mine were proposed.</p>	
4	<p>Environment Management Report</p> <p>(a) The lease holder must lodge Environmental Management Reports (EMR) with the Director-General annually or at dates otherwise directed by the Director-General.</p> <p>(b) The EMR must:</p> <ul style="list-style-type: none"> report against compliance with the MOP; report on progress in respect of rehabilitation completion criteria; report on the extent of compliance with regulatory requirements; and have regard to any relevant guidelines adopted by the Director-General. 	<p>2008-2009 AEMR</p> <p>2009-2010 AEMR</p> <p>2010-2011 AEMR</p> <p>2011 Annual Review</p> <p>2012 Annual Review</p> <p>2013 Annual Review</p> <p>2014 Annual Review</p>	<p>The Annual Environmental Management Reports were prepared by Duralie Coal Mine until 211 when the Annual Review Reports as determined by DP&I were submitted annually to the Director-General to address the requirements of this ML condition.</p>	Compliant
5	<p>Environmental Incident Report</p> <p>(a) The lease holder must report any environmental incidents. The report must:</p>			

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Duralie Coal Mine

ML No.	Condition	Verification	Comments	Compliance												
	<ul style="list-style-type: none">be prepared according to any relevant Departmental guidelines;be submitted within 24 hours of the environmental incident occurring: (b) For the purposes of this condition, environmental incident includes: <ul style="list-style-type: none">any incident causing or threatening material harm to the environmentany breach of Conditions 1 to 9 and 11 to 24;any breach of environment protection legislation; or,a serious complaint from landholders or the public. (c) For the purposes of this condition, harm to the environment is material if: <ul style="list-style-type: none">(i) it involves actual or potential harm to the health or safety of human beings, or to ecosystems that is not trivial, or(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, where loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment															
6	Additional Environmental Reports Additional environmental reports may be required from time to time as directed in writing by the Director-General and must be lodged as instructed.			Noted												
7	Rehabilitation Any disturbance as a result of activities under this lease must be rehabilitated to the satisfaction of the Director-General.	<ul style="list-style-type: none">Duralie Mine MOP and Amendments	Duralie carries out rehabilitation of disturbed areas and reports annually on the status of rehabilitation and the proposed rehabilitation plan for the next 12 months in the Annual Environmental Management Reports and Annual Reviews.	Compliant Ongoing												
	Blasting															
10	<p>(a) Ground Vibration</p> <p>The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Environment, Climate Change and Water.</p> <p>(b) Blast Overpressure</p> <p>The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB</p>	<ul style="list-style-type: none">Blast Management Plan, Jun 2013Explosives Management Plan (M0052-SH-208, Leightons Contractors, 13 Jul 2011Drill and Blast Instruction, (M0052), Leightons ContractorsCode of Good Practice, Prevention and Management of Blast Generated NOx Gases in Surface Blasting, Australian Explosives Industry and Safety Group Inc, Jun 2011	<p>Ground Vibration</p> <p>No vibration over 5mm/s resulting from blasts from the Duralie Coal Mine operations has been detected at any of the sites monitored between 2011 and 2014.</p> <p>Airblast Overpressure</p> <p>The Shultz, Bailey, Hattam and Holmes properties have been purchased by Duralie Coal. Relocation of the blast monitors to privately owned properties to address this condition, was submitted to OEH for a Variation of the EPL condition M9.1 nominated sites.</p> <table><tr><th>Date</th><th>Airblast Overpressure</th><th>Vibration</th></tr><tr><td></td><td>>115dBL</td><td>>120dBL</td></tr><tr><td></td><td></td><td>>5mm/s</td></tr><tr><td></td><td></td><td>>10mm/s</td></tr></table>	Date	Airblast Overpressure	Vibration		>115dBL	>120dBL			>5mm/s			>10mm/s	Compliant
Date	Airblast Overpressure	Vibration														
	>115dBL	>120dBL														
		>5mm/s														
		>10mm/s														

