Bloomfield Colliery

Independent Environmental Audit
February 2013

This Independent Compliance Audit of the Bloomfield Colliery Project, has been conducted to satisfy the requirements of the Project Approval Schedule 5 condition 6.

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GLOSSARY

AEMR	Annual Environmental Management Report
Annual Return	Annual Return required under the EPL 396
Annual Review	Review required under Project Approval Schedule 5 condition 3
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
DECCW	Department of Environment, Climate Change and Water (now OEH)
Department	Department of Planning and Infrastructure (as defined in the Project Approval definitions)
Director-General	Director-General of the Department of Planning and Infrastructure, or delegate
DoP	Department of Planning (now Department of Planning and Infrastructure)
DP&I	Department of Planning and Infrastructure
DRE	Division of Energy and Resources (within the Department of Trade and Investment, Regional Infrastructure and Services)
DT&I	Department of Trade and Investment, Regional Infrastructure and Services
EA	Environmental Assessment – *"Part 3A Environmental Assessment – Completion of Mining and Rehabilitation" dated November 2008, Volumes 1-3*
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environmental Protection Licence
LGA	Local Government Area
MCC	Maitland City Council
Mining operations	The removal and emplacement of overburden and the extraction of coal
Minister	Minister for Planning and Infrastructure, or delegate
Mitigation	Activities associated with reducing the impacts of the project
NOW	New South Wales Office of Water (within the Department of Primary Industries)
OEH	Office of Environment and Heritage
POEO Act	*Protection of the Environment Operations Act 1997*
Project Approval	Project Approval 07-087 Bloomfield Coal Project described in the EA
Proponent	Bloomfield Group, Bloomfield Collieries Pty Limited or any other person or persons who rely on this approval to carry out the project that is subject to this approval
ROM	Run-of-Mine
RMS	Roads and Maritime Services
RTA	Roads and Traffic Authority (now RMS)
TSS	Total Suspended Solids
TDS	Total Dissolved Solids

EXECUTIVE SUMMARY

Environmental Management Plans and Monitoring Programs

The environmental management plans and environmental monitoring programs required under the Project Approval have been prepared by Bloomfield to satisfy the conditions and timing requirements of the specific conditions and the documents submitted to the DoP/DP&I for approval by the Director-General. Approval of the Aboriginal Cultural Heritage Management Plan was provided by the DoP on 27 May 2010. No response in relation to approval of any of the other environmental management plans and environmental monitoring programs had been received by Bloomfield at the date of this audit.

Bloomfield Colliery operates under the environmental management plans and environmental monitoring programs prepared to satisfy the Project Approval conditions. This audit has confirmed that the environmental management plans and environmental monitoring programs were submitted to the DP&I in accordance with the Project Approval conditions and that management of the mining operations and activities undertaken for the Bloomfield Colliery Project demonstrate a high level of compliance with the conditions in the Project Approval, Statements of Commitment, Environmental Protection Licence and Consolidated Coal Lease.

Air Quality

The Air Quality Monitoring Program provides adequate data to assess dust impact from the Bloomfield mining operations. The dust monitoring program has indicated that dust deposition is compliant with the air quality criteria at areas surrounding the mining operations and is consistent with the modelled levels predicted in the EA. The HVAS results have for 2011-2012 demonstrated compliance with the PM10 and TSP criteria.

Noise

This independent Environmental audit has found Bloomfield Colliery to be generally in compliance with Project Approval 07_0087 Schedule 3 conditions 1 to 4 and associated documents.

There is an opportunity for improvement within the noised monitoring reports of the assessment methodology, reporting of source LAeq noise contributions and generally maintaining consistency between tabulated noise levels, and location of the unattended noise monitoring site(s).

Blast Management

The Blast Monitoring Program provides results of blast overpressure and vibration from the four blast monitors located at residences around the Bloomfield Colliery mining operations. The planning and management of blasts follows best practice procedures and has only resulted in the exceedance of the blast criteria on two occasions from 283 blasts between 2009 and 2012. The blast monitoring results are consistent with the predictions presented in the EA.

Site Water Balance

The site water balance model developed for Bloomfield Colliery indicated that the project would be capable of meeting all water needs from the groundwater inflows and surface runoff into the mine pits, and would provide a net surplus of water that will contribute to the water available for supply to the Bloomfield CHPP.

The site water balances for 2010-2012 demonstrate conformance with the modelled predictions that a net surplus of water would occur for the Bloomfield Colliery project

Erosion and Sediment Control

Erosion and sediment control on the Bloomfield Colliery site is protecting natural waterways from any impact of surface runoff from the disturbed areas of the mine site. The requirements of *Managing Urban Stormwater: Soils and Construction, Volume2E Mines and Quarries* for the preparation of an Erosion and Sediment Control Plan are addressed in the Bloomfield documents Water Management Plan, Erosion and Sediment Control Plan and Mining Operations Plan. To demonstrate consistency with the Appendix C of *Managing Urban Stormwater: Soils and Construction, Volume2E Mines and Quarries* guideline for the preparation of anErosion and Sediment Control Plan, reference to other relevant Bloomfield Colliery document sections could be included in any future revision of the Erosion and Sediment Control Plan.

Surface Water Monitoring

The Bloomfield Surface Water Monitoring Program is consistent with the Integrated Environmental Monitoring Program section 4.4 Surface Water Monitoring (dated December 2007) prepared for the Abel, Donaldson, Tasman and Bloomfield projects and also has additional monitoring locations that supplement the integrated program, providing adequate data for the assessment of any potential impacts from the Bloomfield mining activities on the natural waterways that may be affected by the operations.

Bloomfield surface water quality monitoring conducted in accordance with the Integrated Environmental Monitoring Program and the Bloomfield Water Management Plan - Surface Water Monitoring Program has demonstrated that surface water quality in waterways potentially affected by the Bloomfield mining operations have been generally compliant with EPL criteria for pH, EC and Filterable iron during the 2009 and 2012, except for a single EC of 6010 µS/cm reported for the discharge on 17 November 2012 which exceeded the EPL criteria of 6000 µS/cm.

Groundwater

The Bloomfield Groundwater Management Plan and monitoring program are adequate for the ongoing assessment of the Bloomfield Colliery mining activities on the local groundwater regime.

The groundwater monitoring conducted in accordance with the Groundwater Management Plan and Integrated Environmental Monitoring Program during the 2009-2012 period did not demonstrate any real trends in groundwater depth or water quality and are consistent with the groundwater assessment conclusions in the *Environmental Assessment - Completion of Mining and Rehabilitation,* November 2008

Rehabilitation

The Bloomfield Rehabilitation Management Plan (prepared as part of the Landscape Management Plan) and the Mining Operations Plan 2011-2016 provide a satisfactory strategy and rehabilitation plans for the disturbed areas of the Bloomfield Project site, to meet the final land use for Bloomfield and surrounding mining areas.

The rehabilitation of the Bloomfield site is progressing generally in accordance with the Rehabilitation Management Plan and the Mining Operations Plan (2011-2016) with the finished areas exhibiting established grass and vegetative cover, successful erosion control, and drainage lines established for control of surface runoff to Lake Kennerson or Lake Foster.

Biodiversity Offsets

The Bloomfield Biodiversity Offset Management Plan prepared to satisfy the Project Approval conditions was submitted to DP&I in November 2011 and resubmitted on 5 February 2013. The provision of a Conservation Bond is not due until 6 months after approval of the Biodiversity Offset Management Plan by DP&I. The Conservation Funding requirement (Project Approval Schedule 3 condition 30) has been met and the Certificate of Title for Lot 2371 DP1170348, LGA Cessnock, Parish of Ellalong, County of Northumberland, for the offset area registered on 5 January 2012 to Four Mile Pty Ltd.

Aboriginal Cultural Heritage

The Aboriginal Cultural Heritage Management Plan prepared by South East Archaeology Ltd for Bloomfield Colliery, was reviewed and endorsed by the Mindaribba Local Aboriginal Land Council (LALC), submitted to and endorsed by DECCW, and approved by the Director-General of DoP on 27 May 2010.

No incidents relating to Aboriginal heritage occurred during the 2010-2012 period, and the requirements of the Aboriginal Cultural Heritage Management Plan will continue to be implemented including management of identified sites/areas.

Energy Savings Action

Bloomfield has implemented the energy efficiency opportunities program demonstrating some significant energy savings in their annual Energy Efficiency Opportunities Report to the Australian Government Department of Resources, Energy and Tourism.

1. INTRODUCTION

1.1 Background

The Project Approval granted for the Bloomfield Colliery dated 3 September 2009, requires an Independent Environmental Audit to be conducted in accordance with the Project Approval Schedule 5 condition 6:

> *"Every 3 years, 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:*
>
> *a) be conducted by 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 relevant project approvals 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 these approvals; and*
> *e) recommend appropriate measures or actions to improve the environmental performance of the mine complex, and/or any assessment, plan or program required under these approvals.*
>
> *Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General."*

The Independent Environmental Audit required under Project Approval Schedule 5 condition 6, was conducted for Bloomfield Colliery by Trevor Brown & Associates between11-12 February 2013 (The audit team was endorsed by the Director-General on 6 December 2012).

Bloomfield Colliery personnel (Garry Bailey (General Manager); Brendon Clements -Deputy Mine Manager; Simon Grassby - Technical Services Manager; and Greg Lamb - Environmental Manager) were available during the audit on site and were very co-operative and provided information and verification documentation for the audit process.

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.

The scope of work of the independent environmental audit of the Bloomfield Colliery operations included the following components:

- review of compliance with Project Approval 07_087 conditions and other approvals for the project;
- conduct a site inspection and review on-site documentation and monitoring data for the project, relevant to the audit;
- discussion of the Project Approval and other approval conditions and operation of the project with Bloomfield Colliery environmental staff;
- assessment of environmental performance of the development with the requirements in this Project Approval, Environment Protection Licence and Consolidated Coal Lease conditions (including plans or programs and assessments required under these approvals);
- review the adequacy of strategies, plans or programs prepared under the Project Approval;
- provision of recommendations if considered necessary for measures or actions to improve environmental performance of the development, and/or any assessment, plan or program required under the project approvals; and

- preparation of the Independent Environmental Audit Report providing assessment of compliance against each approval condition and provision of comments, 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 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 are in the Attachments to this Independent Environmental Audit Report. The Independent Audit Report sections are:

Glossary

Section 1	Introduction
Section 2	Bloomfield Colliery Development
Section 3	Approvals and Licences
Section 4	Review of Environmental Management
Section 5	Summary of Compliance and Recommendations
Section 6	Conclusions and Recommendations
Appendix A	Consultation with Relevant Agencies
Attachment A	Project Approval 07-087 conditions Table
Attachment B	Statement of Commitments Table
Attachment C	Environment Protection Licence No.396 conditions Table
Attachment D	Consolidated Coal Lease No. 761 conditions Table

1.4 Compliance Tables

This audit assessed the activities for compliance with the intent of the Project Approval and other approval conditions via site inspections and verification of relevant documentation as provided by Bloomfield Colliery. The status of compliance of the conditions attached to the project approvals are expressed as:

Status	Description
Compliant	Adequacy and appropriateness of implementation against the current Department al Approval and Conditions, or compliance with commitment made.
Awaiting DP&I Approval	The environmental management plans and environmental monitoring programs required have been prepared to satisfy the conditions and timing under the Project Approval. The documents were submitted DoP/DP&I but no response in relation to approval had been received by Bloomfield at the date of this audit.
Non-compliant	An inadequacy in the design and/or implementation against the current approvals, licence conditions or management commitments.
Ongoing	Compliant for the current status of the project operations, with ongoing requirement for compliant action related to the intent of the condition.
Not applicable/ Not Activated	Not activated or not applicable to the current operations
Noted	Conditions that are statements and not auditable.

1.5 Limitations of the Audit

The audit team received complete cooperation from Bloomfield Colliery staff during the audit. Any documentation that could not be located during the site visit / inspection and document review was provided to the auditors subsequent to the site visit.

The adequacy of strategy/ plans / programs required under the consent were assessed by reference to the requirements of the conditions of approval where documentation from the relevant agency(s) to Bloomfield Colliery had not been receive confirming approval at the date of this audit.

2. BLOOMFIELD COLLIERY DEVELOPMENT

The Bloomfield Colliery is operated by Bloomfield Collieries Pty Limited, part of The Bloomfield Group. The Bloomfield Colliery, located to the north of John Renshaw Drive, Buttai and east of Buchanan Road, Buchanan, is approximately 20 km north-west of Newcastle and is one of the Hunter Valley's oldest continuous running mining operations. Coal has been mined from the Bloomfield Colliery Project site by both underground and open cut for approximately 170 years. The current owners purchased the operation in 1937.

The Bloomfield Colliery operations are located within Consolidated Coal Lease (CCL) No.761 granted on 20 November 1991 for an area of 1372ha. The Bloomfield Colliery mining operations currently consist of existing open cut pits (known as Creek Cut and S Cut).

The mining operations at Bloomfield Colliery were carried out pursuant to existing use rights prior to the introduction of Part 3A of the *Environmental Planning and Assessment Act 1979* and the State Environmental Planning Policy (Major Projects) 2005. These changes to the legislation required Bloomfield to obtain project approval under Part 3A to continue mining and to rehabilitate disturbed mined areas. Bloomfield Colliery was granted approval under Part 3A on 3 September 2009 for the staged completion of mining and progressive rehabilitation of the disturbed land over a 12 year period.

Within the Bloomfield CCL 761 boundary there is also a Coal Handling and Preparation Plant (CHPP), and rail loading facility for processed coal for transport to the Port of Newcastle (approved under the Abel Underground Mine Project Approval 05_0136 granted in June 2007). Bloomfield Colliery currently operates the CHPP and rail loading facility, under agreements with Donaldson Coal and the Abel Project Approval Statements of Commitment. The Abel Project Approval allows the continued use of the Bloomfield CHPP, rail loading facility, management of water and coarse reject and tailings from the CHPP. The CHPP operation currently processes coal from the Abel, Tasman and Bloomfield mines.

The Bloomfield Colliery produces approximately 0.8 to 1.3 million tonnes of Run-of-Mine (ROM) coal per annum (mtpa). The coal bearing seams mined in the Bloomfield open cut are in the Tomago Coal Measures, located below the Newcastle Coal Measures, the seams include the Rathluba, Big Ben, Donaldson, Elwells Creek, Whites Creek, followed by the uncorrelated A, B, and C seams and the Buttai seams.

The Bloomfield open cut operation is a multi-seam, multi bench system, mining up to 13 seams or splits, utilising heavy earth moving equipment to deliver the ROM coal to the onsite coal handling and preparation plant (CHPP) on internal haul roads. The coal is processed by Bloomfield in the CHPP and the product coal is placed on the stockpiles adjacent to the CHPP. (Bloomfield's CHPP provides for size reduction, washing and screening of ROM coal from the Bloomfield open cut and also coal from neighbouring mines, Donaldson Open Cut and Abel and Tasman Underground Mines). The product coal is loaded into rail wagons at the Bloomfield rail loop and transported to the Port Waratah Coal Services (PWCS) terminal at the Port of Newcastle.

Relationship between Bloomfield Colliery and Abel Underground Coal Mine

The Abel Underground Mine, located immediately to the south-east of the Bloomfield Project Area required use of some Bloomfield infrastructure and to enable this use, the Abel Project Approval includes conditions on:

- continued operation of the Bloomfield CHPP and rail loading facility (owned by Bloomfield);
- continued management of water associated with the Bloomfield CHPP; and
- continued coarse reject and tailings disposal on the Bloomfield site.

