



ULAN COAL MINE

INDEPENDENT ENVIRONMENTAL AUDIT REPORT

for

Ulan Coal Mines Limited

July 2016

Hansen Bailey

ENVIRONMENTAL CONSULTANTS

ULAN COAL MINE

INDEPENDENT ENVIRONMENTAL AUDIT REPORT

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EXECUTIVE SUMMARY

Hansen Bailey was commissioned by Ulan Coal Mines Limited to conduct an independent environmental compliance audit against Project Approval PA 08_0184 (as modified) for Ulan Coal Mine. This audit was undertaken for the Department of Planning & Environment for the period 1 July 2013 to 31 December 2015. The audit also assessed compliance with the conditions of Environment Protection Licence 394, key mining authorities and other licence documents.

This Audit was conducted by Exemplar Global International Certified Auditors Dianne Munro (No: 107622) and Daniel Sullivan (No: 113202) from Hansen Bailey. Experts in the fields of Noise (Mark Bridges from Bridges Acoustics), Ecology (Katrina Wolf from Cumberland Ecology), Groundwater (Claire Stephenson from AGE Consultants) and Surface Water (Greg Roads from WRM Environment) also formed part of the audit team. The field visit component of the audit was completed over the period 26 – 29 April 2016.

The audit consisted of a detailed desktop review of documentation, interviews with key Ulan Coal Mines Limited staff and a field inspection of the mining and rehabilitation areas. The audit was conducted generally consistent with '*ISO 14010 - Guidelines and General Principles for Environmental Auditing*', '*ISO 14011 - Procedures for Environmental Auditing*' and the '*Independent Audit Guideline. Post-approval requirements for State significant developments* (Department of Planning and Environment, 2015).

Key actions and recommendations from the previous independent environmental compliance audit completed in 2013 have been responded to in **Section 2**.

During the audit period mining operations have been undertaken in the Ulan Underground Longwall Panels 27, 28 & 29 (partial) and Ulan West Longwall Panels 1 & 2 (partial) with open cut mining operations conducted in 2013 and 2014 and operations put on hold in 2015.

This audit has concluded that an excellent standard of environmental management is generally being applied at the Ulan Coal Mine with many leading practice initiatives in place, particularly in relation to the standard of rehabilitation and water management. This audit also determined that site operations are undertaken at a high level of compliance against conditions of Project Approval PA 08_0184 and other licences and approvals held for Ulan Coal Mine.

The field inspection revealed a high level of general maintenance around the Ulan Surface Operations infrastructure areas (including the CHPP and rail load out area) however housekeeping at the Ulan No3 Underground Infrastructure Area requires attention, particularly hydrocarbon and waste management.

The open cut pit area assessed during the field inspection was observed to be well managed, with supervisory personnel demonstrating a good understanding of management actions required to minimise amenity impacts from mining activities. This observation is

supported by the results from noise and dust monitoring and the reduction in the number of community complaints received over the audit period when compared to the previous period.

Implementation of site rehabilitation during the audit period was found to have been progressing generally in accordance with the commitments and predictions included the supporting documents to the Project Approval PA 08_0184 and the Mining Operations Plan. A review of rehabilitation during the field inspections completed for this audit found that, in general, rehabilitation areas were being developed and maintained to a high standard.

Dust suppression measures were visible around the workshop areas and along the main haul roads with water carts observed to be operating during the inspection.

A review of the Extraction Plan and Subsidence Management Plans and the relevant end of panel reports confirmed that Ulan is operating consistent with the subsidence performance measure as provided in Table 14 of PA 08_0184.

No non compliances against the relevant criteria for air quality, noise or blasting occurred at private receivers over the audit period. A review of incidents that occurred since the previous audit indicated that the majority were classified as minor, with all being documented in the site register and reported to regulatory agencies as required.

Non-compliances identified during this audit are summarised in **Section 3**. These confirm that the non-compliances that occurred during the audit period were largely administrative or low risk in nature.

A series of recommendations arising from a review of environmental management documentation, the audit site inspections and identified non-compliances is provided in see **Section 6**.

At the time of the audit, Ulan Coal Mine staff were aware of most of the identified non-compliances against project approval conditions, licences and approvals and were working to address a number of the issues identified in this report.

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LIMITATIONS OF REPORT

In preparing this independent environmental audit report, Hansen Bailey has assessed all activities appropriate and necessary to evaluate the environmental status of the site and operations on it. Hansen Bailey has addressed all technical matters which might reasonably be considered to be relevant to such an assessment conducted to standards which apply in NSW.

Based on observations of the site, interviews with appropriate staff and a review of available documentation, it is Hansen Bailey's opinion that the potential critical environmental issues associated with the site and operations are those discussed in this report. However, Hansen Bailey can only advise on the basis of the information available to them and therefore cannot dismiss absolutely the possibility that parts of the site, or adjacent properties, may give rise to additional issues.

The conclusions presented in this report are professional opinions based solely upon Hansen Bailey's visual observations of the site and the immediate site vicinity, and upon Hansen Bailey's interpretations of the documentation reviewed, interviews and conversations with personnel knowledgeable about the site and other available information, as referenced in this report. These conclusions are intended exclusively for the purposes stated herein, at the site listed, and for the project indicated.

Opinions presented in this report apply to the site's conditions and features as they existed at the time of Hansen Bailey's site visit on 26 – 29 April 2016, and those reasonably foreseeable. They necessarily cannot apply to conditions and features which Hansen Bailey is unaware of and has not had the opportunity to evaluate.

This report does not, and does not purport to, give legal advice on the actual or potential environmental liabilities of any individual or organisation, or to draw conclusions as to whether any particular circumstances constitute a breach of relevant legislation.

ULAN COAL MINE
INDEPENDENT ENVIRONMENTAL AUDIT
for
Ulan Coal Mines Limited

1 INTRODUCTION

1.1 BACKGROUND

Hansen Bailey has been commissioned by Ulan Coal Mines Limited (UCML) to conduct an Independent Environmental compliance Audit (IEA) against Project Approval (PA) 08_0184 (as modified) for the Ulan Coal Mine (Ulan Mine). The period to which this Audit applies is from 1 July 2013 to 30 December 2015 (the audit period).

The original supporting documentation to PA 08_0184 is the '*Ulan Coal Continued Operations Environmental Assessment*' (Umwelt, 2009) (Ulan EA) (as modified by the '*Response to Submissions*' (RTS) dated February 2010; and correspondence to the Department dated 13 April 2010, 14 May 2010, 8 September 2010 and 20 March 2012 (RTS Correspondence).

Three modifications (MOD) have subsequently been granted to PA 08_0184 in addition to two Land & Environment Court Cases with a summary of the key components provided in **Section 1.4**. MOD 3 as granted in March 2016 occurs outside of the audit period and therefore has not been considered as part of this IEA.

This IEA was conducted by Exemplar Global International Certified Auditors Dianne Munro (DM) (No: 107622) and Daniel Sullivan (DS) (No: 113202) from Hansen Bailey. Additional input was also provided on noise, blasting, biodiversity, surface water and groundwater by relevant specialists as described in **Section 5**. This IEA report has been certified by the lead auditor (see **Appendix A**). The auditing team was approved by the Department of Planning and Environment (DPE) on 24 February 2016 (see **Appendix B**).

The audit consisted of a detailed desktop review of documentation and interviews with key site staff including Robyn Stoney (RS) – Environment and Community Manager, Ben Anderson (BA) – Senior Environment and Approvals Coordinator, Tom Frankham (TF) – Environment and Community Coordinator, Steve Hawkins (SH) – Rehabilitation Superintendent and Tara Stokes (TS) – Environmental Scientist.

The site review component of this IEA was held over 26 – 29 April 2016. This included a field inspection of key infrastructure, mining, rehabilitation and offset areas conducted in accordance with '*ISO 14010 - Guidelines and General Principles for Environmental Auditing*', and '*ISO 14011 - Procedures for Environmental Auditing*'. The field inspection was conducted by DM and DS on 27 and 28 April 2016. Site inspections were also undertaken by specialists in noise and ecology on 27 April 2016; and surface water on 28 April 2016. **Appendix C** presents the Audit Itinerary.

Significant review of additional documentation and interviews with UCML personnel also occurred prior to and following the site component of the audit.

During the field inspection component of the IEA, temperatures ranged between 3.8 – 19°C with medium to high humidity experienced. Winds during the audit were calm. In the week preceding the audit, 39.2 mm of rainfall was recorded at the Gulgong Bureau of Meteorological (BoM) monitoring station (site: 062013).

An Opening and Closing Meeting for the Audit was held on site, with UCML environment and community staff and management personnel in attendance as outlined in **Table 1** and **Table 2**.

Table 1
Attendees at IEA Opening Meeting

Attendee	Position
James Johnson	Operations Manager (Ulan No 3)
Rod Reinhard	Major Projects Manager
Robyn Stoney	Environment and Community Manager
Ben Anderson	Senior Environment and Approvals Coordinator
Tom Frankham	Environment and Community Coordinator
Bianca Connop	Environment and Community Graduate
Angela Van Der Kroft	Environment and Community Officer Seconded

Table 2
Attendees at IEA Closing Meeting

Attendee	Position
Cameron Quarmby	CHPP Manager
Robyn Stoney	Environment and Community Manager
Ben Anderson	Senior Environment and Approvals Coordinator
Steve Hawkins	Rehabilitation Superintendent
Tom Frankham	Environment and Community Coordinator
Tara Stokes	Environmental Scientist
Bianca Connop	Environment and Community Graduate
Angela Van Der Kroft	Environment and Community Officer Seconded

1.2 DOCUMENTS REFERENCED IN AUDIT

Appendix D provides a list of information reviewed as part of this audit.

As required by Schedule 2 Condition 8 of PA 08_0184 all existing development consents for the site (excluding DA 113-12-98) have been surrendered.

DA 113-12-98 is required to be retained by UCML until mining is completed at Ulan No. 3 (specifically following the completion of longwalls 26, West 2 and West 3) which is scheduled in approximately 2017. DA 113-12-98 was not audited as part of the IEA.

1.3 SITE DESCRIPTION

Ulan is a combined open cut and two underground longwall mines (operated by Glencore Coal Assets Australia (Glencore) and owned as a joint venture between Glencore (90%) and Mitsubishi Development (10%). Ulan is situated approximately 1.5 km from Ulan Village and 38 km north east of Mudgee, within the Mid-Western Regional Council (MWRC) Local Government Area in Central West NSW.

Figure 1 illustrates the key operational areas at Ulan Mine (including the Open Cut, Ulan No 3 Underground and Ulan West Underground mining areas) and the Coal Handling & Preparation Plant (CHPP) and rail load out infrastructure which is located at the Ulan Surface Operations (USO).

Ulan has a long history of coal operations, with mining in the area undertaken since the 1920's. Ulan's No. 1 underground mine commenced in 1942 followed by its No.2 underground mine in 1957 and in the 1981 - open cut operations, surface facilities and the augmentation of the No.2 underground mine.

In November 2010, UCML was granted PA 08_0184 which consolidated UCML's multiple project approvals into a single, contemporary project approval. It also allowed for the development of the Ulan No.3 and Ulan West underground mines and recommencement of open cut mining.

Ulan has approval to extract up to 20 Million tonnes per annum (Mtpa) of Run of Mine (ROM) coal utilising up to 931 employees as described in the MOD 2 EA. Underground mining operations are undertaken using longwall extraction equipment, continuous miners and shuttle cars whilst open cut mining predominantly utilises dragline, excavators and truck and shovels.

Product coal is transported to the Newcastle Port by rail via the Sandy Hollow – Gulgong Railway Line and Main Northern Railway Line, for sale to the export market.

In the audit period, Ulan produced 6.24 Mt, 9.86 Mt and 12.11 Mt of ROM coal in 2013, 2014 and 2015 calendar years, respectively. Ulan had approximately 704 full time employees as at end of 2015.

During the audit period, operations undertaken have included mining in the open cut during 2013 and 2014 with operations suspended during 2015; secondary extraction in longwall panels 27, 28 and 29 at Ulan No 3; and longwall panels West 1 and West 2 at Ulan West.