Independent Environmental Audit 2014

Duralie Coal Mine

ML No.	Condition	Verification	Comments	Compliance																				
	(linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Environment, Climate Change and Water.	<ul style="list-style-type: none"> Blast Monitoring Results 2011 Blast Monitoring Results 2012 Blast Monitoring Results 2013 Blast Monitoring Results 2014 	<table border="1"> <tr> <td>2014</td><td>8 (7 at Mahony and 1 at Fischer)</td><td>1 (121.2dBL Mahony)</td><td>0</td><td>0</td></tr> <tr> <td>2013</td><td>2</td><td>0</td><td>0</td><td>0</td></tr> <tr> <td>2012</td><td>2</td><td>0</td><td>4</td><td>0</td></tr> <tr> <td>2011</td><td>7</td><td>0</td><td>3</td><td>0</td></tr> </table> <p>No blast overpressure exceeding 120dBL has occurred at any privately owned properties between 2011 and 2014.</p>	2014	8 (7 at Mahony and 1 at Fischer)	1 (121.2dBL Mahony)	0	0	2013	2	0	0	0	2012	2	0	4	0	2011	7	0	3	0	
2014	8 (7 at Mahony and 1 at Fischer)	1 (121.2dBL Mahony)	0	0																				
2013	2	0	0	0																				
2012	2	0	4	0																				
2011	7	0	3	0																				
12	Prevention of soil erosion and pollution Prospecting operations must be carried out in a manner that does not cause or aggravate air pollution, water (including groundwater) pollution, soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan	<ul style="list-style-type: none"> Mining Lease1427 Mining Lease1646 Exploration Licence 311 and 315 Audit , Trevor Brown & Associates, October 2011 	Exploration activities conducted on behalf of Duralie Coal were audited in 2011 as part of the Audit of Exploration Licences in NSW program implemented by NSW Department of Resources and Energy. The audit of the Exploration Licence conditions for Mining Leases 1427 and 1646 concluded that the exploration activities were generally compliant with the requirements of the Exploration Licence conditions.	Compliant																				
13	Transmission lines, Communication lines and Pipelines Operations must not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility on the lease area without the prior written approval of the Director-General and subject to any conditions stipulated.		Activities within the ML areas of the Duralie Coal Mine have not interferes with the stability or efficiency of any transmission lines, communication lines, pipelines or any other utility during the 2011 to 2014 period	Compliant																				
14	Roads and Tracks (a) The lease holder must pay to the relevant roads authority in control of the road or track the reasonable costs incurred by the roads authority in making good any damage to roads or tracks caused by operations carried out under this lease less any amount paid or payable from the Mine Subsidence Compensation Fund. (b) During wet weather the use of any road or track must be restricted so as to prevent damage to the road or track. (c) Existing access tracks should be used for all operations where reasonably practicable. New access tracks must be kept to a minimum and be positioned in order to minimise damage to the land, watercourses or vegetation. (d) Temporary access tracks must be rehabilitated and revegetated to the satisfaction of the Director-General as soon as reasonably practicable after they are no longer required under this lease	<ul style="list-style-type: none"> Project Approval – Duralie Extension Project, Application No. 08-0203, 26 Nov 2010 	Contributions to the Great Lakes Council and Gloucester Shire Council have been made in accordance with the requirements of Project Approval condition schedule 2 numbers 16 and 17 issued by the Minister for Planning on 26 November 2010. Refer to Project Approval Schedule 2 condition 16.	Compliant Ongoing																				
15	Trees and Vegetation (a) The lease holder must not fell trees, strip bark or cut timber on any land subject of this lease without the consent of the landholder who is entitled to the use of the timber.	<ul style="list-style-type: none"> Rehabilitation Management Plan, section 5.4, May 2013 Biodiversity Management Plan, section 5.4, Sep 2013 	Any vegetation clearance on the Duralie Mine site is conducted under the Duralie Coal Vegetation Clearance Protocol. The protocol requires assessment of any area to be cleared for threatened	Compliant Ongoing																				

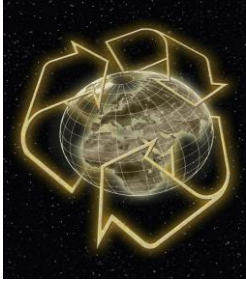
Independent Environmental Audit 2014

Duralie Coal Mine

ML No.	Condition	Verification	Comments	Compliance
	(b) The lease holder must contact Forests NSW and obtain any required permit, licence or approval before taking timber from any Crown land within the lease area. <i>Note: Any clearing not authorised under the Act must comply with the requirements of the Native Vegetation Act 2003. Any clearing or taking of timber on Crown land is subject to the requirements of the Forestry Act 1916.</i>	<ul style="list-style-type: none">Vegetation Clearance Protocol, Sep 2013	flora and fauna and sign-off by the Environment Manager.	