Approval of the above activities occurred under the Abel Project Approval (05_0136), granted to Donaldson Coal Pty Limited on 7 June 2007 (i.e. prior to Bloomfield Colliery obtaining Project Approval to continue mining and rehabilitate mined areas under Part 3A of the *Environmental Planning and Assessment Act 1979*). Also the Bloomfield Project CCL 761 area lies within the boundaries of the Abel Project Area approved under

Project Approval 05_0136. (The Bloomfield open cut mining and rehabilitation activities within the Bloomfield Project Area and are not part of the Abel Approval). Project Approval 07_087 granted for the Bloomfield Coal Project on the 3 September 2009 applies only to the Bloomfield open cut mining and rehabilitation activities within the Bloomfield Project Area.

Management relationships between Bloomfield Colliery and Donaldson Coal Pty Ltd (related to the Abel Underground Coal Mine Project) involves a high degree of co-operation between the operating entities in terms of whom is responsible for the implementation and management of the various integrated components. Agreements have been established between Bloomfield Colliery and Donaldson Coal for the management of these integrated activities/components.

Figure 1: **Bloomfield Project Area (orange outline) within the approved Abel Project Area (purple outline).**

(Figure 26 Bloomfield Colliery Environmental Assessment – *"Part 3A Environmental Assessment – Completion of Mining and Rehabilitation" dated November 2008*)

Key aspects of integration of the Bloomfield Project with the operations of adjacent projects include:

- Delivery of coal from the Bloomfield, Donaldson, Tasman and Abel operations to the Bloomfield CHPP (this may continue after completion of the current Bloomfield Project mining operations);
- An integrated water balance and water management system for the Bloomfield, Donaldson, and Abel mines and the Bloomfield CHPP;
- Provision for a final void used for management of rejects and tailings produced from the Bloomfield, Donaldson, Tasman and Abel coal processed at the Bloomfield CHPP;
- Integrated rehabilitation planning, considering the final land use proposed for the Bloomfield, Donaldson, and Abel sites; and
- Integrated environmental monitoring program for the Bloomfield, Donaldson, and Abel sites.

A summary of planning approval responsibilities for integrated components related to the Bloomfield are shown in Table 2.1.

Table 2.1: Summary of Responsibilities – Relationship Between the Bloomfield Project Approval and Abel Project Approval conditions

Project/Operational Aspect	Responsibility under Bloomfield Project Approval 07-087	Responsibility under Abel Project Approval 05_0136
Completion of mining at Bloomfield Colliery	**Bloomfield Project Approval Schedule 3, condition 5** "Mining operations may take place on the site until 31 December 2021. *Note: Under this Approval, the Proponent is required to rehabilitate the site to the satisfaction of the D-G and DRE. Consequently this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated to a satisfactory standard."*	No action or responsibility for the Abel Project
Bloomfield open cut coal delivery to the CHPP (ROM coal stockpile pad)	**Bloomfield Project Approval Statement of Commitment 1.2** Bloomfield will undertake mining within the Project Area, which includes the following items and their associated mining activities: ……. • Provision of the haul road(s) linking the current and proposed coal mining areas with the ROM coal stockpiles adjacent to the coal washery;……	No action or responsibility for the Abel Project
Operation of the CHPP	(Bloomfield currently operates the CHPP and rail loading facility, under an Agreement with Donaldson Coal, for the Abel Project).	**Abel Project Approval Statement of Commitment 3.4** *"The operator of the Bloomfield CHPP shall:* *(b) investigate ways to reduce the noise generated by the Bloomfield CHPP, including maximum noise levels which may result in sleep disturbance;* *(c) implement all reasonable and feasible best practice noise mitigation measures on the site; and* *(d) report on these investigations and the implementation of any new noise mitigation measures on site in the AEMR, to the satisfaction of the D-G."*

Rehabilitation of Bloomfield Project mining areas	**Bloomfield Project Approval Schedule 3 conditions 25 to 27** *"The Proponent shall progressively rehabilitate the site in a manner that is generally consistent with the final landform set out in the EA to the satisfaction of the DRE and the Director-General."* (Bloomfield plans to rehabilitate reject emplacement areas, once capacity has been reached, by shaping to a stable, undulating, self-draining landform with mixed cover of pasture and native vegetation).	No action or responsibility for rehabilitation of the Bloomfield Project mining areas (excluding the final void used for coarse reject and tailings from the CHPP after the completion of the Bloomfield Project mining), relate to the Abel Project responsibilities.
Filling of Bloomfield final voids with CHPP reject material	**Bloomfield Project Approval Statement of Commitment 5.1** *"The final void will be retained for deposition of CHPP reject material in accordance with the Abel Project Approval."* (The Bloomfield final void will be used as an active disposal site for reject material from the CHPP, as approved by the Abel Project, even after completion of open cut mining by Bloomfield Project).	**Abel Project Approval Schedule 3 condition 34:** ***Disposal of Tailings/ Coarse Reject*** *"The Proponent shall ensure that the:* *(a) fine tailings generated by the project are disposed of within existing under -ground workings or open cut pits on the Bloomfield site; and* *(b) coarse rejects generated by the project are disposed of within existing open cut pits on the Bloomfield site,* *to the satisfaction of the D-G".*
Rehabilitation of final voids	**Bloomfield Project Approval Statement of Commitment 5.2** Rehabilitation of the final void forms part of the Abel Project Approval. However, rehabilitation of the tailings filled void at the completion of the Abel Project will remain the responsibility of Bloomfield as outlined in the Draft Bloomfield Closure and Rehabilitation Strategy (Abel 05_0136). The responsibility for the rehabilitation of the final voids is identified in the Abel Project Approval 05_0136, Abel Landscape Management Plan and Draft Bloomfield Closure and Rehabilitation Strategy (dated 4 October 2007).	**Abel Project Approval 05_0136 Schedule 3 condition 19:** The preparation and review of the *Draft Bloomfield Closure and Rehabilitation Strategy* (dated 4 October 2007), is closely associated with the Abel Project Landscape Management Plan (LMP) under the consent for the Abel Project 05_0136. The LMP presents the proposed landscape, rehabilitation and final void management strategies for the Abel Project. The Bloomfield CHPP which operates under the Abel consent generally complies with the relevant management requirements in the Abel LMP, and the strategy document provides additional decommissioning detail specific to Bloomfield CHP operations.
Integrated Environmental Monitoring Plan	(An Integrated Environmental Monitoring Program (IEMP) developed and approved by DoP as part of the Abel Project Approval, has been implemented as part of the Bloomfield Project monitoring programs)	**Abel Project Approval Schedule 5 condition 2:** *"The Proponent shall prepare and implement an Environmental Monitoring Program for the project to the satisfaction of the D-G. This program must be submitted to the Director-General within 6 months of this approval, consolidate the various monitoring requirements in schedule 4 of this approval into a single document, and be integrated as far as is practicable with the monitoring programs of the adjoining Bloomfield, Donaldson and Tasman mines."*

Commercial agreements in place between Bloomfield and Donaldson Coal (representing Abel Project Approval requirements) allocate responsibilities for the actions required under the Bloomfield Project Approval and Abel Project Approval.

3. APPROVALS AND LICENCES

3.1 Project Approval

The mining operations at Bloomfield Colliery were carried out under existing use rights prior to the introduction of Part 3A of the *Environmental Planning and Assessment Act 1979* and the State Environmental Planning Policy (Major Projects) 2005. These changes to the legislation required Bloomfield to obtain project approval under Part 3A to continue mining and to rehabilitate disturbed mined areas.

Bloomfield Colliery was granted Project Approval PA 07_0087 under Part 3A of the *Environmental Planning and Assessment Act 1979* on 3 September 2009 for the staged completion of mining and progressive rehabilitation of the mine over a 12 year period. Modifications to Project Approval PA 07_0087 are presented in Table 3.1.

Table 3.1: Project Approval and Modifications

Date	Approval	Project Description
3 Sep 2009	Part 3A Project Approval	Completion of mining and progressive rehabilitation of the Bloomfield Colliery open cut mine over a 12 year period.
	Notice of Modification	**Proposed Modification**
16 May 2011	MOD 1	Extension of the project approval area for out-of-pit overburden emplacement and rehabilitation, alternative haul road and power line relocation. Additional conditions attached to the MOD 1 approval were related to Biodiversity Offsets, Biodiversity Offset Management Plan, and Conservation Bond.
29 Mar 2012	MOD 2	An application to modify PA 07_0087 was submitted by Bloomfield in September 2010 to facilitate an amend the submission date of the Final Void Management Plan and Mine Closure Plan of Project Approval Schedule 3 Condition 26, to 30 June 2012. (The Modification was lodged after DRE requested that Bloomfield submit Final Void Management Plan and Mine Closure Plan after DRE's approval of the Mining Operations Plan (MOP) for the Bloomfield Colliery).
20 Feb 2013	MOD 3	An application to modify PA 07_0087 was submitted by Bloomfield on 17 December 2012 to allow a change to an area proposed for vegetation clearing. The current approval was to clear 1.3ha of vegetation to create a corridor for a power-line easement. However, Bloomfield used an existing contour drain for the power-line, and consequently the approved vegetation clearing was no longer required. Bloomfield then requested a Modification for clearance of 1.6ha of vegetation adjacent to the 'Creek Cut' high-wall, for mining infrastructure purposes.

3.2 Environment Protection Licence

Environment Protection Licence (EPL) 396 for the Bloomfield Colliery was granted in July 2000 under the *Protection of the Environment Operations Act 1997*. Notices of Variations to the EPL are outlined in Table 3.2.

Table 3.2: Notices of Variation to EPL 396

Date of Issue	Notice No.	Notice of Variation to EPL 396
02 Dec 2011	1501185	Condition 8 - Pollution Reduction Program, U1 Coal Mine Particulate Matter Control Best Practice inserted, to be addressed following a four step assessment process: 1. estimate baseline emissions and determine the four mining activities that currently generate the most particulate matter; 2. estimate the reduction in emissions that could be achieved by applying best practice measures; 3. assess the practicability of each of these measures; and 4. propose a timetable for the implementation of any practical measures.
18 Nov 2009	1104182	Fee based activity Coal Mining - amended to 0.5Mt - 2Mt produced Fee based activity Coal works – added for 2Mt - 5Mt loaded Condition L4.2 – word change only to condition. Condition L6 conditions deleted and renumbered as L7 Blasting limits Condition M2 sampling method changed to grab samples for Point 1 & Point 2.
09 Dec 2003	1032965	Fee based activity Coal Mining -amended to 2Mt-3.5Mt produced
21 Nov 2001	1005836	Condition A2.1 - This notice varied the licence by amending the premises description. Condition P1.2 table – correction of descriptions of the monitoring and discharge points. General EPA editorial corrections to the EPL conditions.

Refer to Attachment C EPL 396 Table for compliance with the EPL conditions.

3.3 Mining Lease

Consolidated Coal Lease (CCL) No. 761 was granted to Bloomfield Collieries Pty Ltd on 20 November 1991 and renewed until 8 October 2029, in accordance with the provision of Section 114(1) of the *Mining Act 1992*, subject to the condition attached to the Renewal document.

Conditions 2 to 8 and 12 to 16 are identified ass conditions relating to environmental management for the purposes of Section 374(1) of the *Mining Act 1992*.

The area of CCL 761 is 1372ha (shown in Plan No.D6979 attached to the CCL).

Refer to Attachment D - CCL 761 Table for compliance with the CCL environmental conditions.

4. REVIEW OF ENVIRONMENTAL MANAGEMENT

4.1 Environmental Management

4.1.1 Environmental Management System

The Bloomfield Colliery operates under an Environmental Management System ('EMS') developed generally in accordance with ISO 14001 principles. The EMS was implemented prior to the Part 3A environmental assessment and Project Approval for the Bloomfield Colliery project.

The EMS includes the Bloomfield GroupEnvironmental Policy and relevant environmental systems and procedures to will guide the mining project operations until the completion of mining in the project area. Any additional requirements resulting from conditions of Project Approval or the Mining Lease are incorporated into the existing EMS where required.

The Bloomfield Environmental Policy states:

> *"It is the policy of the Bloomfield Group and its subsidiary and associated companies to achieve a high standard of care for the natural environment in all of the associated with our coal mining and engineering operations.*
> *We aim to conduct our operations in an ecologically sustainable manner through minimising our impact on the environment by:*
>
> - *Managing the effect of our activities with regard to air, ground and water pollution;*
> - *Reducing noise associated with our activities to as low as reasonably practicable;*
> - *Controlling the waste associated with our activities and the identification of recycling opportunities;*
> - *Rehabilitating disturbed mining areas; and*
> - *Managing our energy consumption.*
> - *Identifying, monitoring and, providing adequate resources to manage risks arising from our operations in accordance with the structure of our Environmental*
> - *Management System, which establishes the appropriate objectives and targets related to the environmental risks relevant to the scope of our operations;*
> - *Reviewing our environmental management activities and seeking to continually improve our production processes, waste management and the use of resources;*
> - *Conducting our operations in compliance with all relevant environmental legislation, regulations and licences;*
> - *Consulting with managers and employees about our aim and about their individual*
> - *responsibilities;*
>
> *Informing our contractors, customers and suppliers of our aim and of their environmental responsibilities in relation to our business; and*
>
> - *Consulting with the community and relevant government bodies with regard to our environmental performance, obligations and issues, as appropriate to their interests."*

Existing systems and procedures that have been developed to manage the impacts and operation of activities on the Bloomfield site include:

- Mining Operations Plan;
- Maintenance Management System;
- Rehabilitation Management System;
- Environmental Water Management System;
- Draft Waste and Contamination Procedure;
- Draft Land Disturbance Management System;
- Aboriginal Heritage Management System;

- Mine Transport Management Plan;
- Explosives Management System;
- Bushfire Management Plan; and
- Fuel and Bulk Oil Delivery Procedures.

4.1.2 Environmental Management Strategy

[Project Approval Schedule 5 condition 1]

The Environmental Management Strategy was prepared and submitted to the DoP on 25 February 2010, within 6 months of the date of this Project Approval. The EMS was revised on 4 November 2011 and resubmitted to DP&I.

The EMS provides the strategic framework for environmental management of the project addressing the statutory obligations, statutory approvals (including the Project Approval) for the approved Bloomfield colliery Completion of Mining and Rehabilitation Project.

4.1.3 Integrated Environmental Monitoring Program

[Statement of Commitment 7.2]

An Integrated Environmental Monitoring Program (IEMP) developed and approved by DoP has been implemented for the Bloomfield and Abel Projects. The monitoring programs that make up the approved IEMP were prepared in consultation with relevant government departments and agencies and Maitland and Cessnock Councils.