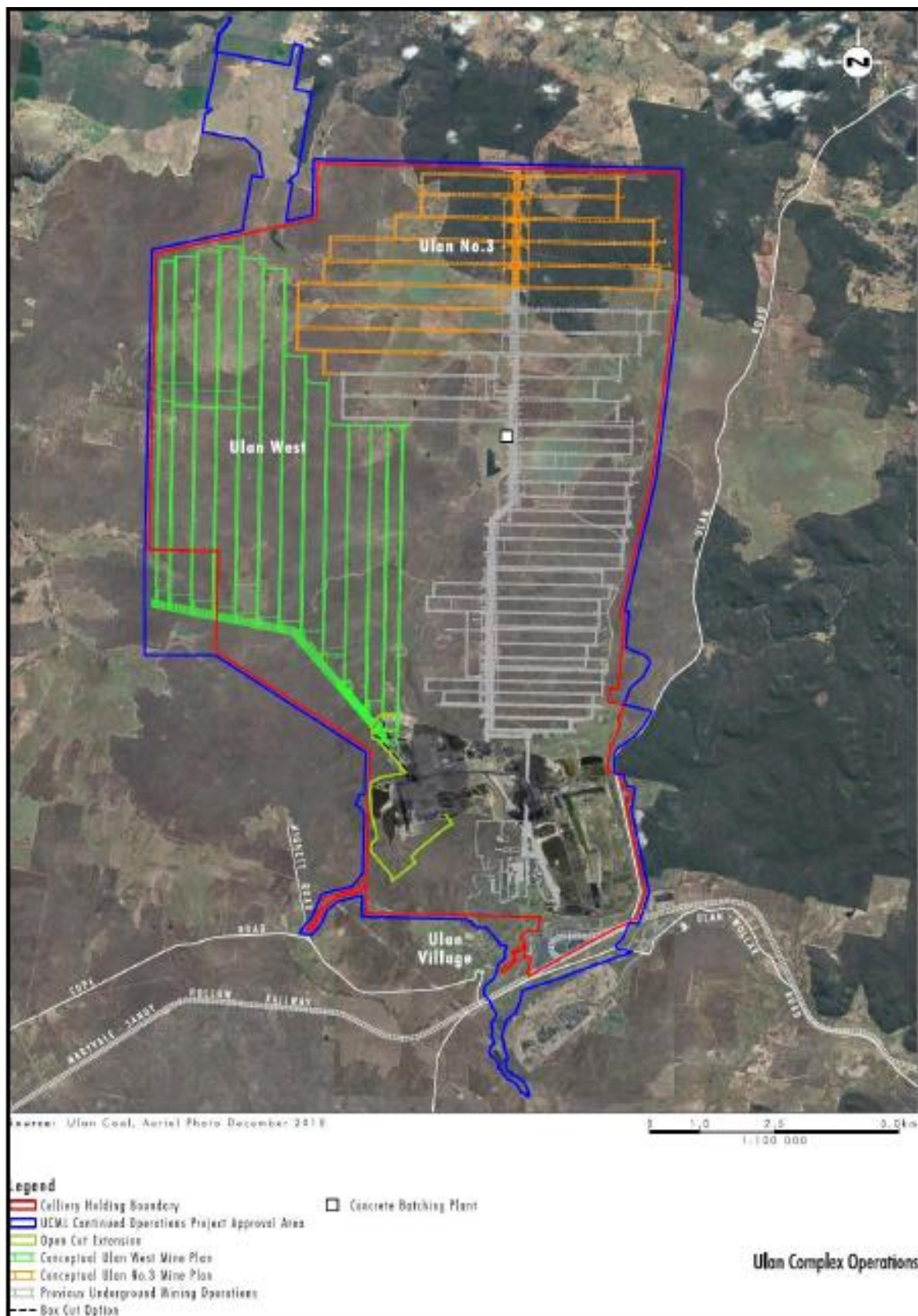


Figure 1
Ulan Coal Mine Approved Operations (source: Appendix 2 of PA 08_0184 MOD2)

1.4 DEVELOPMENT CONSENT AND SUPPORTING DOCUMENTATION SUMMARY

This section provides an overview of the approved operations at Ulan as detailed in the Ulan EA and the three modification documents. It also provides an overview of the November 2011 and March 2012 Land & Environment Court Cases.

1.4.1 EA

Ulan Coal is approved to operate in accordance with PA 08_0184 and the *Ulan Coal Continued Operations Environmental Assessment (Umwelt 2009)*. Activities assessed by the EA included, but were not limited to:

- Continued operation of Ulan No. 3 underground, to complete longwall mining in the currently approved area;
- Longwall mining of the approved Ulan West area via a modified mine layout;
- Recommencement of open cut operations, including a 239 hectare extension area that adjoins the western boundary of previous open cut mining, previously approved for highwall mining;
- Continued use and upgrade of approved and existing Coal Handling and Preparation Plant (CHPP) and rail loading facilities to cater for an increase in total approved production capacity from 10 to 20 Million tonnes per annum (Mtpa) product coal; and
- Continued use of approved and existing surface facilities and ancillary activities and construction and use of new surface facilities and ancillary activities to support the abovementioned operations.

The RTS and RTS Correspondence as referenced in PA 08_0184 modified a number of the statement of commitments (SOCs) from the EA. The SOCs were subsequently included in PA 08_0184 and have since been modified further as part of MOD 1 and MOD 2 with the most recent SOCs being audited as contained within Appendix 9 of PA 08_0184 MOD 2.

1.4.2 Modification 1

MOD 1 was supported under Section 75W of the EP&A Act by the '*Modification of Ulan Coal Continued Operations – North 1 Underground Mining Area, Minor Modifications to Ulan No.3 and Ulan West Mine Plans and Proposed Concrete Batching Plant*' dated April 2011. The Modification assessed the following changes to PA 08_0184:

- North 1 Underground Mining Area
 - Five new longwall panels to provide 5 Mt of substitute coal during operational interruptions and difficult mining conditions;
- Bobadeen Concrete Batching Plant (CBP)
 - Installation of a single silo CBP to operate on an as needs basis with a production capacity of approximately 80m³ per 12 hours;
- Minor Amendments to the Ulan No.3 and Ulan West Mine Plans

- Realignment of the approved Ulan West Mining area approximately 40 m to the east;
- Reduction of Ulan West Longwall Panel West 5 by approximately 1,670 m to enable the area to be mined by extending the adjacent Ulan No. 3 West Panels 4 to 6; and
- Extension of Ulan No.3 West Longwall Panels 4 to 6 by approximately 490 m to mine areas that would have been mined by Ulan West 5.

Overall the modified mine plan results in a 1.4 hectare reduction in mining footprint for Ulan West and Ulan No.3 operations.

1.4.3 Modification 2

MOD 2 was undertaken in accordance with Section 75W of the EP&A Act and is supported by the EA 'Modification to Ulan Coal Continued Operations – Ulan West Mine Plan (Approved Panels 1-4) and Construction Blasting' dated May 2012. It describes proposed changes to:

- Blasting Frequency
 - Minor blasts such as those associated with small scale construction projects will not be limited in terms of frequency or require monitoring where UCML confirms by design and prediction prior to blasting that the overpressure and vibration levels will be less than 95dBL and 1mm/sec at all private buildings or Heritage Sites identified in Appendix 7 of PA 08_0184
- Blasting Period
 - Extension of hours within which construction blasting activities can be undertaken to 24 hours per day, 7 days per week
- Ulan West Mine Plan Amendments
 - Increase the number of longwall panels from three to four by reducing panel width from 400 m to 250 m and between 300-305 m
 - Reduce the length of the modified Ulan West longwall panels 1-5 from that approved

1.4.4 Court Case 1 (November 2011)

Hunter Environment Lobby Inc v Minister for Planning (Land & Env Court)

HEL appealed against the Minister for Planning's decision to approve the extension of open-cut and underground coal mine based on:

- The ecologically sustainable development principles under Part 3A of the EP&A Act;
- That offsets of scope 1 and 2 greenhouse gas emissions should be required;
- Whether long term impact on groundwater was justification for refusal;

- Conditions should be set to offset baseflow losses;
- Whether remediation of groundwater was possible;
- The impact on biodiversity requiring greater connectivity of offset areas; and
- That the approval should be granted subject to amended conditions.

Approval should in principle be granted to the project identified in MP 08_0184 subject to conditions. The terms of several conditions require further consideration by the parties before these are finalised. The consolidated consent for PA 08_0184 includes the conditions that were modified as a result of this court case which was the subject of this audit.

1.4.5 Court Case 2 (March 2012)

Hunter Environment Lobby Inc v Minister for Planning (2)

HEL appealed against the Court's decision in *Hunter Environment Lobby Inc v Minister for Planning NSWLEC 221*, saying that the Court should impose the scope 1 GHG conditions (18A-18E) proposed by HEL. Ulan submitted that 98% of its scope 1 GHG emissions were covered under Commonwealth Legislation, while the Minister for Planning submitted that Condition 18E was unworkable from the point of view of the Director General, as it imposed uncertain obligations.

The Judge agreed that conditions 18A-E were unnecessary. The conditions in relation to greenhouse gas emissions imposed by the Minister are appropriate.

1.4.6 Modification 3

MOD 3 was undertaken in accordance with Section 75W of the EP&A Act and is supported by the EA '*Ulan West Modification*' dated March 2015. It describes the following changes:

- Repositioning of Longwall Panels LW5 to LW12; and
- Minor changes to the northern extent of Ulan West Longwall Panels;

The modification was sought to maximise the efficient recovery of additional coal resources. MOD 3 was approved in March 2016 and as such occurs outside of the audit period and therefore has not been considered as part of this IEA.

1.5 AUDIT REQUIREMENTS

1.5.1 Project Approval

This assessment and subsequent report has been compiled pursuant to Schedule 5 (Condition 8) of PA 08_0184. Each requirement is listed in **Table 3** which also identifies where each is addressed in this IEA Report.

1.5.2 Audit Guidelines

This IEA Report has also been prepared in accordance with the *Independent Audit Guideline. Post-approval requirements for State significant developments* (Audit Guidelines) (DPE, 2015). The primary purpose of the Audit Guidelines is to ensure that independent

audits of State significant developments in NSW are undertaken in a consistent manner and meet minimum standards expected by the NSW Government.

Table 4 lists key requirements from the Audit Guidelines, the relevant Section of the Guidelines which references the requirement, and indicates where each is addressed in this IEA Report.

Table 5 reproduces the “risk levels” from Section 4.1 of the Audit Guidelines which were attributed to the non-compliances identified during the audit period as described in **Section 3**.

Table 3
Independent Environmental Audit Requirements

Description	Where Addressed in This Report
PROJECT APPROVAL	
By the end of June 2013, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:	-
(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;	Appendix B
(b) include consultation with the relevant agencies;	Section 1.5.3
(c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant Environmental Protection Licence (EPL) or Mining Lease (ML) (including any assessment, plan or program required under these approvals);	Section 3 & Appendix E
(d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and	Section 4
(e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals.	Section 6
Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Director-General.	Section 1.1

Table 4
Audit Guidelines Requirements

Section	Description	Where Addressed
2	Assess the operator's compliance with the requirements of regulatory approvals, including (as applicable): • The Development Consent; • The Environment Protection Licence; • The Mining Lease; and • Water licences and approvals.	Section 3, 5 and Appendix E
2, 3	The scope of the audit and the audit team (including any technical specialists) to be determined by the lead regulator.	Section 1, Appendix B
3.3	The auditor team must be independent of the development being audited and audit findings must be based on verifiable evidence.	Section 1, Appendix A and Appendix E
4.1	The compliance status of each requirement or commitment should be assessed in accordance with the compliance assessment criteria and risk levels in the audit guidelines.	Section 3 and Appendix E
4.2	Consultation with key regulatory agencies prior to commencement of the audit site inspection.	Section 1.5.3
5.1	The audit outcomes to be documented in a thorough, accessible and accurate audit report that is written in a neutral tone reflecting facts gathered by the audit team.	This IEA Report
5.1	The audit report should include the following sections: • Introduction, providing a brief overview of the development, audit scope and objectives; • Methodology, describing the audit team, methodology applied, document reviews, site inspections and interviews; • Audit findings, including documentation of consultation, response to actions from the previous audit, assessment of compliance status against the conditions and commitments in relevant documents and a discussion of environmental incidents and performance; and • Recommendations, identifying any opportunities for improvement identified in the audit.	This IEA Report
5.2	Audit reports submitted to the lead regulator must be certified by the lead auditor on an attached 'Independent Audit Submission Form'	Appendix A
5.3	Copies of the final audit report to be distributed to regulatory agencies within two weeks of finalisation and placed on the development's website.	UCML Responsibility
6	The operator of the development to respond to the lead regulator responding to the audit findings and recommendations with an action plan within four weeks of receiving the final audit report.	UCML Responsibility

Table 5
Audit Guidelines Risk Levels for Non-Compliances

Risk Level	Colour Code	Description
High		Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium		Non-compliance with: - potential for serious environmental consequences, but is unlikely to occur; or - potential for moderate environmental consequences, but is likely to occur
Low		Non-compliance with: - potential for moderate environmental consequences, but is unlikely to occur; or - potential for low environmental consequences, but is likely to occur
Administrative non-compliance		Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

1.5.3 Consultation with Relevant Agencies

During the preparation for this IEA, input was sought from regulatory agencies to confirm any areas of compliance or environmental management at the Ulan Mine that should be a particular focus.

The following agencies were approached for input as part of the scoping phase of this Audit:

- DPE;
- Environment Protection Authority (EPA);
- NSW Trade and Investment, Department of Resources and Energy (DRE);
- Office of Environment & Heritage (OEH);
- Department of Primary Industries – Water (DPI – Water);
- Mid-Western Regional Council (MWRC);
- Ulan Community Consultative Committee (CCC) Chairperson.

Where issues were raised during consultation, these are listed in **Table 6**. Each has been addressed in this IEA Report.

Table 6
Agency Requirements and Where Addressed

Ref	Requirement	Where Addressed
DPE		
1.	Status of remediation in place for Goulburn River Diversion	Section 5.7.1, Appendix E and Surface Water Report in Appendix F
2.	Ulan Road Strategy implementation	Appendix E
3.	Offset areas progress – health of plantings, what are they doing	Section 5.5, Appendix E and Biodiversity Report in Appendix F
4.	Offsite discharge – compliance generally	Section 5.7.1, Appendix E and Surface Water Report in Appendix F
5.	Long term security of offsets	Section 5.5, Appendix E and Biodiversity Report in Appendix F
6.	Hydrocarbon management at underground and open cut facilities.	Section 5.2 and Appendix E
EPA		
7.	Handling of waste from the RO plants at the current time. Currently there is a PRP on the EPL to determine the long term disposal options however it is not clear what method is currently being utilised	Section 5.7.1, Appendix E and Surface Water Report in Appendix F
OEH		
8.	Any adverse impacts due to subsidence	Section 5.8 and Appendix E
9.	Any rock fall, cracking etc. of cliff lines, particularly those in the Brokenback Conservation Area	Appendix E
10.	Whether security of the Biodiversity Offset Areas has been finalised	Section 5.5, Appendix E and Biodiversity Report in Appendix F
11.	The condition of re-established and existing native vegetation within the offset and conservation areas	Section 5.5, Appendix E and Biodiversity Report in Appendix F
12.	Ensure that the various management plans required, e.g. the Biodiversity Management Plan and the Heritage Management Plan, are being fully implemented	Section 4, Appendix E and Biodiversity Report in Appendix F
13.	The Conditions of Consent state that there is to be nil impact on Aboriginal sites in the Brokenback Conservation Area, Grinding Groove Conservation Areas and on Mona Creek Rock Shelter Sites. This will need to be demonstrated with adequate monitoring data	Appendix E
DRE		
14.	No response.	N/A

Ref	Requirement	Where Addressed
DPI – Water		
15.	Do the relevant management plans adequately describe the water licensing requirements under the <i>Water Management Act 2000/Water Act 1912</i> , and compliance with these requirements?	Section 5.7.3, Appendix E and Surface Water Report in Appendix F
16.	Are adequate records kept to enable determination of the volume and source of surface and groundwater taken?	Section 5.7, Appendix E and Surface Water and Groundwater Reports in Appendix F
17.	Is the operation capturing and/or harvesting any clean water?	Section 5.7.3
18.	Has the proponent calculated its maximum harvestable right under the <i>Water Management Act 2000</i> ?	Section 5.7.3
19.	Is the capture of water in excess of the harvestable right?	Section 5.7.3
20.	Do any exemptions under the <i>Water Management (General) Regulation 2011</i> or Harvestable Rights Order (gazetted 31 March 2006) apply to the capture of water?	Section 5.7.3, Appendix E and Surface Water Report in Appendix F
21.	If necessary, does the proponent hold water access licenses in the correct water sources under the relevant water sharing plan (for the take of surface water or alluvial groundwater), or licences under part 5 of the <i>Water Act 1912</i> (for the take of groundwater from non-alluvial aquifers), and do they hold sufficient quantity of entitlement under these licenses?	Section 5.7.3, Appendix E and Surface Water Report in Appendix F
MWRC		
22.	No response	N/A
CCC Chairperson		
23.	No response	N/A

1.6 REPORT STRUCTURE

Section 1 provides an introduction, background, site description and layout of Ulan Mine, describes the requirement for this IEA and provides a guide to the structure of this Report. This section also provides an overview of approved operations detailed in the EA and modification documents approved for the development consents held for UCML activities;

Section 2 of this Report provides a tabular representation of recommendations made during the previous independent audit and the status of their implementation;

Section 3 outlines the identified non-compliances and the status against UCML approvals and their supporting documents, modifications and other licences / approvals available for review at the time of the audit. This includes ranking of non-compliances risk levels in accordance with the Audit Guidelines;

Section 4 provides a discussion on management plans, programs and strategies available for review at the time of the audit;

Section 5 of this report discusses the effectiveness of the environmental management and mitigation strategies that are currently undertaken at Ulan Mine. General environmental performance is also discussed including monitoring results, field inspections performed during the site component of the audit, complaints and incidents; and

Section 6 provides a summary of key recommendations from the audit.