Appendix 1

Agency Consultation Letters



TREVOR BROWN & ASSOCIATES

Applied Environmental Management Consultants

TBA Ref :Yancoal/14/11

03 November 2014

Environmental Management

ISO14000 EMS development

EMP preparation

EMS Implementation

Environmental audits

Due Diligence Audits

Compliance Audits

Environmental Risk
Assessment

Environmental Training

Environmental Workshops

Environmental Project
Management

for

Mining

Construction

Industry

Government

Small-Medium Enterprises

Department of Planning and Environment

Attention: Wayne Jones

Dear Wayne

Independent Environmental Audit – Duralie Coal Mine Project and Stratford Coal Complex Projects

I have been endorsed as Lead Auditor by the Department of Planning and Environment (DP&E) in accordance with Project Approvals Schedule 7 Condition 7 for the conduct of an Independent Environmental Audit of Duralie Coal Mine Project and Stratford Coal Complex Project, as determined by the DP&E 22 October 2014.

The independent audit will assess the current environmental status of the development of the Duralie Coal Mine Project and Stratford Coal Complex Project and compliance with the requirements of Project Approvals, Environmental Protection Licences, and the environmental management plans prepared to satisfy the conditions of the Project Approval. The audit will also involve a review of the adequacy of strategies, plans and programs prepared under the abovementioned approvals and, where necessary, recommend appropriate measures or actions to improve the environmental performance of the project.

The audit will be comprehensive however, if there are any particular environmental aspects that you would like the audit to take into consideration, please contact me via email before the 17 November 2014.

Yours sincerely

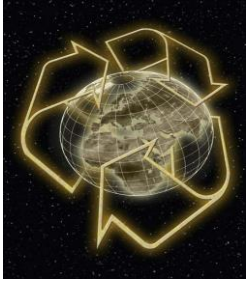
3 November 2014

Trevor Brown
Principal Environmental Management Auditor

Trevor Brown & Associates

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Mobile 0409 053 031

Email: tebrown@bigpond.com



TREVOR BROWN & ASSOCIATES

Applied Environmental Management Consultants

TBA Ref :Yancoal/14/11

03 November 2014

Environmental Management

ISO14000 EMS development

EMP preparation

EMS Implementation

Environmental audits

Due Diligence Audits

Compliance Audits

Environmental Risk
Assessment

Environmental Training

Environmental Workshops

Environmental Project
Management

for

Mining

Construction

Industry

Government

Small-Medium Enterprises

Office of Environment and Heritage

Attention: Steve Lewer

Dear Steve

Independent Environmental Audit – Duralie Coal Mine Project and Stratford Coal Complex Projects

I have been endorsed as Lead Auditor by the Department of Planning and Environment (DP&E) in accordance with Project Approvals Schedule 7 Condition 7 for the conduct of an Independent Environmental Audit of Duralie Coal Mine Project and Stratford Coal Complex Project, as determined by the DP&E 22 October 2014.

The independent audit will assess the current environmental status of the development of the Duralie Coal Mine Project and Stratford Coal Complex Project and compliance with the requirements of Project Approvals, Environmental Protection Licences, and the environmental management plans prepared to satisfy the conditions of the Project Approval. The audit will also involve a review of the adequacy of strategies, plans and programs prepared under the abovementioned approvals and, where necessary, recommend appropriate measures or actions to improve the environmental performance of the project.

The audit will be comprehensive however, if there are any particular environmental aspects that you would like the audit to take into consideration, please contact me via email before the 17 November 2014.

Yours sincerely

3 November 2014

Trevor Brown
Principal Environmental Management Auditor

Trevor Brown & Associates

42 Skiff Street Vincentia NSW 2540
Mobile 0409 053 031

Email: tebrown@bigpond.com

Response from EPA 27/11/2014

Dear Trevor,

I refer to your email of 3 November 2014 regarding the independent environmental audit of the Duralie Coal Mine Project and Stratford Coal Complex Projects.