The IEMP was developed and submitted to the DoP on 7 December 2007 and approved by DoP as part of the Abel Project Approval Schedule 5 condition 2:

> **Abel Project Approval Schedule 5 condition 2**
> ***Environmental Monitoring Program***
> *The Proponent shall prepare and implement an Environmental Monitoring Program for the project to the satisfaction of the Director-General. This program must be submitted to the Director-General within 6 months of this approval, consolidate the various monitoring requirements in schedule 4 of this approval into a single document, and be integrated as far as is practicable with the monitoring programs of the adjoining Bloomfield, Donaldson and Tasman mines.*

and the Bloomfield Statement of Commitment:

> ***Bloomfield Project Approval, Statement of Commitment 7.2 - Environmental Monitoring and Reporting***
> *"Bloomfield will implement and participate in the actions required for the Integrated Environmental Monitoring Program ('IEMP') that forms part of the Abel Project Approval and which includes elements of the Bloomfield Project."*

The monitoring programs for each of the environmental aspects included in the environmental management plans for the projects have been collated into the Integrated Environmental Monitoring Program (IEMP) for the Abel, Donaldson, Tasman and Bloomfield operations. The IEMP includes:

- Noise
- Blasting
- Air Quality Monitoring
- Surface Water
- Groundwater
- Aboriginal and Cultural Heritage
- Flora and Fauna
- Meteorological Monitoring

The Bloomfield Colliery monitoring programs include the monitoring components in the Integrated Environmental Monitoring Program, and have additional supplementary sampling and monitoring sites to assess the status of the environment related specifically to the Bloomfield mining activities.

The Bloomfield monitoring program results are presented in the Bloomfield Colliery AEMR's and Bloomfield Colliery website. Monitoring results for the Abel, Donaldson and Tasman projects are reported in the project specific AEMR's and on the Donaldson website.

4.2 Noise

[Project Approval Schedule 3 conditions 1 to 4]
[Statements of Commitment 11.1 to 11.4]

4.2.1 Noise Monitoring Program

A Noise Monitoring Program was prepared by SLR for Bloomfield on 16 September 2011 and addressed the requirements of Project Approval Schedule 3 condition 4, Statements of Commitment 11, and MOD 1. (The noise monitoring requirements for the Bloomfield Project within the Integrated Environmental Monitoring Program (December 2007) prepared for the Bloomfield, Donaldson, Abel and Tasman mines are included in the Bloomfield Noise Monitoring Program). The Noise Monitoring Program was submitted to DoP on 4 November 2011. Bloomfield had not received correspondence from DP&I in relation to approval of the Noise Monitoring Program at the date of this audit.

The objectives of the Bloomfield Noise Monitoring Program are to:

- Demonstrate that compliance with the project approval conditions can be achieved.
- Identify potential noise sources and their relative contribution to noise impacts from the development.
- Outline the methodologies to be used, including justification for monitoring intervals, weather conditions, seasonal variations, monitoring locations, periods and times of measurements, the design of any noise modelling or other studies, including the means for determining the noise levels emitted by the development.
- Integrate the Bloomfield NMP with monitoring programs for the Tasman, Donaldson and Abel mines.

4.2.2 Noise Monitoring

Noise monitoring is conducted quarterly and consists of continuous unattended and operator attended noise monitoring. The noise measurement procedures employed in the monitoring program have been guided by the requirements of AS 1055:1997 "*Acoustics _ Description and Measurement of Environmental Noise"* and the NSW Industrial Noise Policy.

Five (5) noise monitoring locations were identified from modelling of the predicted noise levels that represent the potentially most affected areas from noise emissions from Bloomfield Colliery operations and two (2) locations from the Integrated Environmental Monitoring Program.

Table 4.1: Noise Monitoring Locations (selected by SLR as representative of most affected areas)

Noise Monitoring Location ID	Noise Monitoring Location Description
F	Lot 684 Black Hill Road, Black Hill
G	156 Buchanan Road, Buchanan
L	Kilshanny Avenue, Ashtonfield
M	John Renshaw Drive, Buttai
N	Lings Road, Buttai

Monitoring of noise includes:

Operator attended noise measurements - conducted quarterly at the each location to quantify and characterise the maximum (LA_{max}), the energy equivalent (LA_{eq}), average maximum (LA_{10}) and background (LA_{90}) noise levels from ambient noise sources and Bloomfield mining operations over a 15 minute measurement period.

Unattended continuous noise monitoring - conducted at Locations F, G, L, M and N, for a minimum period of seven (7) days per quarter, to quantify overall ambient noise amenity levels resulting from mining and other environmental noise sources.

Noise monitoring as part of the noise management strategy **-** conduct noise surveillance measurements of acoustically significant plant and equipment, to ensure that they operate within specified compliance levels (e.g. Drilling Noise Assessment, SLR 13 April 2011).

Cumulative noise - noise monitoring requirements for the Bloomfield Project within the Integrated Environmental Monitoring Program (December 2007) prepared for the Bloomfield, Donaldson, Abel and Tasman mines are included in the Bloomfield Noise Monitoring Program to determine compliance of each of the operations with their Project Approval conditions and to determine compliance with the cumulative noise criteria as required under the Bloomfield Project Approval Schedule 3 Condition 2.

4.2.3 Noise Monitoring Reports

4.2.3.1 Attended monitoring

A protocol to determine compliance with the noise criteria from the attended monitoring results, as required under Project Approval Schedule 3 condition 4(c), is included in Section 7.1.1 of the Noise Monitoring Program but there is no description in the noise monitoring reports of the analysis methodology. Information provided by SLR, confirmed the use of Bruel & Kjaer Evaluator software. For completeness, Section 4.2 of future monitoring reports should make mention of how this software is utilised (e.g. frequency filtering insects and frogs above 2 kHz and removing/marking the passage of individual vehicles on public roads).

It is evident from the monitoring reports that road traffic noise and insects dominate the acoustic environment at the potentially most impacted receiver (i.e. location N on Lings Road, Buttai). The unattended monitoring confirms LAeq levels into the high-60's during day, evening and night. Night time traffic on John Renshaw Drive would be characterised by intermittent flow with regular breaks in traffic noise. It is during these breaks in traffic noise that mine noise will be at its most identifiable and SLR has advised that these are the periods of focus in their data analysis.

The primary objective of attended monitoring is to determine the $LA_{eq(15minute)}$ contribution from the mine operations. Where this is made difficult by the presence of other noise sources, it is often necessary to quantify the contributions from these sources to estimate the noise under investigation by way of subtraction. With the Bruel and Kjaer hardware/software utilised by SLR, it is a straight forward exercise to accurately quantify the contributions from insects, frogs and passing intermittent traffic to the overall $LA_{eq(15minute)}$ level, as well as other non-continuous sources such as dogs, planes etc. Quantifying the contributions from continuous sources such as distant road traffic and mine hum with overlapping frequency ranges is more difficult, but this is not "beyond the scope" of noise monitoring. This is where the human presence of an experienced operator and field notes are utilised.

The SLR noise monitoring reports provide tabulated results for each of the five monitoring locations (F, G, L, M and N). The final column in these tables gives typical LAmax levels from identified noise sources. This information does not relate to the LAeq noise criteria. For future reporting, the last column of Tables 3-7 should be replaced with LAeq contributions from identified sources. Logarithmically adding these together,

with the Bloomfield contribution, will then equal the total measured LAeq given in the third column of the Tables. This information would then be consistent with the EPA's requirement that information provided should be meaningful in their document "Requirements for publishing pollution monitoring data" (EPA, 2012).

The noise monitoring reports do not include assessment of "modifying factors" for intermittency, tonality and low frequency noise as defined in the Industrial Noise Policy (INP). Whilst not specifically mentioned in the Bloomfield Project Approval conditions, assessment of these factors is required under the INP and this necessitates monitoring in third-octave bands and in both A-weighting and C-weighting. Correspondence with SLR confirmed that modifying factors are assessed. It is recommended that the results of such assessment be explicitly included in future monitoring reports. Specifically, typical differences between C-weighted and A-weighted levels should be reported.

4.2.3.2 Unattended monitoring

The Noise Monitoring Program addresses the unattended monitoring requirement in Section 4.3 as:

"4.3 Unattended Continuous Noise Logging

> *In order to supplement the operator attended measurements, unattended continuous noise monitoring shall be conducted at Locations F, G, L, M and N, for a minimum period of seven (7) days per quarter, to quantify overall ambient noise amenity levels resulting from mining and other environmental noise sources. Data from unattended continuous noise logging will allow trends to be identified in ambient noise levels surrounding the mine and the assessment of cumulative noise impacts from all mining related noise sources in the area.*
> *The monitoring locations chosen should be representative of noise emissions from Bloomfield mining operations and coal processing in order to determine compliance with the approval conditions and/ or allow the contributed noise level to be calculated at the nominated assessment locations."*

At least three of the noise monitoring locations (F, M and N) consistently return traffic noise levels well in excess of the Bloomfield noise emission levels and are not "representative of noise emissions from Bloomfield mining operations" as required in Section 4.3 of the Noise Monitoring Program.

Also, the loggers used (ARL Type EL-215/316) do not have frequency filters, directional capabilities or audio recording and are only suitable for background (ambient) noise measurements.

For these reasons, unattended logging in its current form provides no useful information with regards to noise emissions from Bloomfield and should be discontinued at locations F, M and N. The unattended noise monitoring protocol should be reviewed and revised to include equipment and location(s) where noise from Bloomfield can be measured with some degree of accuracy.

Location N (Lings Road Buttai) and the general area around this location is importance given the prevalence of Bloomfield noise levels approaching the noise criteria at this location.

Revision of the unattended monitoring protocol should aim to determine a suitable logger location in this area (e.g. a location on the southern boundary of the mine site itself, exposed directly to mine noise as the dominant source), may be suitable for the purposes of calibrating the Noise Compliance Model referred to in Section 7.1.3 of the Noise Monitoring Program.

It is acknowledged and agreed with SLR that unattended monitoring is a requirement of the consent, but there is no specification that the unattended monitoring is required at all attended monitoring locations. It is recommended that Locations F and M should be removed as unattended monitoring locations, as there is no benefit to any stakeholder in acquiring this data.

4.2.4 Conclusion

This independent Environmental audit has found Bloomfield Colliery to be in compliance with Project Approval 07_0087 Schedule 3 conditions 1 to 4 and associated documents.

There are opportunities for improvement in explaining the assessment methodology, reporting of source LAeq noise contributions and generally maintaining consistency between tabulated noise levels, the related written summary and the final summary of results.

The current unattended monitoring program is largely ineffective and does not achieve the aim set out in the Noise Monitoring Program. The Noise Monitoring Program unattended monitoring protocol should aim to determine a suitable logger location exposed directly to mine noise as the dominant source, to provide data that may be suitable for the purposes of calibrating the Noise Compliance Model referred to in Section 7.1.3 of the Noise Monitoring Program.

4.3 Blast and Vibration

[Project Approval Schedule 3 conditions 5 to 14]

[Statements of Commitment 12.1 to 12.5]

4.3.1 Blast Monitoring Plan

A final draft Blast Monitoring Program was prepared and submitted to the DoP on 24 February 2010 (i.e. within 6 months of the date of the Project Approval). DoP provided comments on 24 April 2010 and a revised Final Blast Monitoring Program incorporating the DoP comments was completed on 9 August 2011. The Blast Monitoring Program was further revised on 31 May 2012. Bloomfield had not received correspondence from DP&I in relation to approval of the Blast Monitoring Program at the date of this audit.
The Blast Monitoring Program includes a Pre-Blast Protocol (page 6), and Evaluation of Blasting Protocol (page 9) for the recording and reporting of each blast.

4.3.2 Blast Monitoring

The blast monitoring is conducted for each blast using four blast monitors (three fixed and one mobile) located at residences to the south, south-east, west and north-west of current open cut operations. The blast monitors are calibrated by TEXCEL and µMX Calibration Certificates are issued for each calibration.

The use of a predictive meteorological modelling software program was introduced in 2011 to assist in planning blast activities. The software incorporates regional weather station data to predict daily weather events that may exacerbate overpressure impacts from blasting.

The Environmental Assessment (EA) Completion of Mining and Rehabilitation, November 2008 Appendix F section 8, presented the predictions for overpressure and vibration at identified residences. The blast modelling predictions presented in Table 20 of the EA have not been exceeded during the 2009-2012 period.

Table 4.2: Blast Overpressure and vibration predictions in the Environmental Assessment (November 2008)

		Environmental Assessment (November 2008)	
Location	**Residence ID**	**Overpressure dBL**	**Vibration mm/sec**
Richards	G	102.1	1.0
Mt Vincent Road	H	96.5	0.4
McNaughton	M	103.5	1.2
Elliott	N	113.0	4.8

The blast monitoring results for the 283 blasts conducted in the 2009-2012 period demonstrate compliance with the blast criteria in the Project Approval / EPL / CCL on all occasions except for two (2) exceedances of the

<120dBL criteria (Elliott residence – 127.9dBL on 16 September 2010 and McNaughton residence – 120.6 dBL on 9 March 2012). Both these exeeedances were reported to the EPA as required under EPL condition R4.1.

Table 4.3: Summary of Blast Monitoring 2009-2012

	No. of blasts	Overpressure dB(Linear peak)		Vibration Peak Particle velocity (ppv) mm/sec	
Criteria*		115	120	5	10
2009-2010	108	2 (1.9%)	0	0	0
2010-2011	105	4 (3.8%)	1 (Elliott – 127.9dBL 16 September 2010)	0	0
2011-2012	70	3 (4.3%)	1 (McNaughton 120.6dBL 9 March 2012)	0	0
Criteria*	-	115	120	5	10
Allowable exceedence*	-	5% of total number of blasts	0	5% of total number of blasts	0

* Blast criteria in Project Approval Schedule 3 conditions 5 and 6; EPL condition L4.2; and CCL condition 10

4.3.3 Conclusion:

The Blast Monitoring Program provides instant results of blast overpressure and vibration from the four blast monitors located at residences located around the Bloomfield Colliery mining operations. The planning and management of blasts follows best practice procedures and has only resulted in the exceedance of the blast criteria from 283 blasts, on two occasions between 2009 and 2012.

4.4 Air Quality

[Project Approval Schedule 3 conditions 15 to 17]
[Statements of Commitment 13.1 to 13.2]

4.4.1 Air Quality Monitoring Program

A final draft Air Quality Monitoring Program was prepared in consultation with OEH and submitted to the DoP on 24 February 2010, within 6 months of the date of this approval. DoP provided comments on 24 April 2010 and a revised Final Air Quality Monitoring Program incorporating the DoP comments was completed on 9 August 2011. The Air Quality Monitoring Program was further revised on 31 May 2012. No response had been received from DP&I in relation to approval of the Air Quality Monitoring Program at the date of this audit.

A meteorological station was installed on Bloomfield site in September 2010. The station is located near the active mining areas adjacent to a communications tower. The meteorological station monitors rainfall, temperature, relative humidity, wind speed and wind direction.

4.4.2 Dust Monitoring

The Bloomfield Air Quality Monitoring Program includes the four (4) dust deposition gauge locations nominated in the Integrated Environmental Monitoring Program (IEMP) plus a further six (6) dust deposition gauges around the project area and a high-volume sampler located at Buttai to the south of the project area, to monitor particulate matter (PM_{10} and TSP) from the project activities.

Table 4.4: Dust Monitoring Locations

Location	Monitoring Site ID	Site Location
On Bloomfield CCL		
	D1 (IEMP)	Adjacent to Buttai Reservoir
	D2	Adjacent to Main Haul Road
	D3	Plantation site
	D4	Off Haul Road West of Stoney Pinch Reservoir
	D9 (IEMP)	Shamrock Lane
Off Bloomfield CCL		
	D5	Bali Close Ashtonfield
	D6 (IEMP)	Off Four Mile Workshop
	D7	New England Highway Avalon Estate
	D8 (IEMP)	Adjacent to Main North Rail Line at Rail Loop
	D10	Private property John Renshaw Drive Buttai
	HVAS	Private property John Renshaw Drive Buttai

The dust gauges have been installed and are managed generally in accordance with AS/NZS 3580.10.1 (2003). PM_{10} and TSP monitoring is carried out in accordance with AS/NZS 3850.9.6 (2003) and AS/NZS 6850.9.3 (2003) respectively. The dust analysis is performed by an accredited National Association Testing Authority (NATA) laboratory.