2 PREVIOUS AUDIT RECOMMENDATIONS & STATUS

The key recommendations made in the 2013 IEA completed for UCML (Hansen Bailey, 2013) and the status of each as at December 2015 are summarised in **Table 7**. Any outstanding items have been included in **Section 6**.

Table 7
2013 IEA Recommendations and Status

Ref	Recommendation	Status	Comment
PA 08_0184			
1.	Progress discussions with the relevant regulatory authorities and resolve all of the Project Approval non-compliance matters identified by Section 5.1 of the 2013 audit.	Compliant	See this table. Also viewed DPE response to previous audit dated 19/03/14 endorsing recommendations and UCML proposed approach to addressing them.
2.	Progress discussions with the relevant regulatory authorities and resolve all of the other licences and approvals on-compliance matters identified by Section 5.2 of the 2013 audit.	Compliant	See this table. Also viewed DPE response to previous audit dated 19/03/14 endorsing recommendations and UCML proposed approach to addressing them.
3.	Follow up DPE with regard to their review and approval of UCML's Environmental Management Plans and Strategies as described in Section 3 of the 2013 audit. Once the Environmental Management Strategy and each of the above management plans have been approved by DPE, UCML should ensure that they are implemented onsite and made publicly available on the Ulan Coal Mine website.	Compliant	All management plans are now approved (see Section 4).
4.	Schedule 2 Condition 11 – A building certificate should be sought through MWRC for the Ulan Vent Shaft 1.	Compliant	Building certificate issued by MWRC dated 19/02/14.
5.	Schedule 2 Condition 15 – Progress DPEs review and approval of all revised management plans and strategies. Once approved the revised strategies should be implemented onsite.	Compliant	All management plans are now approved (see Section 4).

Ref	Recommendation	Status	Comment
6.	Schedule 3 Condition 8c – The NMP be updated to document how cumulative noise management is planned to be coordinated with both Moolarben and Wilpinjong Mines.	Compliant	Viewed Ulan Cumulative Noise Management Plan” prepared by Advitech for the 3 mines dated 23/11/15.
7.	Schedule 3 Condition 11 – The appendix to the AEMR which lists all blasts include the blast time to assist with this review in the future.	Compliant	Confirmed times now provided in AR's.
8.	Schedule 3 Condition 15b & c – A joint website could be considered which posts proposed blast times from all operations (regularly updated) which the community could access. This could be facilitated through the MWRC website, if practical.	Compliant	A joint website was not deemed to be practicable. UCML now post their blast times on their website.
9.	Schedule 3 Condition 18 – Relevant and adopted actions from the Ulan Surface Operations Energy Reduction Action Plan should be regularly reviewed and progress documented in the AEMR.	Compliant	Updates on energy savings projects are reported in the AR (See Section 4.7 of the 2015 AR).
10.	Schedule 3 Condition 23b – An application for exemption from this monitoring as per this condition should be made to EPA and DPE should UCML not wish to monitor this parameter, or have the met station modified to meet this requirement.	Not Compliant	RS confirmed that lapse rate data is sourced from Wilpinjong Coal Mine as it has the required equipment and is in the same air shed. This is not documented in the approved AQGHGMP and there is no evidence that DPE or EPA are accepting of this approach. It is recommended that UCML seek confirmation from the EPA and DP&E that they are accepting of this approach and update the AQGHGMP.
11.	Schedule 3 Condition 28 – It is recommended that UCML document and seek confirmation from NOW and DPE that no additional groundwater and/or surface water licences are required for the Project prior to water being taken.	Compliant	See Section 5.7.3 and Appendix E. Letter provided to DPI-Water dated 28/02/14 seeking their confirmation (no response received).

Ref	Recommendation	Status	Comment
12.	Schedule 3 Condition 29 – It is recommended that UCML document and seek confirmation from NOW and DPE that no further surface water licences are required for the Project. DPE's approval should also be sought if an alternative method is proposed by UCML for offsetting base flow losses.	Not Compliant	Letter from UCML provided to DPE and DPI-Water dated 08/07/13 seeking their approval (no response received) and no evidence of follow up provided (see Appendix E).
13.	Schedule 3 Condition 32 – Progress consultation with all relevant regulators to agree a revised Plan for the Goulburn River Remediation and implement its works.	Administrative Non-Compliance	Reviewed the GRDRP dated 03/12/13. This plan was approved by DPE on 19/06/14. The remediation works have commenced however, are two years behind schedule . See Section 5.7.1, Appendix E and Appendix F .
14.	Schedule 3 Condition 34 – The WMP should be revised to include a reporting process for the biennial review of depressurisation of coal measures and comparison of responses with aquifer model predictions.	Not Compliant	Not included in relevant section of WMP. Viewed December 2015 Quarterly Monitoring Report. An update to the WMP is required to include reference to "Biennial Review" and report as required. See Section 5.7.1, Appendix E and Appendix F .
15.	Schedule 3 Condition 35 – It is recommended that groundwater monitoring for the site water balance is expanded to enable the collection of coal moisture content and ventilation humidity measurements. It should also be documented that monitoring equipment is calibrated as required.	Compliant	Viewed water balance.
16.	Schedule 3 Condition 38b – UCML should identify and implement a program to augment the baseline data for surface water flows and quality in creeks and other water bodies that could be affected by the project. It is noted that the revised management plan which has been submitted to DPE for approval addresses this requirement in section 3.1.3.1. It is recommended that UCML follow up the approval of the revised plan so that it can be implemented onsite.	Compliant	WMP approved. Section 4.1.4 of the WMP details that flow monitoring equipment has been installed.

Ref	Recommendation	Status	Comment
17.	Schedule 3 Condition 41a – UCML should revise the BMP to include completion criteria and possibly measurable indicators for each species to ensure that the offset areas contain suitable habitat for any significant and/or threatened species to allow this to be measured and signed off on in future.	Not Compliant	This is yet to be completed. See Section 5.5, Appendix E and Appendix F .
18.	Schedule 3 Condition 42 – It is unclear in the Offset Management Plan whether the areas stated in Condition 42 are met by the Offset Strategy. Accordingly further clarification is recommended in Table 2.2 and 2.3 of the Offset Management Plan.	Administrative Non-Compliance	The current BMP is inconsistent with this condition as a result of the alterations to the composition of the biodiversity offset areas for the Project. See Section 5.5, Appendix E and Appendix F .
19.	Schedule 3 Conditions 41 & 42 – It is recommended that the inconsistency in the area quoted in these conditions for the Bobadeen Vegetation Offset Area be rectified with DPE and the relevant number in the conditions be revised accordingly.	Compliant	Addressed in the updated conditions for MOD3.
20.	Schedule 3 Condition 43 – It is noted that the stand of <i>Acacia ausfeldii</i> is not included in the current offset management plan. Suggest it is added as part of the next revision.	Complete	RS confirmed that the stand of <i>Acacia ausfeldii</i> that has been regenerated in the rehabilitation will not be forming part of the offset management plan
21.	Schedule 3 Condition 44d – It is recommended that the revised Biodiversity Management Plan contain completion criteria and possibly measurable indicators for each species to demonstrate that suitable habitat is present in the offset areas for threatened species. This will enable it to be measured and signed off on in future.	Not Compliant	Current plans do not specify the areas/types of habitat required for each relevant species or what species the improvement/ re-vegetation works will target. See Section 5.5, Appendix E and Appendix F .
22.	Schedule 3 Condition 49a – Further consideration to this shift time should be undertaken by UCML or internal management methods adopted to ensure compliance with this condition.	Compliant	Viewed Ulan complex shift change schedule for 2015. This avoided shift changes between 3 pm and 4:15 pm.

Ref	Recommendation	Status	Comment
23.	Schedule 3 Condition 49c – Recommend that the coordination of shift times with Moolarben and Wilpinjong mines be confirmed in writing.	Compliant	RS explained that annual shift change schedules are coordinated with Moolarben and Wilpinjong mines. An internal UCML excel spreadsheet was viewed which showed each mines proposed shift change times for 2015. Also viewed evidence of this being conferred in writing with neighbouring mines.
24.	Schedule 3 Condition 50 – Assist DPE in progressing close out of the Ulan Road Strategy dispute resolution process with the Director General.	Compliant	The Ulan Road Strategy was approved by DP&E on 27/05/13
25.	Schedule 5 Condition 6 – It is recommended that UCML consider its existing protocols to ensure that DPE and other relevant agencies are notified of all reportable incidents and that they are provided with a detailed report of the incident within 7 days of the incident occurring.	Compliant	PIRMP updated. Incident reporting compliant during the audit period.
26.	The inconsistency between the EPL concentration limits and the adopted water quality trigger values for the downstream Goulburn River gauge for EC should be rectified.	Compliant	Surface water trigger levels updated and now consistent in both the EPL and surface water response plan.
27.	The surface water monitoring programme should be revised to include event based sampling. The samples should also be supported by a stream flow estimate.	Compliant	Surface water monitoring program updated.
28.	It is recommended that trigger levels be established for groundwater quality, in order to adequately assess any potential impacts. In addition, review of the TARP process should be undertaken to identify how to better respond to variations in the groundwater model predictions.	Compliant	Table 7 of the surface water/ groundwater response plan updated.
29.	Complete the required fencing of the Grinding Groove Complex (Ulan ID 323) and ensure adequate signage is installed to delineate this area.	Compliant	Fencing completed in 2013. Signage not erected due to request from RAPs.

3 NON-COMPLIANCES AGAINST APPROVALS & LICENCES

This section provides a discussion on the identified non-compliances and status against PA 08_0184 and other licences approvals available for review at the time of the IEA.

Table A of **Appendix E** provides a complete tabulated list of conditions of PA 08_0184 (MOD 2), noting the compliance status and providing detailed comments against each.

Table B in **Appendix E** provides a list of the other licences and approvals assessed as part of this audit, with the compliance status and comments against each.

A summary of the identified non-compliances against each document is summarised below in **Table 8**. This includes the non-compliances identified in the specialist reviews that were conducted for UCML noise, blasting, biodiversity, surface water and groundwater related approval conditions and management performance. The specialists' reports are included in full within **Appendix F**. Included in **Table 8** is a ranking of the non-compliances risk levels in accordance with the requirements outlined in Table 2 of the Audit Guidelines. Further context around the identified non-compliances is included in **Appendix E**, with any recommendations arising from the non-compliances included in **Section 6**, if required.