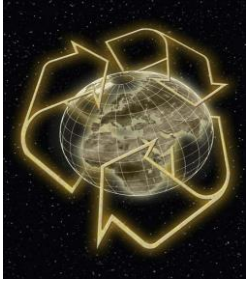
OEH was in the process of reviewing the Duralie Giant Barred Frog Management Plan which is a requirement of the original Project Approval, and just today had a meeting to source expert technical advice in order to clarify a considerable number of matters which we have concerns about. OEH will provide you with a letter within three weeks outlining the concerns we have with the Monitoring Project to date. However, the following is a brief summary of OEH's concerns:

1. There are numerous errors and inconsistencies within and between the various reports. For example, statistical analysis methods vary between Reports; Monitoring sites are assigned to different Survey Areas for different Survey Seasons; stated population abundance estimates, such as the sum across Survey Areas for each season, cannot be confirmed due to inconsistencies between the Summary Data Appendices, the Statistical Analysis Appendices, the Results Sections and the Executive Summary Sections; Frog size class frequency tables are derived differently between successive Reports and cannot be matched to the supporting commentary and graphical displays.
2. The ecological consultants have made changes to the design of the monitoring plan over the three years since the project started. Although it is understandable that the plan had to be refined during the "Giant Barred Frog Study", the proponent agreed to a specific monitoring design which would enable the collection of baseline data and put Duralie in a position to assess whether the project is causing 'no more than a negligible impact on the local Giant Barred Frog population', i.e. a more than 20% decline in frog population numbers. Significant changes have been made to the monitoring plan and OEH will comment in more detail on those changes in the letter.
3. Irrespective of the previous question as to the design of the monitoring project (i.e. how many surveys are being undertaken each season and in how many areas etc.) OEH's assessment is that the statistical analysis used to analyse the data is not suitable for the task set by the consent condition 30, Schedule 3, which is that there is 'no more than a negligible impact on the local Giant Barred Frog population'. Duralie must employ a statistician who has experience in analysing this kind of data using a "robust design" approach that allows for a combination of open and closed population models, as was originally published by Pollock (1982).
4. Duralie Coal had agreed to use tadpoles as an indicator of successful recruitment to the population. The data provided to date has been unsuitable for this purpose. OEH would like to recommend a new approach to deal with this matter.

Thanking you for the opportunity to provide input in to this audit. If you wish to have any of the above matter clarified before we provide our detailed response please contact OEH's Hunter Amphibian specialist Karen Thumm – 4908 6829.

Regards Steve Lewer

Steve Lewer
Regional Biodiversity Conservation Officer
Hunter Central Coast Region
Regional Operations Group
Office of Environment and Heritage
Planning and Environment
PO Box 488G Newcastle NSW 2300
T: 4908 6814
M: 0459 082 162
W: www.environment.nsw.gov.au



TREVOR BROWN & ASSOCIATES

Applied Environmental Management Consultants

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Attention: Cameron Perry

Dear Cameron

**Independent Environmental Audit – Duralie Coal Mine Project
and
Stratford Coal Complex Projects**

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Yours sincerely

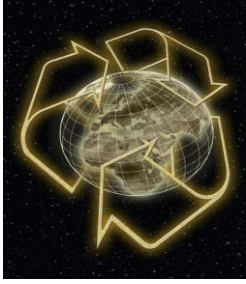
3 November 2014

Trevor Brown
Principal Environmental Management Auditor

Trevor Brown & Associates

42 Skiff Street Vincentia NSW 2540
Mobile 0409 053 031

Email: tebrown@bigpond.com



TREVOR BROWN & ASSOCIATES

Applied Environmental Management Consultants

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NSW Office of Water

Attention: Rohan MacDonald

Dear Rohan

Independent Environmental Audit – Duralie Coal Mine Project and Stratford Coal Complex Projects

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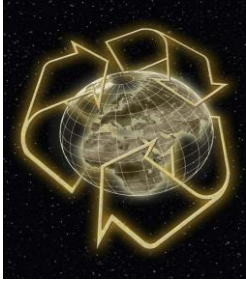
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Division of Resources and Energy