Table 4.5: Dust Deposition Gauge Monitoring Results 2009 -2012 (mg/m^2/month)

Site ID	2011-2012			2010-2011			2009-2010		
	Annual Average	Max Result	Min Result	Annual Average	Max Result	Min Result	Annual Average	Max Result	Min Result
D1	1.6	2.5	0.6	1.1	2.8	0.3	1.8	2.9	0.9
D2	1.5	2.4	0.5	1.6	2.7	0.	2.4	4.3	1.3
D3	1.3	3.4	0.7	1.8	3.0	0.9	3.2	5.4	1.1
D4	3.4	8.6	0.6	1.6	2.8	0.8	3.1	5.0	1.5
D5	1.5	2.3	0.7	0.9	1.5	0.6	1.4	2.2	0.8
D6	3.8	10.2	1.2	2.1	5.1	0.7	1.6	2.5	1.0
D7	1.2	1.7	0.7	1.4	2.5	0.7	2.3	4.9	1.3
D8	3.2		0.9	1.4	2.1	0.6	1.8	3.9	1.2
D9	1.0	2.3	0.6	1.1	1.8	0.3	1.5	3.9	0.8
D10	1.9	6.1	0.4	1.8	2.4	1.2	2.8	10.1	0.9
EPL Limit	4			4			4		

All dust deposition gauges recorded annual averages below the 4g/m^2/month limit for 2011-2012. The long term average annual dust deposition rates are all within the nominated criteria.

Dust deposition gauge sites D3 and D4 are located well within the Bloomfield CCL adjacent to mining operations, and D6 is adjacent to the Four Mile Creek Road Workshop with operational dust contributing to any elevated results from these sites. The increased levels at D3, D4 and D6 are unlikely to impact sensitive receivers off site. Site D8 is adjacent to where the Bloomfield rail loop joins the Main North Rail Line 4.4km from the Bloomfield loading operations from the conveyor to the wagons.

The potential levels of dust emissions from the Bloomfield mining operations modelled as part of the Environmental Assessment (November 2008) indicated that the annual average dust deposition for residences in the vicinity of the mine for the first 5 years would range from 0.6 to 1.7 g/m^2/month. The dust deposition monitoring for sites away from the CCL mining operations and other mine infrastructure areas, exhibited levels of 1.0 to 1.9 g/m^2/month that is generally consistent with the EA predictions for off-site dust deposition.

The Hi-Volume Air Sampler (HVAS) became operational in May 2011. The average annual PM_{10} level was 17 $\mu g/m^3$ for 2011-2012 and all PM_{10} results recorded 24-hour averages were below the 50 $\mu g/m^3$ criteria. The annual average TSP result recorded was 39 $\mu g/m^3$, less than the 90 $\mu g/m^3$ criteria.

4.4.3 Conclusion:

The Air Quality Monitoring Program provides adequate data to assess dust impact from the Bloomfield mining operations. The dust monitoring program has indicated that the dust deposition rate at areas surrounding the mining operations is consistent with the modelled levels predicted in the EA. The HVAS results have for 2011-2012 demonstrated compliance with the PM_{10} and TSP criteria.

4.5 Water Management

[Project Approval Schedule 3 conditions 19 to 24]
[Statements of Commitment 15.1]

The Water Management Plan for the Bloomfield Colliery was prepared by (Steve Perrens of Evans and Peck and Andy Fulton of Aquaterra (experts approved by the Director-General DoP), in consultation with OEH (EPA) and NSW OoW and submitted to the DoP by 5 April 2010. Response or comments in relation to approval to the Water Management Plan had not been received from DP&I at the date of this audit.
The Water Management Plan includes the attached documents:

- Site Water Balance;
- Erosion and Sediment Control Plan;
- Surface Water Monitoring Plan;
- Ground Water Monitoring Program; and
- Surface and Ground Water Response Plan

An integrated water management system has been implemented across the Bloomfield, Abel and Donaldson project sites to manage the water usage and water balance for the projects and this integrated water management system was required under the Abel Project Approval 05_0136:

> Abel Project Approval Schedule 3 condition 11 -
> ***Water Management Plan***
> *11. The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:*
> *(a) be submitted to the Director-General for approval within 6 months of this approval;*
> *(b) be prepared by suitably qualified expert/s whose appointment/s have been approved by the Director-General,*
> *(c) be prepared in consultation with the DECC and DWE;*
> *(d) be integrated, as far as is practicable, with the water management plans of the adjoining Bloomfield, Donaldson and Tasman mines;……*

The Bloomfield Colliery water management has been designed with three primary goals and objectives:

- separation of clean water and mine water;
- safe storage and priority use of mine water on-site;
- management of water that is discharged so as to preserve the environmental values of Four Mile Creek and comply with the conditions of EPL 396.

The main components of the Bloomfield Colliery water management system are:

Lake Kennerson: Water pumped from the open cuts (S Cut and Creek Cut) and run-off from disturbed areas (i.e. high wall, haul roads, overburden dumps awaiting rehabilitation) that has the potential to carry suspended solids, is directed to Lake Kennerson via open drains.

Water discharges are undertaken in accordance with conditions of the Environmental Protection Licence (EPL 396 condition L3.1). Water samples are collected during discharge for independent water quality analysis. A monitoring station located downstream in Four Mile Creek continuously measures electrical conductivity (EC) and water level. Monthly background sampling is conducted in Lake Kennerson, Lake Foster and various upstream and downstream watercourses.

Lake Foster: Stored water in Lake Kennerson can be directed to Lake Foster via a valve controlled pipe which, when opened feeds any required water to Lake Foster. Lake Foster receives decant water from the tailings storage facility (U Cut) and water from the stockpile dam, which collects the run off from the CHPP and coal stockpile pads. Water is pumped to the CHPP for use in coal processing and for dust suppression spraying on the coal stockpile pads, is primarily sourced from Lake Foster.
Water from the historic underground workings can also be used in dust suppression and coal processing.

Clean Water: Run off from undisturbed and rehabilitated areas is directed away from operational areas and mine water storages via diversion banks and channels into clean water dams or natural watercourses. (The major clean water storage dam is Possums Puddle north of Lake Foster). No clean water is accessed for operational purposes and these dams overflow into natural drainage systems.

Most of the operational mining areas at Bloomfield are located within the catchment of Four Mile Creek. A series of drains and levees direct Four Mile Creek around Lake Foster (mine water storage) and into Possums Puddle (clean water storage). From Possums Puddle clean water overflows or is discharged back into Four Mile Creek.

Integrated components of the water management system operating at Bloomfield include the pumping of water from the Donaldson Coal water storage dam (the Big Kahuna) to Lake Kennerson when required, for use in the CHPP with excess water discharged to Four Mile Creek from EPA approved discharge Point 1, under Bloomfield EPL 396 condition L3.1.

4.5.1 Site Water Balance

[Project Approval Schedule 3 condition 20]

The Site Water Balance developed by Evan and Peck for Bloomfield Colliery as part of the Water Management Plan dated 31 May 2012 includes:

- sources and security of water supply (Site Water Balance - section 2 Groundwater Inflow, section 4.3 Water Storage, section 5 Catchment Runoff);
- water use and management on site (Site Water Balance -section 4.4 Water Use);
- any off-site water transfers or discharges (Site Water Balance - Table 1-2 Schematic Diagram of Catchment and Flows, section 2 Catchments and Pits); and
- reporting procedures (Site Water Balance - section 6 Reporting Procedures); and
- measures to minimise water use by the project (Site Water Balance - section 4.4 Water Use).

The site water balance model (developed by Evans and Peck) indicated that the Bloomfield Colliery mining project would be capable of meeting all water needs for dust suppression from the groundwater inflows and surface runoff into the mine pits, and would provide a net surplus of water that will contribute to the water

available for supply to the Bloomfield CHPP. The site water balances for 2010-2012 demonstrate that Bloomfield Colliery provides a net surplus of water from the project.

Table 4.6: Stored Water 2009 – 2012

	Net Water Volumes (m^3) held by Bloomfield Colliery			
	2009-2010	**2010-2011**	**2011-2012**	**Storage Capacity**
Clean Water	90	90	90	90
Dirty Water				
Lake Kennerson	120	120	80	245
Lake Foster	40	40	35	45
Tailings Dam	400	400	400	600
Controlled Discharge Water				
EPL 396 c. L3.1 - 40ML/day from Point 1	459 ML/yr	505 ML/yr	2300 ML/yr	-

4.5.1.1 Conclusion:

The Bloomfield site water balances for 2010-2012 demonstrate conformance with the modelled predictions that a net surplus of water would occur for the Bloomfield Colliery project.

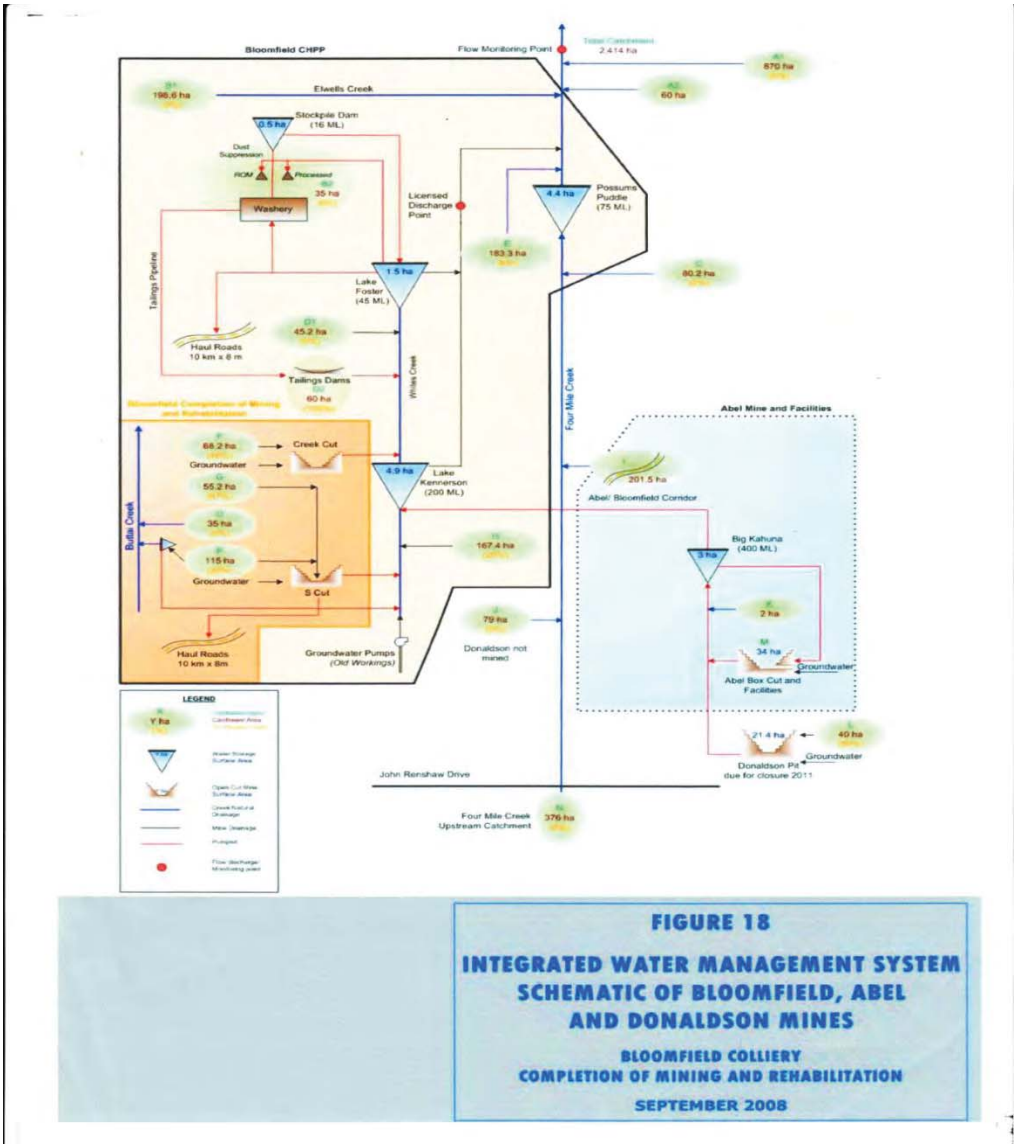


Figure 2: Integrated Water Management System (from EA Colliery Completion of Mining and Rehabilitation

4.5.2 Erosion and Sediment Control

[Project Approval Schedule 3 condition 21]
[Statement of Commitment 15.2]

The Erosion and Sediment Control Plan was prepared in March 2010 by GSS Environmental for Bloomfield Colliery as part of the Water Management Plan:

The Erosion and Sediment Control Plan was submitted to DoP as part of the Water Management Plan in November 2010 and addresses each of the requirements of Project Approval Schedule 3 condition 21.

The recommended requirements of the guideline in *Managing Urban Stormwater: Soils and Construction (Volume 2E – Mines and Quarries) Manual* (EPA 2008) Appendix C, for the preparation of an Erosion and Sediment Control Plan are summarised in Table 4.7:

Table 4.7: Summary of Bloomfield Colliery Erosion and Sediment Control Plan with *Managing Urban Stormwater: Soils and Construction (Volume 2E – Mines and Quarries) Manual* (EPA 2008)

Section	Requirements	Evidence / Comments
App C.3	The locality of the mine	Water Management Plan Figure 1 and Figure 2
	Existing site contours including catchment area boundaries	Erosion and Sediment Control Plan Figure 1 Contours and Catchment Areas Site Water Balance Table 2 Catchment Areas
	Location of existing vegetation	Erosion and Sediment Control Plan Figure 1 Aerial Photo showing vegetation
	Location of critical natural areas requiring special planning of management	No critical natural areas requiring special management identified in the Bloomfield Colliery site.
	Stages of mining	Mining Operations Plan 2012-2016 Maps 3A to 3E
	Nature and extent of earthworks, including cut and fill	Mining Operations Plan Map 2 Mine Domains
	Location of all soil stockpiles.	Erosion and Sediment Control Plan section 2.1.3 Mining Operations Plan Map 2 Mine Domains
	Location of proposed roads	Erosion and Sediment Control Plan section 2.2.3
	Location and types of proposed erosion control measures.	Erosion and Sediment Control Plan Figure 1 Sediment Dams
	Site rehabilitation proposals including final contours.	Mining Operations Plan 2012-2016 section 6.2 Mining Operations Plan 2012-2016 Map 4 Final Rehabilitation
App C.4	Supporting information for the ESCP should include a brief description of:	
	Site characteristics (slopes, topography etc.)	Erosion and Sediment Control Plan Figure 1 Contours Mining Operations Plan 2012-2016 Map 1
	Major soil types present, including description and depth of each layer.	Not described in the Erosion and Sediment Control Plan.
	Existing vegetation species.	Group Flora and Fauna Management Plan
	Any vulnerable lands present	No vulnerable lands are reported to be present within the Bloomfield Colliery site.
	Catchment areas above and within the site including drainage patterns.	Erosion and Sediment Control Plan Figure 1 Contours and Catchment Areas Site Water Balance Table 2 Catchment Areas
	Integration of vegetation management with the proposed extraction plan	Erosion and Sediment Control Plan section 3.0 Revegetation
	Any areas within the site with serious erosion or sedimentation potential, together with details of special planning or management requirements proposed for their protection.	Soils within the Bloomfield Colliery site are border-line between Class D and F. No areas of the site require special planning or management requirements for their protection.
	The construction sequence over the life of the development in the form of a chart or table outlining the sequence of works including erosion and sediment measures.	Mining Operations Plan section 2.2 Activities over the MOP Term

	The erosion control strategy including the criteria used to select, locate and schedule control measures.	Erosion and Sediment Control Plan section 2 Erosion and Sediment Control
	Measures to be used to control sediment on site including the criteria used to select, locate and schedule such measures.	Erosion and Sediment Control Plan section 22 Long-term Erosion and Sediment Control Structures; section 22 Short-term Erosion and Sediment Control Structures
	The extraction program	Mining Operations Plan section 2 Proposed Mining Activities
	Progressive rehabilitation	Mining Operations Plan section 5.3 Rehabilitation Phases
	The revegetation program including revegetation species.	Erosion and Sediment Control Plan section 3.0 Revegetation; and
	The maintenance strategy for all control measures including the nomination of responsibility for follow-up maintenance of any permanent control measures.	Erosion and Sediment Control Plan section 4.0 General Maintenance and Monitoring

4.5.2.1 Conclusion

Erosion and sediment control on the Bloomfield Colliery site was observed to be protecting the natural waterways from impact of surface runoff from the disturbed areas of the site.