Table 8
Non-Compliances Identified

Ref	Non-Compliance	Risk Level
PA 08_0184 MOD2		
Schedule 3 Condition 23b)	Lapse rate data is sourced from Wilpinjong Coal Mine as it has the required equipment and is in the same air shed. This is not documented in the approved AQGHGMP and there is no evidence that DPE or EPA are accepting of this approach.	Low
Schedule 3 Condition 29	The alternative method of offsetting baseflow losses via discharges to the Goulburn River have not been approved by the Secretary.	Medium
Schedule 3 Condition 31	Pipe leak from the Treble Tanks which occurred on 14/10/13 resulting in approximately 0.4 ML of water being discharged to Ulan Creek. This was reported to EPA on 14/10/13 with no material harm occurring. In response the pipeline was decommissioned.	Low
Schedule 3 Condition 32	The remediation works on the Goulburn River Diversion have commenced but are approximately 1 year behind the revised schedule provided in the approved plan. The timeframe for the works is delayed from the timeframe given in the EA.	Administrative
Schedule 3 Condition 34	The WMP has not been revised to include a reporting process for the biennial review of depressurisation of coal measures and comparison of responses with aquifer model predictions.	Administrative*
Schedule 3 Condition 38a)	The Surface Water Monitoring Program does not include detailed baseline data on surface water flows and quality for Ulan Creek, Bobadeen Creek, Curra Creek, Mona Creek and Cockabutta Creek as required.	Administrative*

Ref	Non-Compliance	Risk Level
Schedule 3 Condition 41	The approved BMP is inconsistent with Table 15 although this has been remedied in MOD 3.	Administrative
Schedule 3 Condition 41a	There is no adequate framework within the offset strategy that ensures that the offset areas contain suitable habitat for significant and/or threatened species.	Low
Schedule 3 Condition 42	The current BMP is inconsistent with this condition as a result of the alterations to the composition of the biodiversity offset areas for the Project. It is noted that this has been remedied following the audit period in MOD 3.	Administrative
Schedule 3 Condition 42c)	Current plans do not specify the areas/types of habitat required for each relevant species or what species the improvement/re-vegetation works will target.	Low
Schedule 3 Condition 44d)	The BMP does not provide details for: - protecting vegetation and soil outside the disturbance areas; - landscaping the site, and particularly the land adjoining public roads. It is noted that Section 2.1 of the Visual and Landscape Management Plan refers back to the BMP to address this condition and it is not addressed. Further public roads are not addressed in the BMP or the Visual and Landscape Management Plan. - propagation of threatened flora including <i>Acacia ausfeldii</i>; and - the requirement to carry out comprehensive reporting every three years following the independent environmental audit. It is Acknowledged that annual reporting is completed in the AR's however it is not considered that the reporting in the AR meets this requirement for "comprehensive reporting every three years".	Low*
Schedule 5 Condition 10	Two instances of noise monitoring results not being completely reported (June 2015 and December 2015 monitoring reports). Original consultant reports are complete. Three instances of blast monitoring results are not correctly reported (September 2013, December 2013, March 2014 monitoring reports). Overpressure results from one monitor were reported for both monitors. Original data does not show this error. It is noted that during drafting of the audit report these errors were amended and updated reports published to the UCML website.	Administrative
Statement of Commitments		
SOC 6.4.1	Failure to install proposed VWPs above 'The Drip'. One of the VWPs was recently installed in late 2015 but was not included within monitoring over the review period (planned to be monitored in 2016). The risk level is deemed Administrative as there are no predicted impacts on 'The Drip' based on numerical groundwater modelling, and part of the monitoring obligations (testing of groundwater expression) have been completed in accordance with commitments and reviewed by a qualified hydrogeologist. In addition, one multi-level VWP was installed in late 2015, which will in part address this commitment into the future. Also statistics for groundwater monitoring did not include quarterly calculation of mean and standard deviation.	Administrative
SOC 6.5.2	The staged remediation strategy for the Goulbourn River Diversion has not been implemented as described in the EA (currently approximately 1 year behind approved revised schedule of works).	Administrative
EPL 394		

Ref	Non-Compliance	Risk Level
P1.1	The following needs to be updated on the air monitoring sites map: - Re-label EPL33 as EPL29; and - EPL 32 needs to be labelled and shown on the figure.	Administrative
P1.3	The water monitoring and discharge site maps referenced have been superseded.	Administrative
P1.4	EPL numbers have are not included for noise monitor sites. This has been remedied in the new version of the EPL dated 22/04/16	Administrative
M2.2	The following were reported as non-compliances against M2.2 during the audit period: - Flannery HVAS monitor (EPA ID 15) did not complete full run time on 31/10/14 due to a power outage at the units outside of UCML control. - Flannery and Merlene HVAS monitors (EPA IDs 15 and 29, respectively) did not complete full run time on 05/01/15 due to a power outage at the units outside of UCML control. - Merlene HVAS monitors (EPA ID 29) did not complete full run time on 23/01/15 due to a power outage at the units outside of UCML control. - Merlene HVAS monitors (EPA ID 29) did not complete full run time on 10/06/15 due to a failure with the unit. HVAS unit clock programming reset to rectify the issue. - Merlene HVAS monitors (EPA ID 29) did not complete full run time on 03/09/15 due to a failure with the unit. HVAS unit reprogrammed the monitor to rectify the issue.	Low
M2.3	The following were reported as non-compliances against M2.3 during the audit period: - Weekly water quality grab samples not collected from LDP 06 during the week 08/07/13 - Weekly TSS sample collected at LDP 19 on 15/05/14 was not representative, being collected during a period when the outfall was not flowing.	Low
L1	Pipe leak from the Treble Tanks which occurred on 14/10/13 resulting in approximately 0.4 ML of water being discharged to Ulan Creek. This was reported to EPA on 14/10/13. In response the pipeline was decommissioned.	Low
L2.4	EC monitoring results exceeded criteria of 900 $\mu\text{S}/\text{cm}$ at Downstream GR Gauging Station (EPA ID 18) on 30/03/14 (947 $\mu\text{S}/\text{cm}$), 31/03/14 (1,041 $\mu\text{S}/\text{cm}$) and 19/11/14 (910 $\mu\text{S}/\text{cm}$).	Low

* Further evidence provided to HB during finalisation of audit report to confirm alternate compliance status to that stipulated in specialists' Appendices

4 MANAGEMENT PLANS, PROGRAMS AND STRATEGIES

The approvals for UCML require preparation and implementation of a series of management plans and strategies.

All currently approved management plans and associated procedures developed for UCML in accordance with the requirements of PA 08_0184 were reviewed during this IEA.

UCML documents reviewed included the following:

- Environmental Management Strategy;
- Noise Management Plan;
- Blasting Management Plan;
- Air Quality and Greenhouse Gas Management Plan;
- Subsidence Management and Extraction Plan;
- Water Management Plan;
- Biodiversity Management Plan;
- Heritage Management Plan;
- Visual and Landscape Management Plan;
- Waste Management Plan;
- Mining Operations Plan; and
- Rehabilitation Management Plan.

The status of each plan and any relevant recommendations in relation to each is provided in **Table A of Appendix E**.

Identified non-compliances are discussed in **Section 3** with any recommendations in relation to each included in **Section 6**.

5 ENVIRONMENTAL MANAGEMENT & MITIGATION EFFECTIVENESS

5.1 OVERVIEW

The site visit was conducted between 26 – 29 April 2016 with field inspections conducted on 27 and 28 April with UCML staff. The inspections involved a walk through the administration, workshop and hardstand areas at both USO (including the CHPP) and Ulan No 3 as well as a drive to various areas around the site including the open cut, areas of rehabilitation, the tailings emplacement area, the rail load out facility, the Bobadeen Homestead and Old Ulan, water management infrastructure and part of the Goulburn River Diversion. Photographs from the site inspection are included in **Appendix G** and discussed throughout this IEA Report, as relevant.

5.2 MINE INFRASTRUCTURE AREAS

The administration, workshop areas and CHPP associated with USO were maintained in good condition as shown in **Plates 1 – 2**. On the day of the inspection of these areas, site housekeeping was observed to be of a high standard. During the inspection of the workshop area it was observed that waste streams are being appropriately segregated as is required by the Waste Management Plan. Spill kits were observed in the vicinity of the refuelling bay and effective bunding and contouring was visible to adequately contain dirty surface water runoff from the area. Good freeboard and recent maintenance was observed at Wrights Dam and the Truck Fill Dam with automatic float switches in place (see **Plate 3**).

The Ulan No 3 underground surface facilities were also visited. It was noted in this operational area that housekeeping was poor with hydrocarbon management and waste management in need of attention. With regard to hydrocarbon management the high flow diesel fuel tap was observed to be leaking with small amounts of hydrocarbon spillage outside of the bunded area (see **Plate 4**). During the inspection, BA advised that upgrades were being planned to improve this area included removing two old tanks that are no longer used. It is recommended that a plan for short and long term maintenance and upgrade of the Ulan No3 Underground Infrastructure area be prepared and implemented to assist in avoiding long term potential hydrocarbon contamination of the area.

Dust suppression measures were visible around the workshop areas and along the main haul roads with numerous water carts observed to be operating during the inspection (see **Plate 5**). Low levels of dust were viewed during the site inspection.

As part of the inspection at USO, Cameron Quarmby (CQ) (UCML CHPP Manager) gave an overview of the training and procedures that are in place that are related to environmental management at USO. This includes the best-practice “Area Responsibility Maps” which delineate operational areas across the site and assign specific managers responsibility for carrying out inspections on a weekly basis and responding to any issues identified. CQ also explained that feeding into this process each shift supervisor is required to complete a report on each shift (referred to onsite as the “Shiftly Report”) that covers any noise and dust alarms that have been triggered and the TARPs that have been enacted to address them. This process ensures that incoming supervisors are aware of any issues that have or have the potential to occur so that they can be managed. A review of the “Shiftly Reports” showed numerous and well documented examples of operational changes due to early noise and dust alarms.

CQ also described the environmental training that is provided to crews, supervisors and staff around spill management, noise, dust and other environmental management areas. This includes a presentation that is provided annually with an assessment component. Attendance is well documented.

5.3 OPEN CUT

During the site inspection the open cut was preparing for its first blast since operations were put on hold in 2015. As such the dragline and associated truck fleet were not in operation during the inspection. Water carts were observed to be working on the main haul roads.

Sam Wiseman (SW) (UCML Operations Manager (Open Cut)) was interviewed during the audit and discussed the dust and noise management procedures implemented at UCML and the operational changes that could be made under the dust and noise Trigger Action Response Plans (TARPs) in order to minimise the potential for amenity impacts to neighbouring areas. SW provided an example with regard to noise management and explained how he is able to use the real time noise monitoring system to identify potential issues and address them in the field by moving mobile equipment or shutting it down as needed before they cause an impact to receivers.

5.4 REHABILITATION

Rehabilitation across the site was observed to be of a high standard in relation to quality, variety and density (see **Plates 6 - 7**). Steve Hawkins (SH) described the planning process and approach that is taken to shape the final landform and carryout progressive rehabilitation across the site. Topsoil stockpiles and rehabilitation areas observed during the audit were well maintained and managed, with several examples of leading practice noted. The recovery and placement of habitat resources such as hollow bearing trees, logs and woody debris and large rocks on rehabilitation areas was also observed in the audit field inspections.

A review of the current layout of open cut operations found that the extent and progression of mining and rehabilitation was generally consistent with the conceptual mine plans in the EA and MOP documents. In reviewing the progression of the site towards the conceptual final

landform it was noted that landform establishment and rehabilitation to date is integrating with surrounding areas of the natural landscape.

5.5 BIODIVERSITY

Katrina Wolf of Cumberland Ecology formed part of the audit team and undertook the ecological site component of the audit on 27 April 2016. During this time she undertook an inspection of mine rehabilitation areas, the Bobadeen East Offset Area, the Bobadeen Vegetation Offset Corridor and the Bobadeen Offset Area. She also focused on her review of the relevant documentation which relates to the protection, management, re-vegetation and improvement of biodiversity in the Project area and the Project offset areas. Site interviews were also held with relevant UCML staff.

From the site inspection it was noted that the completed rehabilitation to date has achieved an extensive cover of canopy trees and shrubs, with fewer groundcover species observed. It was also noted that the rehabilitation areas positively included the presence of *Acacia ausfeldii*.

Within the biodiversity offset areas planting and direct seeding areas were observed to predominately comprise canopy species and existing native grasses. Understorey species were observed adjacent to the revegetation works. Areas of natural regeneration of canopy species were observed adjacent to remnant canopy trees. The offset areas were fenced with signage present at entry points. Nest boxes had been installed at some locations.

Based on the documentation review and results of the site inspection it was determined that the majority of the relevant biodiversity conditions of PA 08_0184 MOD 2 have been or are being addressed. The documents provided appear to be largely adequate in addressing the relevant conditions. However, a few items are not considered to be compliant and fall within the categories of 'not compliant' and 'administrative non-compliant' as described within the Audit Guidelines. The main reasons for conditions not being met include where required items have been omitted from, or insufficient details are provided in, the Biodiversity Management Plan and where amendments to the Project (such as extent of biodiversity offset areas) have been made which have not been reflected in the conditions.

Further details with regard to the specific areas of non-compliance for Biodiversity are provided in **Section 3, Appendix E** and the Biodiversity Audit Review Report in **Appendix F**.

5.6 ACOUSTICS

Mark Bridges of Bridges Acoustics formed part of the audit team and was present during the site component of the audit on 27 April 2016. During this time, he undertook an inspection of the cumulative noise monitor location to confirm the location is appropriate and conducted interviews with UCML environmental staff to view and obtain copies of documents and clarify acoustic issues.

Information gathered during the document reviews and site visit indicated UCML is substantially complying with relevant project approval conditions and is strongly focused on minimising and controlling environmental noise and blasting impacts.

The review confirmed that the noise monitoring network is appropriate, with the monitors located near closest and potentially most affected receptors. Measured noise levels are used to trigger alarms which in turn trigger an appropriate and comprehensive investigation and response strategy, with example reports showing triggered alarms and responses viewed during the site visit.

Noise related complaints also trigger a similar investigation and response strategy. Abundant evidence exists to indicate Ulan Coal responds to complaints in a professional manner and, where possible and practical, attempts to reduce noise levels in response to complaints despite meeting relevant project approval criteria at the time of the complaint. This response is commendable and exceeds the minimum standards required by the project approval and common industry practice.

Noise compliance monitoring indicates no exceedances of the project approval noise criteria at any sensitive receptor.

It was also noted that Ulan is continuing to work with Moolarben to reduce the potential for cumulative noise impacts to occur, particularly with open cut operations to re-commence in 2016. It was confirmed that UCML holds Environment & Community Joint Meetings with Moolarben and Wilpinjong Mines and a data sharing agreement is in place between the three mines, which forms the basis of their cumulative noise management plan.

The blast monitoring network is appropriate and indicates no exceedances of the blast criteria have occurred during the audit period, with no blasts during the later portion of the period. Blast management procedures, including control of vibration, overpressure and flyrock, are appropriate and evidence gathered during the site visit indicates the procedures are followed for each blast.

Additional diligence in relation to noise and blast (along with air quality) will require additional focus in the next audit period, with open cut operations to re-commence in 2016 having been in hiatus for much of the audit period.

5.7 WATER

Water management at Ulan is designed to mitigate the impact of the development on the surrounding environment. Water management at Ulan is considerably complex compared to many other mining operations and is managed in accordance with the framework described in the Water Management Plan.

The mine water management system is extensive and includes mine dewatering systems, water storages, water sharing, the Bobadeen Irrigation Scheme, water treatment facilities, sedimentation and retention basins, discharge, settling and tailings ponds, clean water diversion drains and dirty water catch drains, levee banks and earth bunding around stockpiles, hardstand areas and refuelling areas.