Attention: Marianne Bonnay

Dear Marianne

**Independent Environmental Audit – Duralie Coal Mine Project
and
Stratford Coal Complex Projects**

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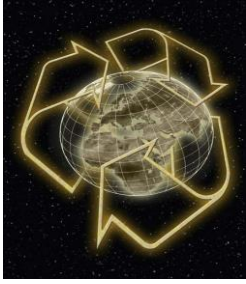
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Trevor Brown & Associates

42 Skiff Street Vincentia NSW 2540
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TREVOR BROWN & ASSOCIATES

Applied Environmental Management Consultants

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Attention: Lisa Schiff

Dear Lisa

Independent Environmental Audit – Duralie Coal Mine Project and Stratford Coal Complex Projects

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Yours sincerely

3 November 2014

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Principal Environmental Management Auditor

Trevor Brown & Associates

42 Skiff Street Vincentia NSW 2540
Mobile 0409 053 031

Email: tebrown@bigpond.com

Response from Great Lakes Council 20 November 2014

From: Gerard Tuckerman
Sent: Thursday, 20 November 2014 11:23 AM
To: Wayne Burgess
Subject: RE: DCM - Independent Environmental Audit

Water management is a long standing key community concern particularly the prevention of any direct discharge to the Mammy Johnson River or tributaries. During 2013/2014 the mine breached its operating conditions by directly releasing mine water to the river which would be otherwise irrigated. This coincided with a peak event and the real time monitoring indicated salinity of discharge water was below that of the receiving water. What is concerning is that whilst salinity appears not to be an issue the breach which was self reported by the mine attracts no penalty or trigger to review practices with a view to ensure future full compliance. The results of a performance review need to be publically communicated.

In addition the mine should consider all possible technologies and management procedures to ensure the full adherence to the no direct discharge operating condition including the use of evaporative fans. The results of independent compliance monitoring of the irrigation discharge program are also required to avoid potential for over irrigation and indirect discharge via groundwater to the river system.

Gerard Tuckerman
Manager- Natural Systems

From: Lisa Schiff
Sent: Monday, 17 November 2014 2:32 PM
To: Ryan Fenning
Cc: Wayne Burgess; Mathew Bell
Subject: RE: DCM - Independent Environmental Audit

Thanks Ryan,
Yes there are other issues - relating to environmental management - Mat Bell should be across this. Also the noncompliance with the landscaping for the wall.

Also please see below as a result of the Duralie CCC - perhaps we could include this as a comment from Council.

Lisa

In accordance with your offer, could you please include the use by Duralie of evaporative fans as an alternative for dispersing dirty mine water otherwise destined for Mammy Johnsons River, into the Audit of which you spoke at the recent Community Consultative Committee meeting.

The EAs and Consents for Duralie go to particular lengths to condition how dirty Duralie mine water can be managed. The Consent Conditions lead to the Surface Water Management Plan and within

that Plan the Irrigation Management Plan. In the Irrigation Management Plan, Type I to Type V lands are treated differently.

The above request predominantly concerns the carriage of evaporated dirty mine water in the winds that leave the evaporative source.

Thanks Kind Regards Brian Eastoe

From: Ryan Fenning
Sent: Monday, 17 November 2014 2:28 PM
To: Lisa Schiff
Cc: Wayne Burgess
Subject: DCM - Independent Environmental Audit

Hi Lisa,

Can you please review my response below to Wayne in relation to the Duralie Coal Independent Environmental Audit?

Are there any other issues in particular that you are aware of that Council should raise?

Thanks Ryan

Hi Wayne,

I understand that Trevor Brown & Associates (the "Contractor") have been engaged to conduct an Independent Environmental Audit of the Duralie Coal Mine (DCM). In accordance with the Conditions of Project Approval, the contractor is to "include consultation with the relevant agencies". The Contractor has contacted Council seeking details of *"any particular environmental aspects that [Council] would like to ... take into consideration under the Project Approvals Schedule 5 Condition 8 requirement."*

This e-mail has been prepared in relation to Environmental Health matters of the Project.