The requirements of *Managing Urban Stormwater: Soils and Construction, Volume2E Mines and Quarries* for the preparation of an Erosion and Sediment Control Plan are addressed in the Bloomfield documents Water Management Plan, Erosion and Sediment Control Plan and Mining Operations Plan. To demonstrate consistency with the Appendix C of *Managing Urban Stormwater: Soils and Construction, Volume2E Mines and Quarries* guideline, reference to other relevant Bloomfield Colliery document sections could be included in any future revision of the Erosion and Sediment Control Plan.

4.5.3 Surface Water Monitoring

[Project Approval Schedule 3 condition 22]
[Statement of Commitment 16.1]

4.5.3.1 Surface Water Monitoring Program

The Surface Water Monitoring Program (dated 31 March 2010) was prepared within the Surface Water and Groundwater Response Plan by Evans and Peck as part of the Water Management Plan. The Surface Water Monitoring Program includes Baseline Data on Elwells Creek and Buttai Creek (section 1.2), Surface Water and Stream Health Impact Assessment Criteria (section 1.3), an outline of the surface water monitoring program and routine water quality monitoring frequency and parameters and reporting procedures.

The Surface Water Monitoring Program is consistent with and forms part of the Integrated Environmental Monitoring Program section 4.4 Surface Water Monitoring (dated December 2007) prepared for the Abel, Donaldson, Tasman and Bloomfield projects. The Bloomfield Surface Water Monitoring Program has additional monitoring locations that supplement the integrated program, providing adequate data for the assessment of any potential impacts from the Bloomfield mining activities on the natural waterways that may be affected by the operations.

4.5.3.2 Surface Water Monitoring

The Bloomfield surface water monitoring program includes the locations from the Integrated Environmental Monitoring Program with additional monitoring sites for background and Four Mile Creek monitoring. The surface water monitoring sites are listed in Table 4.8.

Table 4.8: Surface Water Monitoring Locations

ID	Sampling Site	Sampling Location	Reference
W1	Tributaries of Wallis Creek	Background west of the CCL	Bloomfield Colliery Surface Water Monitoring
W2	Shamrock Creek	Background	
W3	Ewells Creek and Four Mile Creek junction	Four Mile Creek and its tributaries	Integrated Environmental Monitoring Program section 4.4
W4	Possums Puddle Overflow		Integrated Environmental Monitoring Program section 4.4
W5	Ewells Creek	Background	Integrated Environmental Monitoring Program section 4.4
W6	Four Mile Creek upstream of Lake Foster	Four Mile Creek and its tributaries	Bloomfield Colliery Surface Water Monitoring
W7	Possums Puddle – surface water	Water storage dams	Integrated Environmental Monitoring Program section 4.4
W8	Lake Foster - mine water		
W9	Lake Kennerson – mine water		
W10	Four Mile Creek - John Renshaw Drive	Four Mile Creek and its tributaries	Bloomfield Colliery Surface Water Monitoring
W11	Four Mile Creek - New England Highway		Integrated Environmental Monitoring Program section 4.4
W12	Shamrock Creek and Four Mile Creek junction		
W13	Buttai Creek at Buchanan Road		Bloomfield Colliery Surface Water Monitoring

The water monitoring program at Bloomfield consists of discharge sampling (in accordance with the EPL licensed discharge condition L2.4 and L3.1, water storages and background monitoring sites centred on Four Mile Creek and its tributaries.

Water quality samples collected during the surface water monitoring program are field tested and samples dispatched to NATA registered laboratories for analysis in accordance with the Integrated Water Monitoring Program (December 2007) and Bloomfield Surface Water Monitoring Program (November 2010). The parameters analysed for the programs are shown in Table 4.9.

Table 4.9: Surface Water Monitoring Program

Sampling Points	Frequency	Monitoring	Reference
WM 3, WM5, WM11, WM12 and water storages	Monthly	pH, EC, DO, TSS, TSS, TDS and filterable iron	Integrated Environmental Monitoring Program section 4.4
W1, W2, W4, W6 TO W10, and W13		pH, EC, DO, TSS, turbidity, TSS, TDS	Bloomfield Colliery Surface Water Monitoring Program
W1, W2, W4, W6 TO W10, and W13 (WM 3, WM5, WM11, WM12 and water storages are also monitored quarterly).	Quarterly	pH, EC, DO, TSS, turbidity, TSS, TDS, chloride, sulphate, alkalinity, calcium, magnesium, sodium potassium and filterable iron (laboratory analysis)	Bloomfield Colliery Surface Water Monitoring Program
WM 3, WM5, WM11, WM12 and water storages	Annually	pH, EC, TSS, TDS, chloride, sulphate, alkalinity, calcium, magnesium, sodium potassium, filterable iron	Integrated Environmental Monitoring Program section 4.4
Four Mile Creek - 500m upstream of the New England Highway	Continuous	Automated flow gauge	Integrated Environmental Monitoring Program section 4.4

4.5.3.3 Monitoring Results (Background Sampling Sites):

pH levels in Four Mile Creek and its tributaries, and Wallis Creek tributaries are generally consistent with EPL criteria and ANZECC water quality guidelines (pH 6.5-8.5).

Water quality within the mine water storage dams (Lake Kennerson and Lake Foster) may vary throughout the year depending on rainfall capture in the open cut pits, CHPP water usage and frequency of discharge events from the EPA approved discharge Point 1 from Lake Kennerson. The quality in the freshwater dam (Possums Puddle) remains fairly constant throughout the year as it is separate from and not affected by mining activities.

EC (salinity levels) in Four Mile Creek and Wallis Creek tributaries are generally consistent with the EPL criteria in condition L2.4. Four Mile Creek is ephemeral and exhibits EC (salinity levels) slightly elevated downstream of Bloomfield Colliery with the higher results evident at the Ewells Creek and Shamrock Creek junctions and New England Hwy. These higher EC results reflect concentration of solutes in ponds during low flow periods.

The water collected from the drainage line adjacent to Rathluba (sampling location W1) west of the Bloomfield CCL area, exhibit lower pH than values recorded from other sampling sites. Prior to 2006 pH results from this site were less than pH 4, but pH levels have been steadily increasing since then. This drainage line carries surface flow from non-mining land and old rehabilitated mining land that may be influencing the water quality in the area.

4.5.3.4 Mine Water Discharge Monitoring Results:

Mine water is discharged in accordance with EPL 396 condition L3.1 that allows discharge of up to 40ML of mine water per day, within water quality limits, dependent on rainfall. Grab samples of the water are collected at EPA approved discharge Point 1 and at the Four Mile Creek monitoring station during each day of discharge. Samples are tested on site for pH, EC/TDS, turbidity (TSS) to ensure discharge water is within the allowed water quality limits, and samples are dispatched to a NATA registered laboratory for analysis.

A permanent monitoring station located on Four Mile Creek, approximately 500m upstream of the New England Highway also records EC and water level (via pressure sensor and V-notch weir) every 15 minutes.

Discharge water quality results generally exhibited compliance with the EPL water quality criteria in EPL 396 condition L2.4 and L3.1 between 2009 and 2012 except for a discharge on the 17 November 2012 when an EC of 6010 µS/cm exceeded the EPL criteria. This incident was reported to the EPA Pollution Line (ref. No. 13146).

Table 4.10: Surface Water Monitoring Results Summary

Parameter	Date	Range	Average	EPL criteria
pH	2009-2010	7.3 - 8.3	8.0	6.5 – 8.5
	2010-2011	7.8 – 8.5	8.1	
	2011-2012	7.8 – 8.5	8.2	
EC	2009-2010	1400 - 5645	4052	6000 µS/cm
	2010-2011	2520 - 5960	4472	
	2011-2012	1780 - 4760	3620	
TSS	2009-2010	1 - 13	7	<30 mg/L
	2010-2011	1 - 26	8	
	2011-2012	1 - 24	9	
Filterable iron	2009-2010	<0.05 – 0.06	<0.05	<1 mg/L
	2010-2011	<0.05	<0.05	
	2011-2012	<0.05 – 0.77	<0.1	
Discharge	2009-2010		38.2	40 ML/day
	2010-2011	25 - 40	38.8	
	2011-2012	20 - 40	39.7	

4.5.3.5 Conclusion

The Surface Water Monitoring Program is consistent with and forms part of the Integrated Environmental Monitoring Program. The Bloomfield Surface Water Monitoring Program has additional monitoring locations that supplement the integrated program, providing adequate data for the assessment of any potential impacts from the Bloomfield mining activities on the natural waterways that may be affected by the operations.

Bloomfield surface water quality monitoring conducted in accordance with the Integrated Environmental Monitoring Program and the Bloomfield Water Management Plan - Surface Water Monitoring Program has demonstrated that surface water quality results in waterways potentially affected by the Bloomfield mining operations have been are generally consistent with EPL criteria for pH, EC and Filterable iron during the 2009 and 2012, except for an EC of 6010 µS/cm reported for the discharge on 17 November 2012 which exceeded the EPL criteria of 6000 µS/cm.

4.5.4 Groundwater Monitoring

Project Approval Schedule 3 condition 23]
[Statement of Commitment 17.1]

4.5.4.1 Groundwater Management Plan

A Groundwater Management Plan (including a monitoring program (section 2.4) was prepared by Aquaterra, for the Bloomfield Colliery as part of the Water Management Plan. The Water Management Plan was submitted to DoP in November 2010. No response in relation to approval of the Plan had been received by Bloomfield at the date of this audit (i.e. 11 February 2013).

4.5.4.2 Groundwater Monitoring

The groundwater monitoring program is described as:

> *"The groundwater monitoring program that has been operating on the Bloomfield mine since 2007 will be continued and expanded to include the neighbouring Donaldson, Abel and Tasman areas, as an integrated monitoring system covering all four sites. It will also be integrated with the surface water monitoring program.*
> *The groundwater monitoring program will include:*
> - *Quarterly measurement of water levels in the existing network of piezometers to be monitored through the life of the project.*
> - *Six monthly sampling of all standpipe piezometers, for laboratory analysis of electrical conductivity (EC), total dissolved solids (TDS) and pH.*
> - *Annual collection of water samples from all standpipe piezometers for laboratory analysis*
> - *of a broader suite of parameters:*
>   - *Physical properties (EC, TDS and pH)*
>   - *Major cations and anions (Ca, Mg, Na, K, Cl, SO4, HCO3 and CO3)*
>   - *Nutrients*
>   - *Dissolved metals.*
> - *Record pump time from the pit to estimate the volume of mine water pumped from the open cut mine."*

Groundwater impact was not identified as a significant risk in the groundwater assessment and investigations undertaken for the *Environmental Assessment - Completion of Mining and Rehabilitation,* dated November 2008. The groundwater assessment concluded that small impacts on stream base flows were predicted for Wallis and Buttai Creeks with rapid recovery post-mining, and no adverse impacts on groundwater quality were expected as a result of the completion of mining and rehabilitation at Bloomfield Colliery.

Quarterly monitoring and six monthly sampling in accordance with the Bloomfield Groundwater Monitoring Program was undertaken during the 2009-2012 period and although groundwater depth and quality across the

Bloomfield Colliery CCL site is variable, the groundwater levels, pH and EC results are relatively consistent within each piezometer location and has not demonstrated any real trends over the 2009-2012 period.

The Bloomfield Colliery Groundwater Management Plan and monitoring program are adequate for the ongoing assessment of the Bloomfield Colliery mining activities on the local groundwater regime. (Collated data from the groundwater monitoring described in the Integrated Environmental Monitoring Program would provide a perspective of the effects of mining activities on the regional groundwater).

4.5.4.3 Conclusion:

The Bloomfield Colliery Groundwater Management Plan and monitoring program are adequate for the ongoing assessment of the Bloomfield Colliery mining activities on the local groundwater regime.

Groundwater monitoring during the 2009-2012 period did not demonstrate any real trends in groundwater depth or water quality which is consistent with the groundwater assessment conclusions in the *Environmental Assessment - Completion of Mining and Rehabilitation,* November 2008.

4.5.5 Surface and Groundwater Response Plan

[Project Approval Schedule 3 condition 24]
[Statement of Commitment 16.2]

4.5.5.1 Surface and Groundwater Response Plan

The Surface and Groundwater Response Plan was prepared by Evans and Peck for Bloomfield Colliery as part of the and submitted to the DoP in November 2010 as part of the Water Management Plan to meet the requirements of Project Approval Schedule 3 condition 24. No comments or response from DoP had been received at the date of this audit.

Surface and Groundwater Response Plan section 1.3 addresses Surface Water and Stream Health Impact Assessment Criteria, and section 1.4 provides Water Quality Trigger Values that would initiate response actions under the Surface and Groundwater Response Plan.

Trigger values for pH (5.2-8.0) and EC (>4000 µS/cm) were not exceeded during the 2009-2012 period, with the highest results recorded during the dry weather low flow periods.

4.6 Land Management

[Project Approval Schedule 3 condition 26]
[Statement of Commitment 4.3]

4.6.1 Landscape Management Plan

The Final Draft Landscape Management Plan (dated 15 June 20110) was prepared by John Hindmarsh and Keren Halliday (experts approved by the Director-General on 16 Dec 2009) for Bloomfield Colliery, and submitted to DoP on 28 June 2010 for approval.

The Final Landscape Management Plan includes a final draft Rehabilitation Management Plan submitted to DoP on 28 February 2010 (i.e. within 6 months of the Project Approval); a Final Void Management Plan was submitted to DP&I on 13 Jun 2012; and a Mine Closure Plan submitted to DP&I on 28 Jun 2012 following comments received from NSW DT&I. No response to the Landscape Management Plan had been received from DP&I at the date of this audit (February 2013).

A Land Disturbance Management Procedure (dated 10 October 2012) prepared by Bloomfield Mining Operations outlines the controls implemented to manage and record disturbance to native vegetation (if minor areas of vegetation need to be cleared to facilitate planned mining activities and related infrastructure),

minimise any associated risk to native fauna populations, and control and record disturbance to Aboriginal artefacts (if encountered).