The key objectives of the UCML water management system include:

- Preventing the contamination of clean water by mining and related activities;

- Reducing the discharge of pollutants from the mine to the environment;
- Minimising adverse effects on the Goulburn River and Ulan Creek;
- Managing approved water discharges to meet license conditions;
- Segregating mine impacted water from better quality water to minimise the volume of impacted water that requires recycling and treatment; and
- Managing the inventory of water on-site in order to meet the requirements of the mining operation.

UCML has water in excess of operational needs and is licensed to discharge water off site. The mine water balance for the period July 2014 to June 2015 (as reported in the 2015 Annual Review (AR)) indicates the estimated groundwater inflow to the underground workings is an average of 16.2 ML/day.

The main water sources are:

- Groundwater inflows to the Ulan No. 3 and Ulan West underground mines;
- Catchment runoff (within Open Cut and other disturbed areas); and
- Rainfall on dams within the mine water management system.

Mine water and clean water is reticulated separately via an extensive system of pipes, pumps and stored in a series of water storage structures. Mine water used for mining activities such as coal washing and dust suppression is supplied by the mine water management system. Potable water use for amenities, offices and the longwall is supplied from a nearby licensed bore, passed through a reverse osmosis plant for water treatment and distributed throughout UCML. Potable water for UCML is supplemented by an external supplier, as required.

Water for the Bobadeen Irrigation Scheme is supplied from the Bobadeen Dam. In addition, water from the Bobadeen Dam and East Pit is treated utilising water treatment facilities and discharged under EPL394 at LDP6 and LDP19.

In order to reduce water coming into the system, UCML is committed to diverting clean water around areas not impacted by the mine and from rehabilitated areas using diversion drains where possible. The diversion drains prevent contamination of clean water by mining activities and minimise the inflow of clean water runoff into disturbed areas.

5.7.1 Surface Water

Greg Roads of WRM formed part of the audit team and was present during the site component of the audit on 28 April 2016. During this time he undertook an inspection of the sites main water management infrastructure, the Bobadeen Irrigation Scheme, Goulbourn River Diversion and sections of Ulan Creek and conducted interviews with UCML environmental staff to obtain information, view and obtain copies of documents and clarify surface water issues.

WRM completed a review of the available surface water quality data for the audit period and found that:

- There were no releases from LDP1, LDP2, LDP3 and LDP4 over the audit period;
- Releases from LDP6 satisfied the quality and quantity conditions in the EPL. One minor non-compliance occurred in the week of 8/07/13 when a weekly water quality sample was not taken during discharge;
- Releases from LDP19 satisfied the quality and quantity conditions in the EPL. One minor non-compliance occurred in the week of 12/05/14 when a weekly water quality sample was not taken during discharge; and
- Minor exceedance of the EC threshold occurred at LMP18 on several days over 2013 and 2014. Investigations found that the exceedances were not due to UCML releases. The exceedances were reported to EPA. The LMP18 EC compliance limit was removed from the EPL in 31 March 2014 with LDP EC thresholds reduced at the same time.

During their review, WRM representatives confirmed that Goulburn River baseflow losses (currently estimated to be 0.05 ML/d) are offset by licensed discharges of 15ML/day via LDP 6 (Bobadeen) and LDP 19 (Ulan Underground). It is a requirement of PA 08_0184 that the baseflow offsets should be effected by the retirement of water entitlements unless an alternative method can be presented and is approved by the Secretary.

The alternative method of offsetting baseflow losses via discharges to the Goulburn River have not been approved by the Secretary.

A review of the water treatment process confirmed that UCML currently manages the salt waste generated from the reverse osmosis treatment plant on-site by using it in coal washing or for dust suppression with the water balance model shown to demonstrate that there is no long term build-up of salts on the site.

The water treatment plan generates small volumes of iron and manganese, which is currently stored in containers. A long term strategy for the disposal of the waste has not yet been developed however it is noted that this is the focus of a Pollution Reduction Program (PRP) under UCML's EPL.

The Erosion and Sediment Control Plan (ESCP) has been developed to be consistent with the conditions of approval and includes the general principals and objectives that are to be achieved. It relies on the use of local ESC plans that specifies the measures that are to be used for each area. UCML provided a local ESC plan for the Goulburn River Diversion Rehabilitation plan, which appeared to satisfy the objectives of the ESCP.

WRM identified an inconsistency in the WMP relating to the definition of the on-site storages. The WMP defines mine water as water from coal stockpiles areas etc. However, several of the on-site water storages including Peters Dam, Wrights Dam, Truck Fill Dam, Rail Loop

Sump, Car Wash Dam and Shearers Dam have been labelled as dirty water dams. These dams should not be managed as dirty water dams under the ESCP.

The Goulburn River Diversion was visited as part of the audit and site personnel discussed what was proposed as part of the approved remediation plan. Construction work was observed being undertaken on the day of the inspection (see **Plates 8 – 9**). The works appeared to be constructed generally in accordance with the approved plan, however it was noted that works are currently at least two years behind the schedule given in the plan. The remediation pilot area that was completed in 2014 was also inspected. It is noted that this area has revegetated well and appears stable however there were signs of tracks by kangaroos in part of the area that could lead to erosion if not addressed (see **Plate 10**).

5.7.2 Groundwater

Claire Stephenson of AGE formed part of the audit team and was responsible for completing a detailed desktop review of the relevant documentation which relates to groundwater management at Ulan.

Groundwater management requirements stipulated within the project approval for UCML are addressed the Water Management Plan (WMP), Groundwater Monitoring Program (GWMP) and Surface and Ground Water Response Plan (SGWRP).

As part of its review, AGE confirmed that ongoing groundwater monitoring is conducted as prescribed within the groundwater monitoring program, with data recorded by UCML within a central database. Review of the water level and quality results has been conducted on a quarterly and annual basis by a qualified hydrogeologist (Coffey Geotechnics) for the last three years. In addition, recalibration of the groundwater model, and review of model predictions against current monitoring data was conducted by a qualified hydrogeologist (Mackie Environmental Research) on a biennial basis (2013 and 2015) as required under the project approval.

Review of the WMP has found that it is compliant and meets most requirements stipulated within Condition 34 and Condition 35 of the project approval. One omission noted within the WMP is the lack of clear reporting protocols for the biennial review of depressurisation of coal measures and comparison of response within aquifer model predictions. This is required under SOC 6.4.6 of the project approval. While a clear process is not stipulated within the WMP or GWMP, adequate reporting has been conducted in 2013 and 2015. It is recommended that the WMP be updated to clearly stipulate what is required to be undertaken in this regard.

Both the GWMP and SGWRP have been found to comply with most of the conditions of the project approval (see **Appendix E**). The GWMP details monitoring and review requirements for the existing groundwater monitoring network, which encompasses the key stratigraphic units of alluvium, Jurassic sediments, Triassic sediments and Permian coal measures. Proposed development of a monitoring network to assess impacts on “the Drip” is detailed within the GWMP. The monitoring bore was installed in late 2015 / 2016 with monitoring proposed to commence and be reported in the 2016 AR.

AGE's review also found that general water quality triggers based on ANZECC guidelines have been included for private landholder bores within the most recent (2015) GWMP. The GWMP also recommends collection of adequate baseline data for site-specific triggers into the future.

5.7.3 Water Licences

Water licencing is described in Section 3.4 of the UCML Water Management Plan (WMP).

UCML holds Water Access Licence (WAL) No. 19047 issued under the *Water Management Act 2000* and its subordinate legislation *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009* to extract up to 600 units of water from the Upper Goulburn River water source. UCML also holds a valid water supply works approval (20WA209953) for the Overshot Dam and associated water supply pump on Moolarben Creek to access this water. UCML advised that it has not drawn water from the dam over the audit period.

Condition 5 of the water supply works approval requires UCML to continually release at a flow rate of 7 litres/second (l/s) from the dam unless inflows are lower than 7l/s. UCML advised that a water level probe has been installed downstream of the dam to monitor releases and that releases have been complied with.

UCML engaged MER to calculate groundwater licence requirements for Ulan out to 2016. This determined that Ulan's licensing requirements up until 2016 are 730 Mega litres (ML) from the 'Lower Murray-Darling Unregulated and Alluvial Water Sharing Plan' (LMD WSP) and 5,500 ML from the 'Hunter Unregulated and Alluvial Water Sharing Plan' (Hunter WSP).

RS confirmed onsite that UCML currently holds licensing well in excess of these requirements with 1,454 ML held in the LMD WSP under the *Water Management Act 2000* (WAL27887 for 750 ML and WAL37192 for 704 ML) and 7,060 ML held in the Hunter WSP under the *Water Act 1912* (20BL173821 for 7060ML) (RS Pers Comm).

UCML reports annually on the status of all water licences (WALs and bores) and water taken under each in the ARs (section 2.1.3 of the ARs). It is noted that WAL 19047 for Moolarben Creek to extract up to 600 units of water from the Upper Goulburn River water source is missing from the AR. This should be added to ensure all water licences held by UCML are reported on.

With regard to unregulated take, UCML has calculated that it currently has Harvestable Rights for 1,088 ML which is well in excess of their take which has been calculated at 79ML (BA Pers Comm).

5.8 SUBSIDENCE

Mining operations have been undertaken in the UUG LW Panels 27, 28 & 29 (partial) and Ulan West LW 1 & 2 (partial) during the audit period. UCML is monitoring and reporting on impacts associated with mine subsidence in accordance with the Subsidence Management Plan. WRM conducted an inspection of a tributary of Ulan Creek that had been subsided by

Ulan West LW1 (near survey line UW-B). At this location there were no visible surface impacts due to subsidence. This concurred with the results in the AR.

It is noted from the site inspection and documentation reviewed that there is a good correlation between the subsidence predictions made in the EA and those being monitored and reported from mining to date.

It should be noted that during the audit period, mining has occurred only on lands owned by UCML and the crown.

A review of the Extraction Plan and Subsidence Management Plans and the relevant end of panel reports for LW27 (dated 16 April 2014), LW28 (dated 19 June 2015) confirmed that Ulan is operating consistent with the subsidence performance measure as provided in Table 14 of PA 08_0184. Further details with regard to the specific assessment of compliance for subsidence are provided in **Appendix E**.

5.9 HERITAGE

Bobadeen Homestead was inspected during the site visit. It was observed to be in a dilapidated state (see **Plates 11 and 12**). SH described the maintenance works that had been recently carried out including repairing of broken windows and doors, installing wire around the house to prevent feral pests and wombats burrowing under the house, trimming over hanging trees and removing leaf litter and debris from gutters. This is consistent with the approved letter addendum to Bobadeen Homestead Conservation Management Plan (dated 14 January 2014) which outlines the five year maintenance program that will be undertaken.

The remains of Old Ulan were also viewed in the field (see **Plate 13**).

An Aboriginal grinding grooves site (Ulan ID 323 Grinding Groove Complex) was also observed within an Aboriginal heritage offset area. During the site visit it was observed that this sign has been fenced however at the request of the Aboriginal groups, no signage has been erected.

5.10 COMPLAINTS

Community concerns are being well managed and are recorded within UCMLs Environment and Community Database. Ulan continues to operate a 24 hour complaints and enquiries line where concerns can be raised with the Environment and Community Manager.

The complaints database held by UCML for 2013, 2014 and 2015 was reviewed. During 2013, 50 complaints were received comprised of: 46 noise, 2 dust, 1 blast and 1 water. Also during 2013, UCML was required to fund an independent review for a noise assessment in response to a request made by a receiver through DPE. DPE engaged SKM to undertake this assessment. Following completion of the assessment, DPE confirmed that the Project is complying with its noise criteria.

In 2014 there was a slight reduction with 36 complaints received with regard to noise, 2 blast, 1 dust and 1 other complaint received. Of the complaints received, 30 (75%) were from two individuals.

For 2015, there was a significant reduction in complaints following the cessation of open cut mining activities. During 2015 there were eight noise complaints and 1 dust complaint. The last complaint received was in July 2015 with none received since that time (for the audit period).

Of the complaints received during the audit period for 2013, 2014 and 2015, no exceedances for relevant criteria were recorded.

UCML is continuing to work with its complainants to address their concerns. Actions taken to date include additional attended monitoring at the properties and amendments to site noise TARPs.

Complaint records are kept onsite for greater than 4 years as required (reviewed community complaints database onsite). As described above, these complaints were followed up and addressed with the complainants as relevant with the actions taken being reported within the relevant Annual Review.

5.11 INCIDENTS

5.11.1 External Reporting

Reportable incidents are described in the audit period AR's. During the audit period there were two reportable environmental incidents, including:

- One in 2013, relating to a pipe leak from the Treble Tanks which occurred on 14/10/13 resulting in approximately 0.4ML of water being discharged to Ulan Creek. This was reported to EPA on 14/10/13 and to DPE on 21/10/13. In response, the pipeline was decommissioned; and
- One in 2014, relating to biodiversity impacts outside of an approved Ground Disturbance Boundary (GDP) boundary (green waste pushed into Bobadeen Offset Area) which occurred on 07/03/14. DPE was informed and attended a site visit on 12/03/14. Following this, DPE requested a report be provided. This was provided to DPE on 18/03/14. In response, UCML removed the green waste material that was pushed into the offset area and installed sediment fencing. As further goodwill, UCML increased the offset area by 2,000 m³.

Both of these incidents were reported as required to the relevant agencies.

No reportable incidents occurred in 2015 (Section 9 of 2015 AR).

Internal Reporting

A review of incidents at Ulan during the audit period indicates that during 2013, 62 incidents were recorded, the majority of which were rated as Category 0 - 1, with three of these recorded as Category 2 (Minor, reversible environmental impact requiring minor remediation).

During 2014, 59 incidents were reported with only one of these a Category 2 and the others all rated as Category 0 – 1. For 2015, there was a significant reduction in environmental incidents with only 28 Category 0 – 1 incidents recorded and zero Category 2 or higher.

Internal reporting of minor incidents is beneficial for UCML as it provides leading indicators for reporting and performance. UCML provides a summary of incidents to the Community Consultative Committee (CCC) and in doing so provides a forum where any questions about the incidents can be answered directly. This internal reporting process assists Ulan in tracking environmental performance and identifying areas where improvements may be able to be made.