It is requested that the Independent Environment Audit report upon the 'Noise' and 'Air Quality & Greenhouse Gas' conditions contained in Schedule 3 of the Project Approval. In particular the Environmental Audit should investigate and report on:

- Schedule 3, Condition 2 'Noise Criteria' - It is requested that information be provided which indicates whether noise generated from the project complies with the noise criteria presented in Table 2. It should be noted that concerns were raised at the Duralie Coal Community Consultative Committee on 8 May 2014 in relation to noise emissions associated with evaporative spray. It is requested that this operation be considered in any noise assessment.
- Schedule 3, Condition 7 'Noise Management Plan' - The effectiveness of the Noise Management Plan should be reviewed and audited. Any non-compliance with project noise criteria should be identified and the effectiveness of measures that were implemented to address any non-compliance should be described.
- Schedule 3, Condition 19 'Air Quality Assessment Criteria' - It is requested that information be provided which indicates whether particulate matter emissions generated from the project complies with the criteria presented in Table 5, Table 6 and Table 7.

- Schedule 3, Condition 23 'Air Quality & Greenhouse Gas Management Plan' - The effectiveness of the Air Quality & Greenhouse Gas Management Plan should be reviewed and audited. Any non-compliance with long term criteria, short term criterion and/or long term criteria for deposited dust should be identified and the effectiveness of measures that were implemented to address any non-compliance should be described.

In addition, it is also requested that particular attention be paid to Condition 9A of Schedule 5. Council has listened to concerns raised by residents of the Wards River area in relation to both dust and noise impacts associated with the rail haulage operations and have raised these concerns with the Planning Assessment Commission. It is requested that Independent Environmental Audit review the Rail Haulage Audit required by Condition 9A of Schedule 5 to determine if all reasonable and feasible measures are being implemented to minimise dust and noise impacts.

Thanks

Ryan

Ryan Fenning
Environmental Health Officer
Great Lakes Council



Resource Assessments

Contact: Wayne Jones

Phone: (02) 6575 3406

Email: wayne.jones@planning.nsw.gov.au

Mr Tony Dwyer
Manager – Environment and Community
Stratford Coal Ltd
PO Box 168
GLOUCESTER NSW 2422

Dear Mr Dwyer

**Duralie Coal Mine
2014 Independent Environmental Audit**

I refer to your email dated 7 October 2014 seeking the approval of an audit team to undertake an independent environmental audit of the Duralie Coal Mine, required under project approval 08_0203.

In accordance with Condition 8 of Schedule 5 of 08_0203, the Secretary (formerly the Director-General) has approved the following audit team to conduct this audit of the Duralie Coal Mine:

- Trevor Brown (TBA) – Lead Auditor;
- Carl Vincent (ErSed Environmental) – Erosion and Sediment Control Specialist;
- Andrew McLeod (SEEC) – Water Specialist;
- Mark Passfield (SEEC) – Water Specialist;
- Colin Driscoll (Hunter Eco) – Biodiversity Specialist; and
- Neil Pennington (Spectrum) – Acoustic Specialist.

In carrying out this audit, the audit team must consult with the relevant government agencies referred to in the approval, and include the results of this consultation in the audit report.

The Department requires the audit specialists to focus in detail on:

- rail noise in the Wards River village;
- Site Water Balance;
- beneficial reuse of surplus water (adjacent irrigation opportunities etc); and
- Biodiversity Offset Area performance.

The Department expects the audit to be commissioned by 30 December 2014, and in accordance with Condition 9 of Schedule 5 of 08_0203, a copy of the audit report must be submitted to the Secretary, together with responses to any recommendations contained in the audit report, within six weeks of commissioning this audit, or as otherwise agreed by the Secretary.

I note that a Rail Haulage Audit was undertaken in 2013 and was reported to the Department in November/December 2013. Considering the relatively recent nature of this Rail Haulage Audit, and in accordance with Condition 9A of Schedule 5 of 08_0203, the Secretary considers that this issue has been satisfactorily addressed at this time and Duralie Coal is not required to focus in detail on rail haulage as a component of the 2014 independent environmental audit.

Should you have any enquiries in relation to this matter, please contact Wayne Jones on telephone 6575 3406.

Yours sincerely

A handwritten signature in black ink that reads "Howard Reed". The signature is written in a cursive style with a large 'H' and 'R'.

Howard Reed

22.10.14

**Manager Mining Projects
Resource Assessments**
as the Secretary's nominee