4.7 Rehabilitation

[Project Approval Schedule 3 condition 27]
[Statements of Commitment 4.1 to 4.4]

4.7.1 Rehabilitation Management Plan

A final draft Rehabilitation Management Plan was submitted to DoP on 28 February 2010 (i.e. within 6 months of the Project Approval). A revised Final Draft Rehabilitation Management Plan including the Project Area, as approved by the Section 75W Modification (dated 16 May 2011), was prepared and submitted to the DOP on 4 November 2011 and 13 March 2012. No response from DP&I re the Rehabilitation Management Plan had been received by Bloomfield at the date of this audit February 2013.
The Rehabilitation Management Plan includes the Rehabilitation Aim and Objectives (page 9) and Appendix A – Rehabilitation Objectives (page A.4); the proposed approach to rehabilitation (page 8) and Table 2; rehabilitation Indicators and completion criteria (page 10) and assessment program (page 14); and rehabilitation monitoring protocol (page 13) and methodology (page A.9). The Rehabilitation Management Plan is also described with the mining sequences in the Bloomfield Colliery Mining Operations Plan 2011 to 2016.

4.7.2 Rehabilitation Status

Rehabilitation of the Bloomfield Project Area will occur progressively throughout the life of the Bloomfield Project. Bloomfield is responsible for land rehabilitation within all parts of the Bloomfield Project Area, with the exception of the final void. The post-mining rehabilitation strategy (including the final void) will incorporate Abel Mine and Bloomfield CHPP requirements, as the placement of coarse rejects and tailings and subsequent rehabilitation will continue operating after the completion of mining for the Bloomfield Project area.

The majority of the Bloomfield Project CCL area is relatively undisturbed remnant native bushland. To date 428ha of the Bloomfield CCL area has been rehabilitated. Rehabilitation status and proposed rehabilitation planned for the next 12 months is described in the AEMR's (section 5).

The major rehabilitation program over the 2000-2010 period resulted in only small areas of disturbed land being available for rehabilitation on the B loom field Project site during the 2010-2012 period. Combined with this, an expansion of overburden emplacement over some areas previously rehabilitated has resulted in an apparent reduction in the total rehabilitated area of the CCL (e.g. 14.9 ha of land was rehabilitated during 2011-2012, but as a result of the overburden emplacement there was net decrease of 13 ha in rehabilitated land recorded for the 2011-2012 reporting year).

Rehabilitation Plans in the AEMR's provide an overview of the site showing areas previously rehabilitated, areas where overburden emplacement has occurred on previously rehabilitated land (e.g. northeast Creek Cut), rehabilitation undertaken during the annual reporting period, shaped areas ready for rehabilitation, unshaped areas (active dumps), and active mining areas.

The rehabilitation of the Bloomfield site is progressing with the finished areas exhibiting established grass and vegetative cover, successful erosion control and drainage lines established for control of runoff and direction to Lake Kennerson or Lake Foster.

Table 4.11: Bloomfield Rehabilitation Summary 2009-2012

	2009-2010	2010-2011	2011-2012
Active Mine Area	50.4ha (active pit area increased by 1.8ha)	63.8ha (active pit area increased by 13.4ha)	59.5ha (active pit area decreased by 4.3ha)*
Overburden Emplacements	191.9ha (emplacement area increased by 15.7ha)	213ha (emplacement area increased by 21.1ha)	243.3 ha (emplacement area increased by 30.3ha)
Tailings Emplacement**	86.8ha	86.8ha	86.8ha
Total Rehabilitation***	455.1ha	441.2ha	428.2ha
Pasture and grasses	450.1ha	436.2ha	423.2ha
Trees and crops	5ha	5ha	5ha

* active pit area decreased by 4.3ha due to backfilling in Creek Cut

** U cut tailings emplacement (currently active)

*** Rehabilitated areas of pasture and grasses reduced by re-contouring of finished emplacement areas

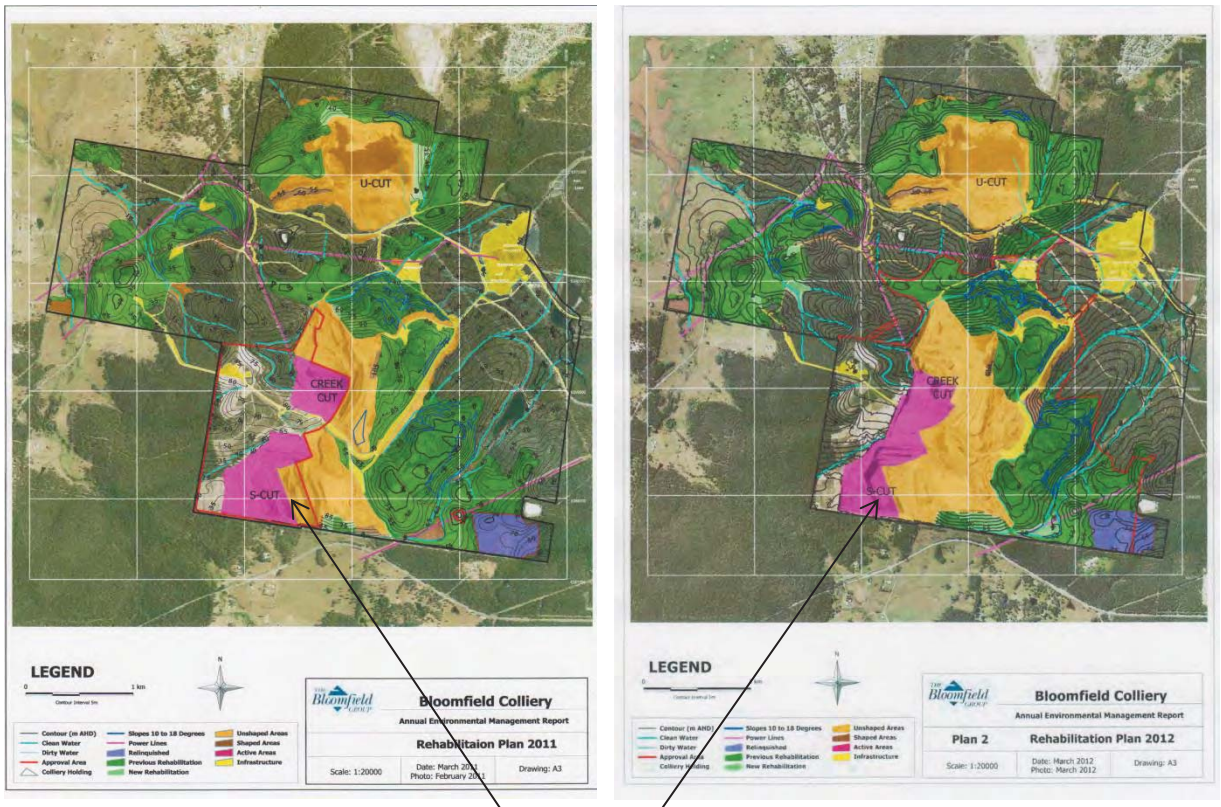


Figure 3: Bloomfield Project Rehabilitated Areas 2011 and 2012 (area reduced by overburden emplacement)

The majority of the Bloomfield CCL area is relatively undisturbed remnant native bushland. To date 428 Ha has been rehabilitated.

The major rehabilitation program over the 2000-2010 has resulted in only small areas of disturbed land currently being available for rehabilitation. Combined with this, an expansion of overburden emplacement over some areas previously rehabilitated has resulted in an apparent reduction in the total rehabilitated area. (e.g. 14.9 ha of land was rehabilitated during 2011-2012, but as a result of the overburden emplacement there was net decrease of 13 ha in rehabilitated land recorded for the 2011-2012 reporting year.

Rehabilitation Plans (Plan 2) in the AEMR's provide an overview of the site showing areas previously rehabilitated, areas where overburden emplacement has occurred on previously rehabilitated land (e.g. northeast Creek Cut), rehabilitation undertaken during the annual reporting period, shaped areas ready for rehabilitation, unshaped areas (active dumps), and active mining areas.

4.7.3 Conclusion

The Bloomfield Colliery Rehabilitation Management Plan (prepared as part of the Landscape Management Plan) and Mining Operations Plan 2011-2016 provide a satisfactory strategy and rehabilitation plans for the rehabilitation of the disturbed areas of the Bloomfield CCL to meet the final land use for the Bloomfield and surrounding mining areas.

The rehabilitation of the Bloomfield site is progressing generally in accordance with the Rehabilitation Management Plan (June 2011) and the Mining Operations Plan (2011-2016) with the finished areas exhibiting established grass and vegetative cover, successful erosion control and drainage lines established for control of surface runoff to Lake Kennerson or Lake Foster.

4.8 Final Void Management

[Project Approval Schedule 3 condition 28]
[Statements of Commitment 5.1 and 5.2]

4.8.1 Final Void Management Plan

The Final Void Management Plan (dated 13 June 2012) was prepared to satisfy the requirements of Project Approval Schedule 3 condition 28, and submitted to the DoP as part of the Bloomfield Landscape Management Plan. No response to the Landscape Management Plan had been received from DP&I at the date of this audit (February 2013). The Final Void Management Plan includes the location of the final void (page7); Design Criteria for Final Void – Groundwater Model (page 8); and monitoring (page 11) and actions and measures to be implemented in the event of any potential impacts of final void (page 9).

The Bloomfield CHPP, rail loading facility and associated infrastructure will continue to operate after the Bloomfield Project is scheduled to be completed. A final void will be retained on the Bloomfield site after the completion of Bloomfield Project mining. The final void will be at the northern extension of S Cut where it will join with Creek Cut and this void will remain as part of an active disposal site for reject material from the Bloomfield CHPP (as approved under the Abel Project Approval).

Bloomfield plans to rehabilitate the reject emplacement areas, once capacity has been reached, by shaping to a stable, undulating, self-draining landform with mixed cover of pasture and native vegetation. These plans may in future be influenced by the needs of other projects that utilise the final void.

The requirements of Project Approval Schedule 3 condition 28 for the final void management and ongoing use will be activated after the completion of the Bloomfield Project mining in years 10 to-12.

4.9 Mine Closure Plan

[Project Approval Schedule 3 condition 29]

The Mine Closure Plan (dated 13 June 2012) was prepared and submitted to the DoP as part of the Bloomfield Landscape Management Plan. The Mine Closure Plan was finalised and submitted to DoP on 28 June 2012. No response to the Landscape Management Plan (which includes the Mine Closure Plan) had been received from DP&I at the date of this audit (February 2013).
The Mine Closure Plan dated 28 June 2012 was prepared in consultation with DRE and Council and includes future land use options including integration with adjacent mine land (page 8-9) and reference to Lower Hunter Regional Strategy (DoP, 2006), The Ashtonfield Agreement, and Stony Pinch Consortium; socioeconomic effects of mine closure (page 10); and post-closure monitoring and management measures (page 11).

The requirements of Project Approval Schedule 3 condition 29 for the mine closure management and ongoing land use will be activated after the completion of the Bloomfield Project mining in years 7 to 10.

4.10 Biodiversity

[Project Approval Schedule 3 conditions 29A to 29C and 30]

The Biodiversity Offset Management Plan (dated 20 October 2011) was prepared to satisfy Project Approval Schedule 3 conditions 29A to 29C and 30 and submitted to DP&I on 7 November 2011 for approval (i.e. compliant with condition 29B that required the Biodiversity Offset Management Plan to be submitted no later than 31 December 2011). No response to the Landscape Management Plan had been received from DP&I at the date of this audit (February 2013):

The Biodiversity Offset Management Plan is generally consistent with the "Principles for the use of biodiversity offsets in NSW" OEH dated 17 June 2011 and includes Short, Medium and Long-term Management Measures (pages 6-7); Performance and Completion Criteria (page 7); and measures that would be implemented within the Biodiversity Offset Area for regeneration (page 8), protection, conservation and management (page 8), weeds and feral pests management (page 8), public access (page 9), and bushfire management (page 9).

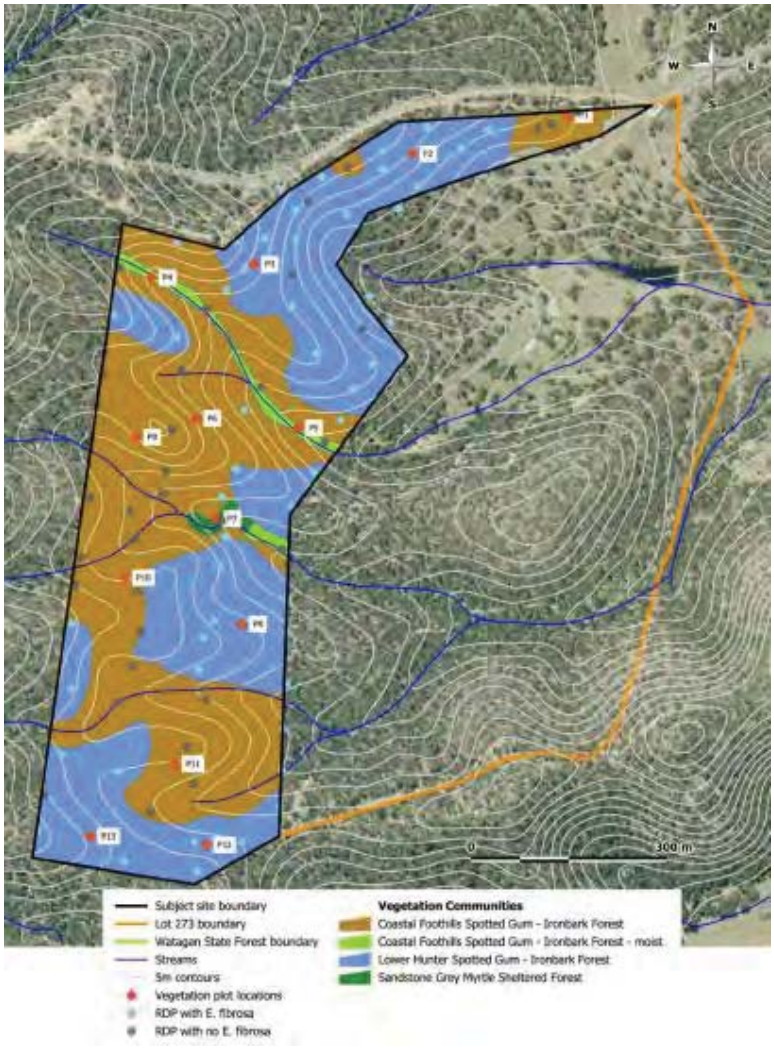


Figure 4: Biodiversity Offset Area (Part Lot 237 DP 1017683 Thursbys Road, Congewai) (Project Approval 07-0087 Appendix 6)

A Certificate of Title for Lot 2371 DP1170348, LGA Cessnock, Parish of Ellalong, County of Northumberland, was registered on 5 January 2012 to Four Mile Pty Ltd with Second Schedule condition of Restriction of Use of Land. The land defined in the Certificate of Title is consistent with Appendix 6 of the Project Approval.

Bloomfield received approval from DoP on 22 April 2010 in relation to Project Approval Schedule 3 condition 30 for the provision of funding for conservation projects in the Cessnock local government area. The approved funding was provided to the NSW Land and Property Management Authority for the Stanford Merthyr Crown Reserve Rehabilitation Project. Contributions of $20,000 for the Stanford Merthyr Crown Reserve were made by Bloomfield in accordance with the DoP approval of the funding proposal.