6 AUDIT RECOMMENDATIONS

Table 9 includes a list of required actions arising from each of the non-compliances from this Audit, along with recommendations related to continuous improvement opportunities identified.

In accordance with the Audit Guidelines, **Table 9** also provides a risk assessment level to assist UCML staff in responding to each recommendation.

Table 9
Audit Recommendations

Ref	Description	Risk Level
PA 08_0184 MOD2		
Non-Compliance Recommendations		
Schedule 3 Condition 23b)	UCML seeks confirmation from the EPA and DP&E that they are accepting of the approach to utilise Wilpinjong Mines met station and update the NMP and AQGHGMP. The incorrect reference to temperature lapse rate being monitored at Ulan should also be corrected in the NMP.	Low
Schedule 3 Condition 29	UCML seeks approval from the Secretary regarding the alternative method for offsetting baseflow losses in the Goulburn River. Commence seeking a long term solution to offsetting the loss of baseflow prior to the next audit.	Medium
Schedule 3 Condition 32	Goulburn River Diversion Remediation Plan be revised to update the new agreed timing for completion of works and submitted to DPE for approval.	Administrative
Schedule 3 Condition 34	The WMP should be revised to include a reporting process for the biennial review of depressurisation of coal measures and comparison of responses with aquifer model predictions, including: • Calibrated hydrographs (modelled versus observed groundwater levels). • Revised predicted drawdown extent. • Comparison of predicted groundwater inflows against estimates from the mine water balance.	Administrative
Schedule 3 Condition 38a)	The WMP should be updated to include a summary of the data for surface water flows and quality being monitored for Ulan Creek, Bobadeen Creek, Curra Creek, Mona Creek and Cockbutta Creek.	Administrative
Schedule 3 Condition 41a	The BMP should include a summary table indicating the list of significant and/or threatened species identified within the areas to be cleared, removed and/or disturbed, and the areas of habitat within each of the offset areas. Monitoring reports should also clearly indicate which species have been recorded within each offset area.	Low

Ref	Description	Risk Level
Schedule 3 Condition 44d)	The BMP and relevant related plans as listed in Section 1.1.1 of the BMP be updated to include relevant details for: - protecting vegetation and soil outside the disturbance areas; - landscaping the site, and particularly the land adjoining public roads; - propagation of threatened flora including <i>Acacia ausfeldii</i>; and - the requirement to carry out comprehensive reporting every three years following the independent environmental audit.	Low
Continual Improvement Recommendations		
Schedule 3 Condition 28	WAL 19047 for Moolarben Creek should be added to the Water Licence tables presented in the AR to ensure all water licences held by UCML are reported on.	Administrative
Schedule 3 Condition 32	Remediation be identified and undertaken to repair the area of the Goulburn River Diversion work that has been impacted by kangaroo tracks to prevent erosion.	Administrative
Schedule 3 Condition 37d)	Peters Dam, Wrights Dam, Truck Fill Dam, Rail Loop Sump, Car Wash Dam and Shearers Dam have been labelled as dirty water dams. These dams should not be managed as dirty water dams under the ESCP. It is recommended that the ESCP be updated to reflect actual use.	Administrative
Schedule 3 Condition 39	Maintain ongoing communication and collaboration with Moolarben Coal Operations regarding monitoring of 'The Drip' to ensure a strategic monitoring network and programme is established. Document these communications;	Administrative
Schedule 3 Condition 39	For the quarterly groundwater reporting, it is recommended that the reports include: - Routinely update statistical analysis of water quality for the alluvium, Permian coal seams (i.e. Ulan Seam) and the Permian interburden, along with continued assessment of the Jurassic Purlawaugh siltstone and Triassic Wollar Sandstone. - Statistical analysis (i.e. mean and standard deviation) of the groundwater levels.	Administrative
Schedule 3 Condition 39	Annual reviews could be improved by including the following with regard to the GWMP: - Recommendations for installation of additional piezometers with mine development and damage to existing piezometers. In addition, document on the status of previous recommendations regarding the monitoring network. - Clearly document groundwater sampling procedures undertaken over the reporting year and verify that best practice has been followed with sampling.	Administrative

Ref	Description	Risk Level
Schedule 3 Condition 39	Update the groundwater monitoring network, including: - Review need for additional bores (including VWPs) in the NMN to encompass progression of the mine towards the north and west. - Review of lithological logs and drill details for the BMN, to ensure the bores are adequately constructed to target the extent of the unconfined aquifer. - Installation of additional bores within the BMN to ensure adequate coverage of the unconfined groundwater regime in relation to surface water features (i.e. creeks). - Installation of an additional multi-level piezometer at site DDH57 to monitor regional groundwater level changes between the mine and private landholders.	Administrative
Schedule 3 Condition 39	The GWMP be updated to clearly stipulate the trigger levels for water quality for the site monitoring network now that groundwater levels are beginning to recover within the mined out panels to the south. With recovery of these groundwater levels, it is recommended that changes in groundwater chemistry also be monitored. The SGWRP would benefit from including details on training staff and protocols for identifying and documenting groundwater related issues that require further action in accordance with the UCML's TARP process.	Administrative
Schedule 3 Condition 46	UCML should continue to seek to have the Valley Way Grinding Groove VCA finalised and secured as soon as possible.	Administrative
Schedule 3 Condition 49d)	UCML should summarise all reasonable and feasible measures that are undertaken to minimise the project's contribution to the traffic on Ulan Road in AR's going forward.	Administrative
Schedule 3 Condition 50g)	UCML should continue to work with its neighbouring mines to implement noise abatement at residences along Ulan Road in consultation with the identified houses as soon as practical.	Administrative
Schedule 3 Condition 53b)	A plan for short and long term maintenance and upgrade of the Ulan No3 Underground Infrastructure area should be prepared and implemented to assist in avoiding long term potential hydrocarbon contamination of the area.	Administrative
Schedule 3 Condition 57	UCML should consider undertaking a review of the rehabilitation species success rates in to ensure that adequate shrubs and groundcovers are included in rehabilitation to enhance overall biodiversity value.	Administrative
EPL 394		
Non-Compliance Recommendations		
P1.1	The following should be updated on the air monitoring sites map referenced in the EPL: - Re-label EPL33 as EPL29; and - EPL 32 needs to be labelled and shown on the figure.	Administrative
P1.3	The water monitoring and discharge site maps referenced should be updated.	Administrative
P1.4	EPL numbers should be included for all required noise monitor sites.	Administrative

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for

HANSEN BAILEY



Daniel Sullivan
Senior Environmental Scientist



Dianne Munro
Principal Environmental Scientist

APPENDIX A
DPE Certification Form

Independent Audit Certification Form	
Development Name	Ulan Coal Mines
Development Consent No.	PA 08_0184 (as modified)
Description of Development	Ulan Coal Operations
Development Address	Ulan Road, Ulan NSW 2850
Independent Audit	
Title of Audit	Independent Environmental Audit, Ulan Coal Mine
<i>I certify that I have undertaken the independent audit and prepared the contents of the attached independent audit report and to the best of my knowledge:</i> <i>The audit has been undertaken in accordance with relevant approval condition(s) and in accordance with the auditing standard AS/NZS ISO 19011:2014 and Post Approval Guidelines – Independent Audits</i> <i>The findings of the audit are reported truthfully, accurately and completely;</i> <i>I have exercised due diligence and professional judgement in conducting the audit;</i> <i>I have acted professionally, in an unbiased manner and did not allow undue influence to limit or over-ride objectivity in conducting the audit;</i> <i>I am not related to any owner or operator of the development as an employer, business partner, employee, sharing a common employer, having a contractual arrangement outside the audit, spouse, partner, sibling, parent, or child;</i> <i>I do not have any pecuniary interest in the audited development, including where there is a reasonable likelihood or expectation of financial gain or loss to me or to a person to whom I am closely related (i.e. immediate family);</i> <i>Neither I nor my employer have provided consultancy services for the audited development that were subject to this audit except as otherwise declared to the lead regulator prior to the audit; and</i> <i>I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from fair payment) from any owner or operator of the development, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.</i> Note. <i>The Independent Audit is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</i> <i>The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).</i>	
Signature	
Name of Lead / Principal Auditor	Dianne Munro
Address	PO Box 473, Singleton NSW 2330
Email Address	dmmunro@hansenbailey.com.au
Auditor Certification (if relevant)	Exemplar Global International Certified Auditor 107622
Date:	1 July 2016

APPENDIX B
Regulatory Correspondence



Contact: Chris Schultz
Phone: 02 4224 9478
Fax: 02 4224 9470
Email: Christopher.Schultz@planning.nsw.gov.au

Mr Charlie Allen
General Manager
Ulan Coal
Locked Bag 2033
MUDGEE NSW 2850

Dear Charlie,

**Ulan Coal
Independent Environmental Audit**

Reference is made to your letter dated 9 February 2016 to the Department of Planning and Environment (the Department) seeking endorsement of the proposed Independent Environmental Audit (IEA) Team in accordance with Project Approval 08_0184, Schedule 5 Condition 8.

The Secretary's nominee has reviewed your request and endorses the proposed audit team.

If you require further information, please contact Chris Schultz, Senior Compliance Officer, on telephone number 02 4224 9478 or by email at Christopher.Schultz@planning.nsw.gov.au.

Yours sincerely

W Jones 24/2/16

Wayne Jones
A/Investigations (Lead) Northern Region
as the Secretary's nominee



Contact: Chris Schultz
Phone: 02 4224 9478
Fax: 02 4224 9470
Email: Christopher.Schultz@planning.nsw.gov.au

Mr Charlie Allen
General Manager
Ulan Coal
Locked Bag 2033
MUDGEES NSW 2850

Dear Mr Allen

**Ulan Coal Mines (Project Approval 08_0184)
Alternate Ecologist for Independent Environmental Audit**

Reference is made to your email dated 7 April 2016 to the Department seeking endorsement of Katrina Wolf of Cumberland Ecology as an alternate ecologist for the Independent Environmental Audit (IEA) in accordance with Project Approval 08_0184, Schedule 5 Condition 8.

The Secretary's nominee has reviewed your request and endorses the proposed alternate ecologist.

If you require further information, please contact Chris Schultz, Senior Compliance Officer, on 02 4224 9478 or Christopher.Schultz@planning.nsw.gov.au.

Yours sincerely

Katrina O'Reilly
Team Leader Compliance Southern Region
as nominee of the Secretary

APPENDIX C
Audit Itinerary

**Ulan Coal Mine
Department of Planning & Environment (DP&E)
Independent Environmental Audit**

ITINERARY

Site Component to be held Tuesday, 26 to Friday, 29 April 2016

Invitees

Charlie Allan	Ulan Coal Mine	General Manager
Sam Wiseman	Ulan Coal Mine	Operations Manager (Open Cut)
James Johnson	Ulan Coal Mine	Operations Manager (Underground No 3)
Dave Ribaux	Ulan Coal Mine	Operations Manager (Underground Ulan West)
Rod Reinhard	Ulan Coal Mine	Major Projects Manager
Robyn Stoney (RS)	Ulan Coal Mine	Environment and Community Manager
Ben Anderson (BA)	Ulan Coal Mine	Senior Environment & Approvals Coordinator
Tom Frankham (TM)	Ulan Coal Mine	Environment and Community Coordinator
Norm Green (NG)	Ulan Coal Mine	Water Manager
Cameron Quarmby	Ulan Coal Mine	CHPP Manager
Steve Hawkins (SH)	Ulan Coal Mine	Rehabilitation Superintendent
Tara Stokes (TS)	Ulan Coal Mine	Environment Scientist
Angela Van Der Kroft (AV)	Ulan Coal Mine	Environment and Community Officer Seconded
Dianne Munro (DM) ^A	Hansen Bailey	Lead Auditor
Daniel Sullivan (DS) ^A	Hansen Bailey	Auditor
David Robertson (DR) ^B	Cumberland Ecology	Auditor – Ecology
Mark Bridges (MB) ^C Greg	Bridges Acoustics	Auditor – Noise
Roads (GR) ^D	WRM Water	Auditor – Surface Water

Superscript indicates Team A – D as indicated in the Itinerary below.

DAY 1 – Tuesday, 26 April 2016

Time	Description	Location	Required Attendees
6:30am – 10:00am	Auditors drive to site	-	DM & DS
10:00am – 10:30am	Opening Meeting • Introductions • Purpose of Audit • Confidentiality Arrangements	UUG Boardroom	All

Time	Description	Location	Required Attendees
	- Audit Process and Timing - Confirmation of Meetings and Inspection/s		
10:30am – 11:00am	Presentation on Ulan Operations in Audit Period Presentation on Ulan operations (RS)	UUG Boardroom	RS, BA, TF, SH, DM & DS
11:00am – 12:30pm	Documentation Compliance Review – Team A Review of PA08-0184 (as modified)	E&C Offices	RS, BA, TF, DM & DS
12:30pm – 12:45pm	Lunch	E&C Offices	-
12:45pm – 4:00pm	Documentation Compliance Review (cont.) - Continue Review of PA08-0184 (DA) and Statement of Commitments - Review of key EA Commitments - Review of Activities against EA and MOP	E&C Offices	RS, BA, TF, DM & DS
4:00pm – 5:00pm	Auditors Revision Day 1 and Preparation for Day 2	E&C Offices	DM & DS

DAY 2 – Wednesday, 27 April 2016

Time	Description	Location	Required Attendees
8:00am – 12:00pm	Documentation Compliance Review (cont.) Management Plans commitments Review	E&C Offices	RS, BA, DM & DS
10:30am	Ecology Specialist – Team B - Review documentation: DA, EA, MOP, monitoring, BMP and BOMP - Site Inspection: Retained vegetation, offset areas, monitoring, etc.	E&C Offices / Field	SH, TS & DR
10:30am	Noise Specialist – Team C - Review documentation: DA, EA, MOP, noise monitoring, NMP and BLMP - Site Inspection: Noise monitors, near neighbours, noise sources	E&C Offices / Field	AV & MB
11:45pm – 12:00pm	Lunch	E&C Offices	-
12:00 pm – 1:30pm	CHPP, Loadout and Rail Discussion - Coal and rejects management - Noise and dust - Water management - Complaints and Incidents - Training and Communications	USO Offices	RS, CQ, DM & DS
1:30pm – 2:45pm	Field Inspection – Team A - CHPP - Rail loadout and rail	Field	RS, CQ, DM & DS
3:00pm – 4:00pm	Ecology & Noise Specialists Findings Summary Provide overview (DR & MB)	E&C Offices	RS, SH, TS, AV, DM, DS, MB & DR
4:00pm – 5:00pm	Auditors Revision Day 2 and Preparation for Day 3	E&C Offices	DM, DS & MB