The Biodiversity Offset Management Plan was submitted to DP&I in November 2011 and resubmitted on 5 February 2013. No response had been received from DP&I at the date of this audit. The provision of a Conservation Bond is not due until 6 months after approval of the Biodiversity Offset Management Plan by DP&I. The Conservation Funding requirement (Project Approval Schedule 3 condition 30) has been met and the Certificate of Title for Lot 2371 DP1170348, LGA Cessnock, Parish of Ellalong, County of Northumberland, for the offset area registered on 5 January 2012 to Four Mile Pty Ltd.

4.11 Aboriginal Heritage

[Project Approval Schedule 3 condition 31]
[Statement of Commitments 10.1 to 10.5]

4.11.1 Aboriginal Cultural Heritage Management Plan

The Aboriginal Cultural Heritage Management Plan was prepared by South east Archaeology Ltd for Bloomfield Colliery and reviewed and endorsed by the Mindaribba Local Aboriginal Land Council (LALC). The section on Aboriginal Community (page 7) provides for ongoing consultation and involvement of Aboriginal communities in the conservation and management of Aboriginal heritage on site; and Onsite Aboriginal Heritage (pages 7 to12) provide guidance in relation to the measures that would be implemented to protect Aboriginal sites on site, or if any new Aboriginal objects or skeletal remains are discovered during the project activities. The Aboriginal Cultural Heritage Management Plan was submitted to and endorsed by DECCW, and approved by the Director-General of DoP on 27 May 2010.

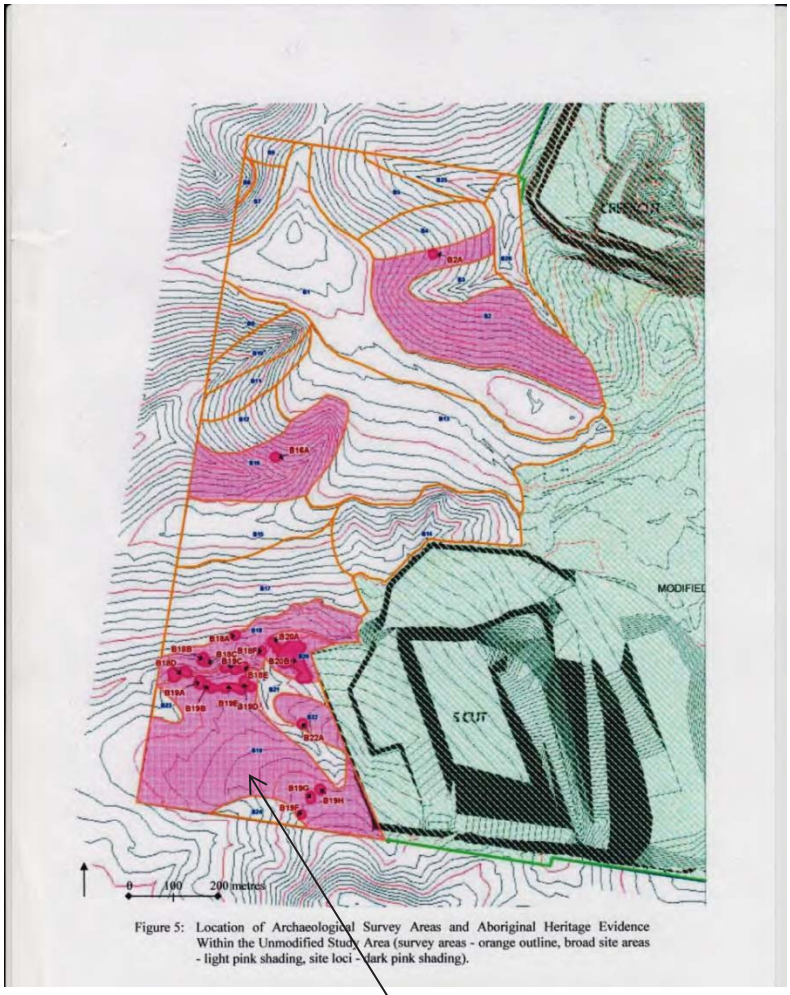


Figure 5: Location of Archaeological Survey Areas and Aboriginal Heritage Evidence Within the Unmodified Study Area (survey areas - orange outline, broad site areas - light pink shading, site loci - dark pink shading).

Figure 5:Areas of Aboriginal heritage sites within the undisturbed areas of the Bloomfield Project where salvage of 34 artefacts occurred.

The Aboriginal sites identified in the Part 3A Environmental Assessment of Completion of Mining and Rehabilitation (November 2008) were salvaged in accordance with the Aboriginal Cultural Heritage Management Plan. Representatives from Mindaribba LALC participated and monitored the process ahead of preparation any land areas for mining activities. Thirty-four (34) artefacts were salvaged and are being stored in the Bloomfield offices for the Mindaribba LALC.

No incidents relating to Aboriginal heritage occurred during the 2010-2012 period, and the requirements of the Aboriginal Cultural Heritage Management Plan will continue to be implemented including management of identified sites/areas.

4.11.2 Conclusion

The Aboriginal Cultural Heritage Management Plan prepared by South east Archaeology Ltd for Bloomfield Colliery was reviewed and endorsed by the Mindaribba Local Aboriginal Land Council (LALC) and submitted to and endorsed by DECCW, and approved by the Director-General of DoP on 27 May 2010.

No incidents relating to Aboriginal heritage occurred during the 2010-2012 period, and the requirements of the Aboriginal Cultural Heritage Management Plan will continue to be implemented including management of identified sites/areas.

4.12 Energy Savings Action Plan

[Project Approval Schedule 3 condition 33]

[Statement of Commitment 14.1]

4.12.1 Energy Saving Action Plan

[Project Approval Schedule 3 condition 33]

The Energy Saving Action Plan was prepared in accordance with the requirements presented in the Guidelines for Energy Savings Actions Plans produced by the former NSW Department of Energy, Utilities and Sustainability (DEUS) (October 2005) and implemented by Bloomfield as part of the Environmental Management System for the project. The Energy Saving Action Plan was submitted to the DoP within 6 months of the date of the Project Approval.

The objectives of the Energy Saving Action Plan are to:

- ensure compliance with the project approval conditions;
- reduce greenhouse gas emissions from the project area; and
- ensure annual reporting of greenhouse gas emissions and tracking of energy savings opportunities.

The ongoing effectiveness and efficiency of the Energy Savings Action Plan is monitored as part of normal operations management. Ongoing review of the strategy occurs as part of the Systems Review Management System.

4.12.2 Energy Efficiency Opportunities

An Energy Efficiency Opportunities (EEO) Report for the 1 July 2006 to 30 June 2011 period was prepared for the Australian Government Department of Resources, Energy and Tourism, for Bloomfield Collieries Project.. Significant opportunities and savings identified through the annual EEO assessment were:

- Recycled waste oil used in explosives at the Bloomfield Collieries (and Rix's Creek Mine site) has resulted in a direct saving of 313,000 litres of distillate not being purchased for use in explosives.
- LED light replacement trail program had a minor energy saving of approximately 1.7GJ per annum per bulb. This program is on a continual rollout. Energy saved across the project 28GJ, and greenhouse gas abated (CO2-e) 7 tonnes.
- Investigation into a trial of lighter haul truck bodies indicated a 6.5% fuel saving advantage.
- Replace older 992C Front-end-loader with 992K current model. Significant capital outlay but with an efficiency improvement that relates to an overall energy savings to perform the same work. Energy saved 296GJ, and greenhouse gas abated (CO2-e) 23 tonnes.
- Replace 992 Front-end-loader (FEL) with smaller unit IT62. Replace the existing FEL used on load the stemming truck with a smaller unit better matched to the scale of the operation. Energy saved across the project 1536GJ, and greenhouse gas abated (CO2-e) 119 tonnes.

4.12.3 Conclusion

Bloomfield has implemented the energy efficiency opportunities program demonstrating some significant energy savings in their annual Energy Efficiency Opportunities Report to the Australian Government Department of Resources, Energy and Tourism.

4.13 Waste Minimisation

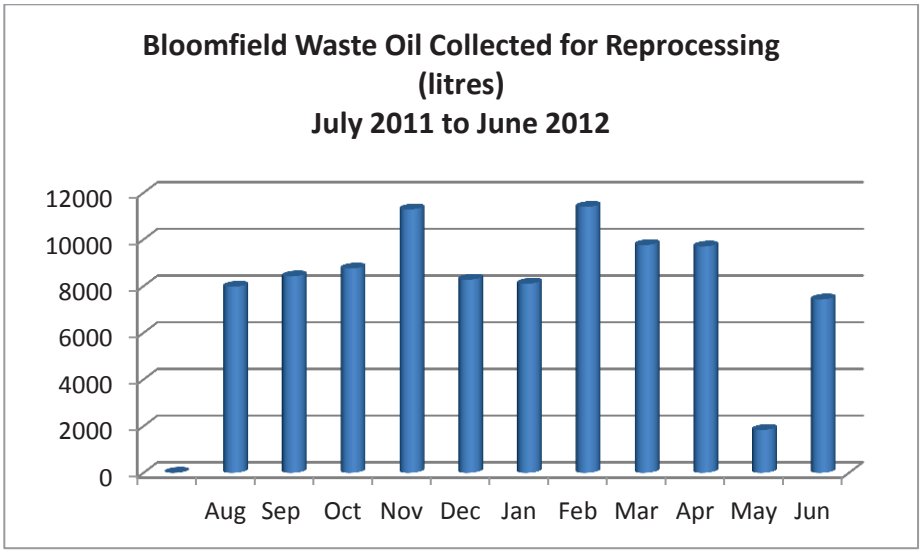
[Project Approval Schedule 3 condition 34]

Management of waste from the Bloomfield site is currently contracted to Transpacific Cleanaway Pty Ltd licensed for waste transport and disposal, supply 1.5m^3 and 3m^3 waste bins for the segregation, collection and disposal of:

- General waste
- Paper and cardboard
- Oil filters
- Old paint drums.

General rubbish collected in the 1.5m^3 and 3m^3 waste bins are collected by Transpacific Cleanaway for recycling and/or disposal. The amount of recycled material reported by Transpacific Cleanaway is shown in the graph.

Waste oil from scheduled maintenance of mining equipment and the workshop oil separator is collected in a storage tank and periodically evacuated for reprocessing and re-use by Australian Waste Oil Refineries. The volume of waste oil in litres collected for reprocessing between July 2011 and June 2012 is shown in the graph.

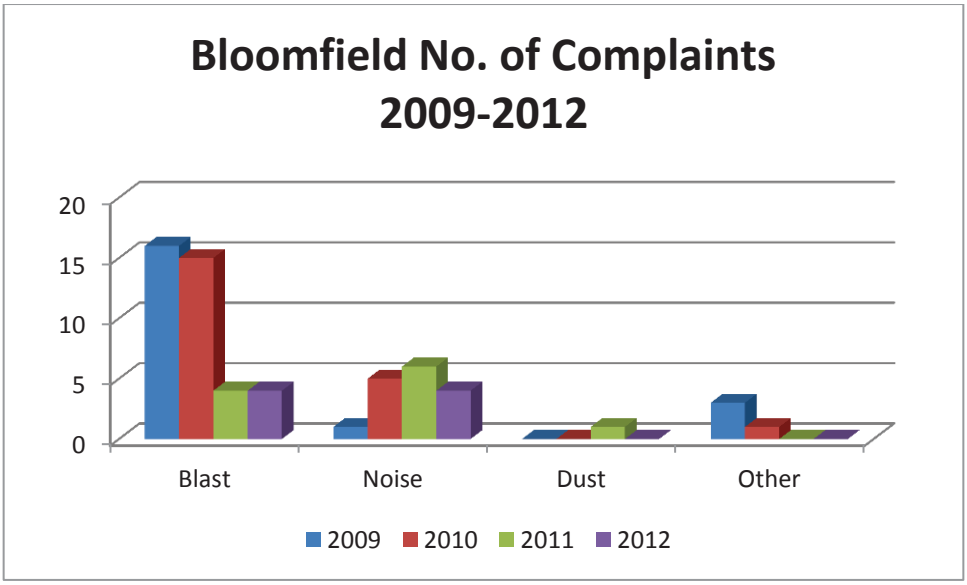


4.14 Complaints

Records of complaints are kept on a Complaints Register with the following information recorded:

- date / time of the complaint;
- method by which the complaint was made (i.e. email, Bloomfield complaints telephone line, EPA Pollution Line etc);
- details of the complainant;
- nature of the complaint;
- action taken in relation to the complaint.

The total number of complaints recorded over the 2009 to 2012 period has reduced from a total of twenty (20) in 2009 to eight (8) in 2012. The breakdown of complaints is shown in the following graph.



Blast Complaints

Blast complaints have reduced in number between 2009 and 2012 (from sixteen (16) in 2009 to four (4) complaints in 2011 and 2012.

A complaint on 16 September 2010 was received from Old Buttai Road, Buttai in relation to the blast overpressure exceedance of 127.9dBL. This blast overpressure result was notified to the DECCW Pollution line as a breach of EPL condition L4.2.

All other complaints with respect blasting (between 2009 and 2012) were investigated and monitoring results indicated that the blast overpressure and vibration recorded for each blast were less than the EPL / CCL / Project Approval criteria, except for one blast on 7 March that recorded 118dBL at Waterforde Estate Loth Park.

Noise Complaints

A small number of noise complaints (15) were received between 2009 and 2012, the majority of which (13) were lodged by a single complainant. The other two (2) complaints were related to noise from the CHPP hopper operations.

Dust Complaints

Only one (1) dust complaint was received between 2009 and 2012. Bloomfield was notified of the complaint from the EPA Pollution Line on 22 October 2012. The EPA advised no action was required due to lack of detail from the complainant about the dust issue that was indicated to have occurred on the 13 and 16 October 2012.

Other Complaints

Four complaints were received between 2009 and 2012, related to dogs coming through bushland on the Bloomfield site killing alpacas on a property at Loth Park (2). Bloomfield organised a baiting program in response to the complaints, and two complaints related to traffic on John Renshaw Drive not related to Bloomfield operations.

5. SUMMARY OF COMPLIANCE AND RECOMMENDATIONS

The Bloomfield Colliery operations demonstrated a high level of compliance with the Project Approval, Environment Protection Licence and Consolidated Coal Lease conditions. The following summary identifies the conditions where non-compliance has occurred for the current Bloomfield Colliery operations.