DAY 3 – Thursday, 28 April 2016

Time	Description	Location	Required Attendees
8:00am – 11:00am	Documentation Compliance Review (cont.) - EPL 394 - Mining Authorities - Extraction Plan and End of Panel Reports	E&C Offices	RS, BA, DM & DS
11:30 am	Water Specialist – Team D - Discussion: DA, EA, MOP, water licences, water monitoring, WMP - Site Inspection: water management infrastructure at CHPP, underground and pit areas, salinity offset	E&C Offices / Field	TF, GR
11:00pm – 12:00pm	Mining / Technical Discussion - Amenity: noise, dust and visual - Open cut rehabilitation - Subsidence remediation - Complaints and Incidents - Training and Communications	E&C Offices	RS, BA, SW, DM & DS
11:45pm - 12:00pm	Lunch	E&C Offices	-
12:00pm – 4:00pm	Field Inspection – Team A - Underground (No 3 & Ulan West) - Open cut pit and rehabilitation - Main infrastructure areas (workshop, waste segregation, oil, wash-down, storage, etc.) - In pit Infrastructure - Bioremediation area - Coal and waste management in-pit - Aboriginal heritage management sites - Goulburn River Diversion - Other areas	Field	RS, SH, BA, DM & DS
4:00pm – 4:30pm	Water Specialist Close Out Meeting Provide overview of findings (GR)	E&C Offices	RS, TF, NG, DM, DS & GR
4:30pm – 5:00pm	Auditors Revision Day 3 and Preparation for Day 4	E&C Offices	DM & DS

DAY 4 – Friday, 29 April 2016

Time	Description	Location	Required Attendees
8:00am – 12:00 pm	Documentation Compliance Review (cont.) - Regulator Issues - Reportable Incidents - Complaints - Training and Communications - Regulator Comments and other issues	E&C Offices	RS, BA, TF, DM & DS
12:00pm – 1:00pm	Lunch and Auditors Preparation	E&C Offices	DM & DS
1:00pm – 1:30pm	Closeout Meeting	UUG Boardroom	All

APPENDIX D
Audited Documentation

- Consolidated Coal Lease 741
- Gulgong Bureau of Meteorological (BoM) monitoring station (site: 062013).
<http://www.bom.gov.au/climate/dwo/201504/html/IDCJDW2054.201504.shtml>
- (Hansen Bailey, 2013) Project Approval Compliance Report for Ulan Coal Mine dated September 2013 completed by Hansen Bailey.
- Land and Environment Court NSW (2011) [2011] NSWLEC 221 Hunter Environment Lobby Inc v Minister for Planning
- Land and Environment Court NSW (2011) Project Approval 08_0184
- Land and Environment Court NSW (2012) [2012] NSWLEC 40 Hunter Environment Lobby Inc v Minister for Planning (No 2)
- Land and Environment Court NSW (2012) Order
- NSW EPA (2015) Environmental Protection Licence 394
- Project Approval 08_0184 MOD 2
- Stedinger Associates (2011) Bobadeen Homestead Conservation Management Plan
- Stedinger Associates (2011) Old Ulan, Ruins of the Robinson Homestead Conservation Management Plan
- UCML Summary of Complaints received for 2013, 2014 and 2015
- UCML Summary of Incidents reported for 2013, 2014 and 2015
- Umwelt Australia Pty Ltd (2009) Ulan Coal Continued Operations Environmental Assessment
- Umwelt Australia Pty Ltd (2010) Ulan Coal Continued Operations Response to Submissions
- Umwelt Australia Pty Ltd (2011) Modification of Ulan Coal Continued Operation – North 1 Underground Mining Area, Minor Modifications to Ulan No. 3 and Ulan West Mine Plans and Proposed Concrete Batching Plant
- Project Approval 08_0184 (May 2012), granted by the Land and Environment Court of New South Wales (MOD 2);
- Annual Reviews for Ulan Coal Mine for 2013, 2014 and 2015
- The Environmental Protection Licence (EPL) 394 dated 22 March 2013 covering the period to 31 March 2014 and the revised EPL dated 28 January 2015 covering the period after 31 March 2014
- ULN SD PLN 0017 Water Management Plan (Version 6) (Glencore, 2015)

- ULN SD PLN 0054 Goulburn River Diversion Remediation Plan (Version 6) (Glencore, 2013)
- ULN SD PLN 0057 Surface Water and Groundwater Response Plan (Version 6) (Glencore, 2016)
- ULN SD PLN 0025 Erosion and Sediment Control Plan (Version 7) (Glencore, 2015)
- ULN SD PLN 0055 Surface Water Monitoring Program (Version 5) (Glencore, 2015)
- Ulan Coal Environmental Assessment (Umwelt, 2009) including:
 - Surface Water Assessment Summary
 - Section 6 -Statement of Commitments
 - Appendix 7 Surface Water Assessment
- ULN SD PLN 0103 Longwalls 1&2 Subsidence Management Plan and Extraction Plan
- ULN SD ANN 0064 Subsidence Monitoring Program Longwall 1&2
- Umwelt Environmental Consultants 2011, 'Groundwater Monitoring Program', prepared for Ulan Coal Mines Limited, ULN SD PLN 0056, July 2011.
- Umwelt Environmental Consultants 2015, 'Groundwater Monitoring Program', prepared for Ulan Coal Mines Limited, ULN SD PLN 0056.
- Umwelt Environmental Consultants 2011, 'Water Management Plan', prepared for Ulan Coal Mines Limited, ULN SD PLN 0017, July 2011.
- Ulan Coal Mines Limited 2015, 'Water Management Plan', document ULN SD PLN 0017, November 2015.
- Umwelt 2011, 'Surface Water and Groundwater Response Plan', prepared for Ulan Coal Mines Limited, document ULN SD PLN 0057, July 2011.
- Ulan Coal Mines Limited 2016, 'Surface Water and Groundwater Response Plan', document ULN SD PLN 0057, March 2016.
- Mackie Environmental Research 2010, 'Regional Groundwater Model Recalibration', as Attachment E – Groundwater Monitoring Results, in UCML (2010) Annual Environmental Management Report – 1 November 2009 – 31 October 2010, Ulan Coal Mines Limited.
- Mackie Environmental Research 2013, 'Groundwater model update', prepared for Ulan Coal Mines Ltd, April 2013.
- Mackie Environmental Research 2015, 'Assessment of Groundwater Related Impacts Arising From Modifications to the Ulan West Mine Plan, prepared for Ulan Coal Mines Limited, January 2015.
- Coffey 2016, 'Groundwater Monitoring Quarterly Report – December 2015, Attachment D in Annual Review 2015, prepared for Ulan Coal Mines Limited, March 2016.

- Mackie Environmental Research 2016, 'Drip Water Quality Monitoring', in Attachment D Groundwater Monitoring 2015, prepared for Ulan Coal Mines Limited.
- Coffey 2015, 'Groundwater Monitoring Quarterly Report – December 2014', Attachment D in Annual Review 2014, prepared for Ulan Coal Mines Limited, March 2015.
- Mackie Environmental Research 2015, 'Drip Water Quality Monitoring', in Attachment D Groundwater Monitoring 2014 of Annual Review 2014, prepared for Ulan Coal Mines Limited.
- Coffey 2014, 'Groundwater Monitoring Quarterly Report – December 2014', Attachment D in Annual Review 2013, prepared for Ulan Coal Mines Limited, February 2014.
- Mackie Environmental Research 2014, 'Appendix G Private Water Bore Survey Database', in Attachment D Groundwater Monitoring 2013 of Annual Review 2015, prepared for Ulan Coal Mines Limited.
- Umwelt Environmental Consultants (2009) Ulan Coal Continued Operations Environmental Assessment. Appendix 8 Ecology Assessment. Umwelt (Australia) Pty Limited, Toronto;
- Umwelt Environmental Consultants (2011a) ULN SD PLN 0026 Ulan Coal Biodiversity Management Plan. Version 2.0. Ulan Coal Mines Limited, Mudgee;
- Umwelt Environmental Consultants (2011b) ULN SD ANN 0048 Ulan Coal Offset Management Program. Version 1.0. Ulan Coal Mines Limited, Mudgee;
- Ulan Coal Mines Limited (2012) ULN SD PLN 0079 Integrated Mining Operations Plan (2012-2017). Version 3. Ulan Coal Mines Limited, Mudgee;
- Biodiversity Monitoring Services (2013) Ecological Monitoring Program for Ulan Coal Mine 2013 -Terrestrial Fauna and Habitats. Biodiversity Monitoring Services, Lithgow.
- Eco Logical Australia (2014) Ulan Coal Mines Limited Annual Floristic Monitoring Report 2013. Prepared for Ulan Coal Mines Limited. Eco Logical Australia Pty Ltd;
- Fly By Night Surveys (2014) Microbat Monitoring of the Ulan Coal Mine Lease during 2013. A report to Ulan Coal Mines Limited. Fly By Night Surveys, Belmont.
- Ulan Coal (2014) Annual Environment Review 1st January 2013 – 31st December 2013. Ulan Coal Mines Limited, Mudgee;
- Biodiversity Monitoring Services (2015a) Ecological Monitoring Program for Ulan Coal Mine 2014 -Terrestrial Fauna and Habitats. Biodiversity Monitoring Services, Lithgow.
- Eco Logical Australia (2015) Annual Floristic Monitoring Report 2014. Prepared for Ulan Coal Mines Limited. Eco Logical Australia Pty Ltd;
- Fly By Night Surveys (2015) Microbat Monitoring of the Ulan Coal Mine Lease during 2014. A report to Ulan Coal Mines Limited. Fly By Night Surveys, Belmont;

- Ulan Coal (2015) Annual Environment Review 1st January 2014 – 31st December 2014. Ulan Coal Mines Limited, Mudgee;
- Eco Logical Australia (2015) RE: Hollow-bearing tree assessment on Ulan Biodiversity Offset and Cliffline Management Areas. Letter to Ulan Coal Mines Limited;
- Biodiversity Monitoring Services (2015b) Ecological Monitoring Program for Ulan Coal Mine 2015 -Terrestrial Fauna and Habitats. Biodiversity Monitoring Services, Lithgow;
- Eco Logical Australia (2016) Annual Floristic Monitoring Report 2015. Prepared for Ulan Coal Mines Limited. Eco Logical Australia Pty Ltd;
- Fly By Night Surveys (2016) Microbat Monitoring of the Ulan Coal Mine Lease during 2015. A report to Ulan Coal Mines Limited. Fly By Night Surveys, Belmont;
- Ulan Coal (2016) ULN SD REP 0004 Ulan Coal Annual Review 2015. Version 1.0. Ulan Coal Mines Limited, Mudgee; and
- Eco Logical Australia (2015) ULN SD PLN 0026 Ulan Coal Biodiversity Management Plan. Version 3.0. Ulan Coal Mines Limited, Mudgee.

APPENDIX E
Compliance Tables

Table A
Development Consent PA 08_0184 Compliance

Key

Red – December 2011 Modification

Blue type represents the conditions modified by the November 2011 court judgment and associated Orders

Green type represents the May 2012 Modification

Section	Sub-section	Requirement	Status	Comments
SCHEDULE 2				
Obligation to Minimise Harm to the Environment	1.0	The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or rehabilitation of the project.	Compliant	The UCML Environmental Management Strategy (EMS) document provides the framework for environmental management at UCML. It also generally addresses the requirements of this Project Approval. Generally, there were some minor reportable incidents during the period as described below, however no material harm was shown to occur to the environment The UCML risk assessment process and the pollution incident response management plans as required under the EPL are further examples as to how obligations to minimise harm are being met.
Terms of Consent	2.0	The Proponent shall carry out the project generally in accordance with the:		
		(a) EA;	Compliant	Operations at UCML were undertaken generally in accordance with this document. See Section 1.4 of the main Audit Report which outlines the key components the EA and UMCL's operations during the audit period. Further the UCML Ground Disturbance Permit (GDP) process confirms all approvals in place prior to any works being undertaken on site (viewed example of a GDP dated 30/07/13).
		(b) EA (MOD 1);	Compliant	As above.

Section	Sub-section	Requirement	Status	Comments
		(c) EA (MOD 2);	Compliant	As above.
		(d) statement of commitments; and	Administrative Non-Compliance	Operations at UCML were undertaken generally in accordance with the statement of commitments (SOCs) made in the Project EA and reproduced as Appendix 9 of the Project Approval. Compliance against each of the SOCs is provided below in this compliance table with one administrative non-compliance determined.
		(e) conditions of this approval.	Compliant	As outlined in this compliance table and summarised in this audit report.
		Notes: - The general layout of the project is shown in Appendix 2; and - The statement of commitments is reproduced in Appendix 9.	N/A	It was confirmed during the site visit that the general layout of the Project is generally consistent with that shown in Appendix 2 of the Project Approval. Further discussion is provided in Section 1 of the main audit report. Compliance against each of the SOCs is provided below in this compliance table.
	3.0	If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.	Not Triggered	Confirmed by Robyn Stoney (RS) Pers Comms
	4.0	The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:		
		a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted in accordance with this approval; and	Not Triggered	No formal requests received. Responses to draft plans have been documented within the plans and responded to therein (RS Pers Comms)
		(b) the implementation of any actions or measures contained in these documents.	Not Triggered	No formal requests received. Responses to draft plans have been documented within the plans and responded to therein (RS Pers Comms)
LIMITS ON APPROVAL	5.0	The Proponent may carry out mining operations on the site until 30 August 2031.	Not Triggered	

Section	Sub-section	Requirement	Status	Comments
		<i>Note: Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings to the satisfaction of either the Director-General or the Executive Director, Mineral Resources. Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.</i>		
	6.0	The Proponent shall not:		
		(a) extract more than 4.1 million tonnes of ROM coal from the open cut mining operations on site in a calendar year; and	Compliant	Annual open cut ROM coal extraction during the audit period: 2013: 2.27 Mt (Annual Review (AR), 2013) 2014: 1.62 Mt (AR, 2014); 2015: no active OC operations (AR, 2015). 12.5 Mt ROM coal from the open cut was from existing stockpiles.
		(b) export more than 20 million tonnes of coal from the site in a calendar year.	Compliant	Annual product ROM coal extraction during the audit period: 2013: 6.24 Mt (AR, 2013); 2014: 9.86 Mt (AR, 2014); 2015: 12.11 Mt (AR, 2015).
	7.0	The Proponent shall ensure that:		
		(a) all product coal is transported from the site by rail;	Compliant	Confirmed in AR's for the audit period 2015 AR Section 3.4.2, 2014 and 2013 AR Section 2.5.3.
		(b) no product coal is transported to the west of the site on the Tallawang to Wallerawang rail corridor; and	Compliant	Confirmed onsite (RS Pers Comms). None reported in ARs.