Summary of Non-compliance of the Bloomfield Project with approval conditions

	Blast and Vibration		
3/5	The Proponent shall ensure that the air-blast over-pressure level from blasting at the project does not exceed the criteria in Table 2 at any residence on privately-owned land. *Table 2: Airblast overpressure impact assessment criteria* **dB(Lin Peak)** / **Allowable Exceedance** 115 / 5% of total No. of blasts 120 / 0%	**Non-Compliant**	During the 2009-2012 period Bloomfield reported two (2) blasts that exceeded the overpressure 120dBL criteria: • An overpressure value of 127.9dBL was reported on 16 September 2010. A Penalty Infringement Notice (PIN) was issued by DECCW on 1 November 2010. • An overpressure value of 120.6dBL was reported on 9 March 2012. The EPA issued an Official Caution Notice to Bloomfield on 20 March 2012.
EPL L4.2	The airblast overpressure level from blasting operations in or on the premises must not exceed: a) 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; and b) 120 dB (Lin Peak) at any time.		
CCL 10(b)	Blast Overpressure The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120dBL and does exceed 115dBL in more than 5% of the total number of blasts over a 12 month period at any dwelling or occupied premises, unless determined otherwise by the DECCW (OEH).		
Recommendation: The design and planning of blast events should follow the Blast Monitoring Program and Explosives Management Plan procedure/processes to minimise the potential for exceeding the blast overpressure criteria.			
	Blast Schedule Notification		
3/11	Proponent shall: a)……. and …… d)publish an up-to-date blasting schedule on its website;	**Non-Compliant**	d) Blasting information is included on the Bloomfield Collieries website: www.bloomcoll.com.au/bloomfield/bfield/BlasringInformation but no blasting schedule is included.
Recommendation: As providing an accurate up-to-date blasting schedule on the web is difficult to variables (e.g. mine planning and resource delineation, coal requirements, market variability, meteorological conditions, etc), it is recommended that Bloomfield consult with DP&I to have this condition revised to remove this requirement.			
	Discharge Water Quality		
EPL L2.4	**POINT 1** **Pollutant** / **Units of Measure** / **100 %ile conc limit** Conductivity / µS/cm / 6000 Filterable iron / mg/L / 1.0 pH / pH / 6.5-8.5 Total suspended solids / mg/L / 30	**Non-Compliant**	A water discharge from EPA Point 1 on the 17 November 2012 occurred and the EC of 6010 µS/cm (tested by an external V+NATA registered laboratory) exceeded the EPL criteria of 6000 µS/cm. This incident was reported to the EPA Pollution Line (ref. No. 13146).
Recommendation: The quality of discharge water quality should be tested prior to discharge to confirm compliance with the discharge criteria.			

	Annual Review		
5/3	Each year, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must: c)…identify any trends in the monitoring data over the life of the project; d)….identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; ……	**Non-compliant**	The annual reports prepared by Bloomfield have been in the format of the Annual Environmental Management Reports in accordance with the *Guidelines and Format for Preparation of an Annual Environmental Management Report EDG03:* c)…Trends in monitoring data over the life of the project are not included in the AEMR; d)…Predictions from the EA are not included in the AEMR, so discrepancies between the predicted and actual impacts and potential causes of the discrepancies are not included in the AEMR.
Recommendation: The annual reporting of environmental performance should follow the requirements of Project Approval Schedule 5 condition 3 for the format of future Annual Review Reports, by including trends in monitoring data, and identify any discrepancies between the predicted and actual impacts of the project from the EA and analyse the potential cause of any significant discrepancies where relevant.			

Following the granting of the Project Approval 07_087 for the Bloomfield Colliery Project, environmental management plans and monitoring programs have been prepared to satisfy the Project Approval conditions. The environmental management plans and monitoring programs were submitted to DP&I for approval by the Director-General in accordance with the Project Approval conditions. No response had been received by Bloomfield Colliery from DP&I (except for the Aboriginal Heritage Management) at the date of this Independent Environmental Audit.

Bloomfield Colliery has been operating in accordance with these environmental management plans and monitoring programs prepared to satisfy the requirements of the Project Approval conditions since their preparation and submission to the DP&I. This audit of the Bloomfield operations has concluded that the environmental management plans and monitoring programs are satisfactory for the protection of the environment and community from the potential impacts of the Bloomfield Project. Although no response had been received from DP&I at the date of this Independent Environmental Audit, the auditor considers the environmental management plans and monitoring programs to be adequate for the management of the Bloomfield Project activities.

Schedule/ condition	Project Approval Condition	Comment	Status
3/4	Proponent shall prepare and implement a Noise Monitoring Program for the project to the satisfaction of the Director-General.	A Noise Monitoring Program was prepared by SLR for Bloomfield on 16 September 2011 and addressed the requirements of Project Approval Schedule 3 condition 4, Statements of Commitment 11, and MOD 1 and submitted to DoP on 4 November 2011.	Awaiting DP&I Approval
3/13	The Proponent shall prepare and implement a Blast Monitoring Program for the project to the satisfaction of the Director-General.	A final draft Blast Monitoring Program was prepared and submitted to the DoP on 24 February 2010. DoP provide comments on 24 April 2010and a revised Final Blast Monitoring Program incorporating the DoP comments was completed on 9 August 2011. The Blast Monitoring Program was further revised on 31 May 2012.	Awaiting DP&I Approval
3/16	The Proponent shall prepare and implement an Air Quality Monitoring Program for the project to the satisfaction of the Director-General.	A final draft Air Quality Monitoring Program was prepared in consultation with OEH and submitted to the DoP on 24 February 2010. DoP provided comments	Awaiting DP&I Approval

Schedule/ condition	Project Approval Condition	Comment	Status
		on 24 April 2010 and a revised Final Air Quality Monitoring Program incorporating the DoP comments was completed on 9 August 2011. The Air Quality Monitoring Program was further revised on 31 May 2012.	
3/19	The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General.	The Water Management Plan was prepared in consultation with OEH (EPA) and NOW and submitted to the DoP by 5 April 2010 (submission date extension approved by DoP). The Bloomfield Water Management Plan was revised and resubmitted to DP&I in May 2012.	Awaiting DP&I Approval
3/20	The Site Water Balance must: a) include details of: • sources and security of water supply; • water use and management on site; • any off-site water transfers or discharges; • reporting procedures; and • describe measures to minimise water use by the project	The Site Water Balance, March 2010 was developed by Evan and Peck as part of the Bloomfield Water Management Plan.	Awaiting DP&I Approval
3/21	The Erosion and Sediment Control Plan must: a) be consistent with the requirements of Managing Urban Stormwater: Soils and Construction (Volume 2E – Mines and Quarries) manual (OEH 2008), or its latest version; ……	The Erosion and Sediment Control Plan, March 2010 was prepared by GSS Environmental in March 2010 as part of the Bloomfield Water Management Plan.	Awaiting DP&I Approval
3/22	The Surface Water Monitoring Program must include: a) detailed baseline data on surface water flows and quality in creeks and other water bodies that could potentially be affected by the project; b) surface water and stream health impact assessment criteria; c) a program to monitor the impact of the project on surface water flows, water quality and stream health; and d) reporting procedures for the results of the monitoring program.	The Surface Water Monitoring Program, 31 March 2010 was prepared by Evans and Peck as part of the Bloomfield Water Management Plan.	Awaiting DP&I Approval
3/23	The Groundwater Monitoring Program must include: a) further development of the regional and local groundwater model; b) detailed baseline data to benchmark the natural variation in groundwater levels, yield and quality (including at any privately owned bores in the vicinity of the site); c) groundwater impact assessment criteria; ……	The Groundwater Management Plan was prepared by Aquaterra for the Bloomfield Colliery as part of the Bloomfield Water Management Plan.	Awaiting DP&I Approval
3/24	The Surface and Groundwater Response Plan must describe the measures and/or procedures that would be implemented to: • investigate, notify and mitigate any exceedances of the surface water, stream health and ground water impact assessment criteria; ……	The Surface and Groundwater Response Plan was prepared by Evans and Peck as part of the Bloomfield Water Management Plan.	Awaiting DP&I Approval
3/26	The Proponent shall prepare and implement	The Landscape Management Plan was	Awaiting

Schedule/ condition	Project Approval Condition	Comment	Status
	a detailed Landscape Management Plan for the project to the satisfaction of the Director-General and DRE.	submitted to DoP on 3 March 2010 for approval. Plan was revised and resubmitted to the DoP on 4 November 2011 and further revised and submitted to DP&I on 13 June 2012 (with Final Void Management Plan). A revised Land Disturbance Management Plan dated 10 October 2012 was submitted to DP&I including management of Aboriginal Heritage and Permit to Disturb.	DP&I Approval
3/27	The Rehabilitation Management Plan must include: a) the rehabilitation objectives for the site; b) a description of the short, medium, and long term measures that would be implemented to: • rehabilitate the site; and • manage the remnant vegetation and habitat on the site	A final draft Rehabilitation Management Plan was submitted to DoP on 28 February 2010 (i.e. within 6 months of the Project Approval) refer to Project Approval Schedule 3 condition 26.	Awaiting DP&I Approval
3/28	The Final Void Management Plan must: a) justify the final location and future use of the final void; b) incorporate design criteria and specifications for the final void……	The Final Void Management Plan was prepared part of the Landscape Management Plan and sub mitted to DP&I on 13 June 2012.	Awaiting DP&I Approval
3/29	The Mine Closure Plan must: a) be prepared in consultation with DRE and Council; b) define the objectives and criteria for mine closure	The Mine Closure Plan was prepared part of the Landscape Management Plan and submitted to DoP on 28 June 2012.	Awaiting DP&I Approval
3/29B	By 31 December 2011, the Proponent shall prepare and implement a Biodiversity Offset Management Plan to the satisfaction of the Director-General. ……	The Biodiversity Offset Management Plan was prepared and submitted to DP&I on 7 November 2011 for approval.	Awaiting DP&I Approval
Recommendation: It is recommended that Bloomfield consult with DP&I to obtain approval of the management plans and monitoring programs that have been prepared in accordance with the Project Approval conditions to satisfy the requirements of each condition.			

6. CONCLUSIONS AND RECOMMENDATIONS

The Independent Environmental Audit of the Bloomfield Project was conducted in February 2013 in accordance with the requirements of Project Approval 07_087 Schedule 6 condition 6.

The Bloomfield Colliery operations demonstrated a high level of compliance with the Project Approval, Environment Protection Licence and Consolidated Coal Lease conditions.

The following recommendations are suggested for improvement of environmental management and reporting on the Bloomfield Project operations:

Noise

It is recommended that revision of the unattended monitoring protocol in the Noise Monitoring Program should occur with the aim of identifying a more suitable logger location that would be more representative of noise from the mine operations. This may provide data more suitable for the purposes of calibrating the Noise Compliance Model in the Noise Monitoring Program.

Blast Management

The design and planning of blast events should follow the Blast Monitoring Program and Explosives Management Plan procedure/processes to minimise the potential for exceeding the blast overpressure criteria.

Blast Schedules

As providing an accurate up-to-date blasting schedule on the web is difficult to variables (e.g. mine planning and resource delineation, coal requirements, market variability, meteorological conditions, etc), it is recommended that Bloomfield consult with DP&I to have this condition revised to remove this requirement.

Erosion and Sediment Control Plan

To demonstrate consistency with the Appendix C of *Managing Urban Stormwater: Soils and Construction, Volume2E Mines and Quarries* guideline, reference to other relevant Bloomfield Colliery document sections should be included in any future revision of the Erosion and Sediment Control Plan.

Annual Review

The annual reporting of environmental performance should follow the requirements of Project Approval Schedule 5 condition 3 for the format of future Annual Review Reports, by including trends in monitoring data, and identify any discrepancies between the predicted and actual impacts of the project from the EA and analyse the potential cause of any significant discrepancies where relevant.

DP&I Approval of environmental management plans and environmental monitoring programs

Bloomfield Colliery should correspond with the DP&I to gain approval for the environmental management plans and environmental monitoring programs submitted to DP&I in accordance with the Project Approval conditions, to ensure full compliance with the requirements of the relevant conditions.

APPENDIX A

Consultation with Agencies

Mining &Industry Projects

Phone: (02) 9228 6587
Fax: (02) 9228 6466
Email: paul.freeman@planning.nsw.gov.au

Our Ref: S07/01215

Mr Greg Lamb
Bloomfield Coal Pty Limited
PO Box 4
EAST MAITLAND NSW 2323

Dear Mr Lamb,

Bloomfield Coal Project (07_0087)
Independent Environmental Audit

I refer to your email of 6 December 2012, seeking the Director-General's approval of Trevor Brown and Associates to undertake the Independent Environmental Audit of the Bloomfield Coal Project, in accordance with the requirements of the Project Approval granted on 3 September 2009.

The Department has considered the qualifications and experience of the nominated personnel and believes that they are suitable to undertake the audit. Accordingly, the Director-General has approved the following personnel to undertake the Environmental Audit:

- Mr Trevor Brown; and
- Mr Neil Pennington.

I would appreciate it if you would inform the auditors that the Department does not accept the use of the term "partial compliance" in audit reports. In instances of non-compliance with the conditions of the Minister's consent, it is appropriate to provide a full explanation of the circumstances that gave rise to the particular non-compliance.

If you wish to discuss the matter further, please contact Paul Freeman.

Yours sincerely

Howard Reed 6.12.12
Howard Reed
Manager
Mining Projects
As nominee of the Director-General

From: greg.summerhayes@industry.nsw.gov.au
To: Greg Lamb
Cc: John Hindmarsh
Subject: Re: Bloomfield Colliery Independant Environmental Audit
Date: Monday, 13 August 2012 1:43:43 PM

Greg,
I have noted your request for consultation with DRE on this audit as a requirement of Bloomfield planning consent.
DRE has no other specific auditing requirements for this audit.

regards

Greg Summerhayes | Principal Environmental Officer | Resources & Energy

NSW Trade & Investment | 516 High St | Maitland NSW 2320 | PO Box 344 | Hunter Region Mail Centre NSW 2310
T: 02 4931 6705 | F: 02 4931 6750 | E: greg.summerhayes@industry.nsw.gov.au

W: www.trade.nsw.gov.au

From: Greg Lamb <glamb@bloomcoll.com.au>
To: "greg.summerhayes@industry.nsw.gov.au" <greg.summerhayes@industry.nsw.gov.au>
Cc: John Hindmarsh <jHindmarsh@bloomcoll.com.au>
Date: 10/08/2012 02:48 PM
Subject: Bloomfield Colliery Independant Environmental Audit

Greg,

Under Project Approval 07_0087 Bloomfield Colliery is required to undertake an Independent Environmental Audit every three years. I am currently seeking fee proposals from experienced auditors to undertake the first audit under PA 07_0087. Under the approval there is a requirement to liaise with DNR prior to the audit.

To assist in preparing the scope of the audit I am seeking feedback on whether there are any specific auditing requirements that DNR would like addressed during the audit. The relevant condition is as follows:

Every 3 years, 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:
(a) be conducted by 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 relevant project approvals 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 these approvals; and
(e) recommend appropriate measures or actions to improve the environmental performance of the mine complex, and/or any assessment, plan or program required under these approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.

Please contact me if you require any further information.

Regards

Greg Lamb

Environmental Officer

Bloomfield Colliery

The Bloomfield Group

PO Box 4, EAST MAITLAND NSW 2323

Tele: (02) 4930 2689 Fax: (02) 4933 8940 Mob: 0457 819 211

Email: glamb@bloomcoll.com.au Website: www.bloomcoll.com.au

NSW EPA

Our reference: DOC12/33114;
LIC09/250-02
Contact: Karen Marler 4908 6821

Bloomfield Collieries Pty Ltd
PO Box 4
EAST MAITLAND NSW 2323

4 SEP 2012

Attention: Mr Greg Lamb

Dear Mr Lamb

INDEPENDENT ENVIRONMENT AUDIT - BLOOMFIELD COLLIERY

I refer to your letter received on 10 August 2012 by the Environment Protection Authority (EPA) inviting comments regarding an independent environmental audit to be undertaken of Bloomfield Colliery in accordance with Development Approval 07_0087.

The EPA thanks you for the opportunity but has no specific comments to provide regarding the audit at this time.

Please contact me on 49086803 if you wish to discuss this matter.

Yours sincerely

KAREN MARLER
A/Head Regional Operations Unit – Hunter
Environment Protection Authority

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