Section	Sub-section	Requirement	Status	Comments
		(c) no more than 10 laden trains leave the site each day.	Compliant	2013 AR – max 5 laden trains left site per day during September and November; 2014 AR – max 6 laden trains left site per day during September and October; 2015 AR- max 6 laden trains left site per day during August and September. Train movements from the site are also documented on the UCML website.
SURRENDER OF CONSENTS	8.0	By the end of June 2012 , or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents for the site (apart from DA 113-12-98) in accordance with Section 104A of the EP&A Act	Compliant	Previous audit confirmed compliance.
	9.0	Within 3 months of the completion of longwalls 26, West 2 and West 3, or as otherwise agreed by the Director-General , the Proponent shall surrender DA 113-12-98 in accordance with Section 104A of the EP&A Act.	Not Triggered	Longwall 26 and West 2 have been completed but not West 3. This condition is likely to be triggered in the next audit period.
		Note: To identify the longwalls referred to in this condition, see the figures in Appendix 2.		
	10.0	Prior to the surrender of the consents referred to in Conditions 8 and 9 above, the conditions of this approval shall prevail to the extent of any inconsistency with the conditions of these consents.	Not Triggered	The conditions of this Project approval have been audited for compliance. With the exception of DA 113-12-98 (which was not reviewed as part of this audit) all existing consents have been surrendered.
STRUCTURAL ADEQUACY	11.0	The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.	Compliant	The Water Treatment Facility was constructed during the 2013 (relevant to the audit period). RS advised that a construction certificate was not required for the water treatment facility. Viewed internal Glencore legal advice dated 01/08/13 advising that the water treatment facility project is development permissible without consent under clause 6(e) of the Mining SEPP and consequently UCML is not required to obtain construction certificates for works associated with this project. Section 2.3 of the 2014 AR notes no major construction activities. Vent fan 2 was constructed in October 2015. Viewed construction certificate dated 16/10/15 from Mid-Western Regional Council (MWRC).

Section	Sub-section	Requirement	Status	Comments
		Notes: - Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works; and - Part 8 of the EP&A Regulation sets out the requirements for the certification of the project		
DEMOLITION	12.0	The Proponent shall ensure that all demolition work is carried out in accordance with <i>Australian Standard AS 2601-2001: The Demolition of Structures</i> , or its latest version.	Compliant	2013 AR: no demolition or decommissioning of mining related infrastructure. A house owned by UCML (RV3) was demolished. Viewed GDP dated 30/07/13. 2014 AR Section 5.2.1: Underground ROM Rotary Crusher and ROM pad were removed. Viewed demolition certificate dated 16/10/14. 2015 AR: no demolition or decommissioning.
OPERATION OF PLANT AND EQUIPMENT	13.0	The Proponent shall ensure that all the plant and equipment used on site, or to transport coal from the site, is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Compliant	Viewed UCML Equipment Introduction to Site Procedure. View an example of a weekly report and subsequent work order dated 28/04/15. A field visit on 27 and 28 April 2016 showed little dust from active equipment or overburden emplacement areas and tipping activities (see Section 5.1 of the report). Significant water cart activity was observed during the field visit.
STAGED SUBMISSION OF ANY STRATEGY, PLAN OR PROGRAM	14.0	With the approval of the Director-General, the Proponent may submit any strategy, plan or program required by this approval on a progressive basis.	Not Triggered	This has not been requested of DP&E during the audit period (RS pers comms).

Section	Sub-section	Requirement	Status	Comments						
		Notes: - While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and - If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program								
	15.0	The Proponent shall continue to implement the existing strategies, plans or programs that apply to any development on site until they are replaced by an equivalent strategy, plan or program approved under this approval.	Compliant	This audit reviewed all approved management plans (see discussions below).						
PLANNING AGREEMENT	16.0	By the end of June 2011, unless otherwise agreed by the Director-General, the Proponent shall enter into a planning agreement with Council in accordance with: (a) Division 6 of Part 4 of the EP&A Act; and (b) the terms of the Proponent’s offer dated 11 November 2010, which is summarised in the Table in Appendix 8.	Compliant	Previous audit confirmed compliance.						
SCHEDULE 3										
ACQUISITION UPON REQUEST	1.0	Upon receiving a written request for acquisition from an owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in Conditions 6 - 7 of Schedule 4.	Compliant	Written request received from Residence 80 “Broken Back” in March 2014. Offer made by UCML on 14/07/2014. Offer accepted 21/07/2014.						
		Table 1: Land subject to acquisition upon request <table><tr><th>Noise</th><th>Subsidence</th></tr><tr><td>93 - Rostherine Pty Ltd</td><td>80 – “Broken Back”</td></tr><tr><td>274 - North-Eastern Wiradjuri Community Fund Ltd</td><td></td></tr></table>	Noise	Subsidence	93 - Rostherine Pty Ltd	80 – “Broken Back”	274 - North-Eastern Wiradjuri Community Fund Ltd			
Noise	Subsidence									
93 - Rostherine Pty Ltd	80 – “Broken Back”									
274 - North-Eastern Wiradjuri Community Fund Ltd										
		Note: To interpret the locations referred to in Table 1, see the figure in Appendix 3.								

Section	Sub-section	Requirement	Status	Comments																																							
		The acquisition requirements in this condition do not apply to any of the land in the first column of Table 1 if it is subsequently rezoned for industrial development.																																									
NOISE																																											
Noise Criteria	2.0	Except for the noise-affected land referred to in Table 1, the Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land	Compliant	Six-monthly attended noise monitoring results: • 2013 AR Section 3.10: no exceedances during June and December 2013 attended monitoring; • 2014 AR Section 3.10: no exceedances during June and December 2014 / January 2015 attended monitoring; • 2015 AR Section 4.1: no exceedances during June and December 2015 attended monitoring.																																							
		<i>Table 2: Noise Criteria dB(A)</i> <table> <tr> <th rowspan="2">Location</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr> <tr> <th>LAeq (15 min)</th><th>LAeq (15 min)</th><th>LAeq (15 min)</th><th>LA1 (1 min)</th></tr> <tr> <td>254</td><td>38</td><td>38</td><td>37</td><td>45</td></tr> <tr> <td>57</td><td>37</td><td>37</td><td>36</td><td>45</td></tr> <tr> <td>7</td><td>36</td><td>36</td><td>36</td><td>45</td></tr> <tr> <td>All privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr> <tr> <td>Ulan Public School</td><td colspan="3">35 (internal) When in use</td><td>-</td></tr> <tr> <td>Ulan Anglican Church Ulan Catholic Church</td><td colspan="3">40 (internal) 40 (internal) When in use</td><td>-</td></tr> </table>	Location	Day	Evening	Night		LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA1 (1 min)	254	38	38	37	45	57	37	37	36	45	7	36	36	36	45	All privately-owned land	35	35	35	45	Ulan Public School	35 (internal) When in use			-	Ulan Anglican Church Ulan Catholic Church	40 (internal) 40 (internal) When in use			-		
Location	Day	Evening		Night																																							
	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA1 (1 min)																																							
254	38	38	37	45																																							
57	37	37	36	45																																							
7	36	36	36	45																																							
All privately-owned land	35	35	35	45																																							
Ulan Public School	35 (internal) When in use			-																																							
Ulan Anglican Church Ulan Catholic Church	40 (internal) 40 (internal) When in use			-																																							

Section	Sub-section	Requirement	Status	Comments									
		Notes: - To identify the locations referred to in Table 2, see figure in Appendix 3; and - Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.											
		However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.	Not Triggered	No written agreements are in place with any landowner to exceed the criteria (R Stoney pers comms).									
Noise Acquisition Criteria	3.0	If the noise generated by the project exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land in accordance with the procedures in Conditions 6 - 7 of Schedule 4.	Not Triggered	See response to 2.									
		<table><tr><th colspan="3">Table 3: Noise acquisition criteria dB(A) LAeq (15min)</th></tr><tr><th>Location</th><th>Day</th><th>Evening</th></tr><tr><td>All privately-owned land</td><td>40</td><td>40</td></tr></table>	Table 3: Noise acquisition criteria dB(A) LAeq (15min)			Location	Day	Evening	All privately-owned land	40	40		
Table 3: Noise acquisition criteria dB(A) LAeq (15min)													
Location	Day	Evening											
All privately-owned land	40	40											
		Notes: - Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. - For this condition to apply, the exceedances of the criteria must be systemic.											
Cumulative Noise Criteria	4.0	Except for the noise-affected land referred to in Table 1, the Proponent shall implement all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines in the area does not exceed the criteria in Table 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.	Not Triggered	See response to 2. Noise monitoring results discussed in Cumulative Noise Management Plan Implementation Review shows no systemic exceedances of criteria.									

Section	Sub-section	Requirement	Status	Comments						
		<i>Table 4: Cumulative noise criteria dB(A) LAeq (period)</i> <table><tr><th>Location</th><th>Day</th><th>Evening</th></tr><tr><td>All privately-owned land</td><td>50</td><td>45</td></tr></table>	Location	Day	Evening	All privately-owned land	50	45		
Location	Day	Evening								
All privately-owned land	50	45								
		<i>Note: Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.</i>								
Cumulative Noise Acquisition Criteria	5.0	If the noise generated by the project combined with the noise generated by other mines in the area exceeds the criteria in Table 5 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in Conditions 6-7 of Schedule 4.	Not Triggered	See response to 2.						
		<i>Table 5: Cumulative noise land acquisition criteria dB(A) LAeq (period)</i> <table><tr><th>Location</th><th>Day</th><th>Evening</th></tr><tr><td>All privately-owned land</td><td>55</td><td>50</td></tr></table>	Location	Day	Evening	All privately-owned land	55	50		
Location	Day	Evening								
All privately-owned land	55	50								
		- Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and - For this condition to apply, the exceedances of the criteria must be systemic.								
Additional Noise Mitigation Measures	6.0	Upon receiving a written request from the owner of any residence:	Not Triggered	No requests for mitigation described in the 2013 – 2015 Annual Reviews.						
		a) on the land listed in Tables 1 or 6; or								

Section	Sub-section	Requirement	Status	Comments				
		(b) on privately-owned land where subsequent noise monitoring shows that the noise generated by the project is greater than or equal to LAeq (15 minute) 38 dB(A) on a systemic basis, the Proponent shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible.						
		If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.						
		<i>Table 6: Land where additional noise mitigation is available at the residence upon request</i> <table><tr><th>Location</th><th>Receiver</th></tr><tr><td>254</td><td>Geoffrey Mitchell & Mary Mitchell</td></tr></table>	Location	Receiver	254	Geoffrey Mitchell & Mary Mitchell		
Location	Receiver							
254	Geoffrey Mitchell & Mary Mitchell							
		<i>Note: To identify the locations referred to in Table 6, see the figure in Appendix 3.</i>						
Rail Noise	7.0	The Proponent shall seek to ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with noise limits L6.1 to L6.4 in RailCorp's EPL (No. 12208 L2) and ARTC's EPL (No. 3142) or a Pollution Control Approval issued under the former <i>Pollution Control Act 1970</i> .	Compliant	Viewed email from Freightliner dated 20/11/2015 which confirmed that all locomotives used at UMCL are approved in EPL's. Viewed email from Pacific National dated 25/11/2015 which confirmed that all locomotives used at UMCL are approved in EPL's.				
Operating Conditions	8.0	The Proponent shall:						

Section	Sub-section	Requirement	Status	Comments
		(a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational, low frequency, rail, and road traffic noise generated by the project;	Compliant	Compliance with relevant noise criteria confirms noise mitigation measures are appropriate and are being adequately maintained Site visit enabled viewing of noise risk forecast technology is used on site and reviewed daily by site operational managers. When high risk noise conditions are forecast an email goes out to all employees (RS Pers Comms). Section 3 of the Noise Management Plan ULN SD PLN 0031 (NMP) mentions UCML's noise management and mitigation measures. Section 3.10 of the 2013 AR describes noise mitigation installed on the Ulan West surface conveyor (enclosure / cladding and balancing of idlers) and ventilation fan (exhaust silencer). Viewed cumulative noise management plan dated 23/11/15 as completed by Advitech for the 3 mines. No other mitigation measures specified in 2014 and 2015 ARs.
		(b) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval; and	Compliant	No noise exceedances have been recorded against this approval for the audit period. Compliance verified. Example daily reports viewed which indicate response to real time noise monitoring alarms Section 4.1 of NMP describes UCML's noise monitoring program and associated real time noise monitoring. Section 4.3 of NMP describes UCML's meteorological monitoring, including its meteorological facilities and forecasting capabilities. Section 4.2 of NMP describes UCML's proactive noise management, implemented from real life noise and meteorological monitoring, which sends information to UCML's environmental staff and operational personnel if noise criteria are at risk of being triggered. This data can be used to guide operations under prevailing wind speed and direction to ensure compliance.

Section	Sub-section	Requirement	Status	Comments
		(c) co-ordinate the noise management on site with the noise management at Moolarben and Wilpinjong mines to minimise the cumulative noise impacts of the mines, to the satisfaction of the Director-General	Compliant	Viewed cumulative noise management plan dated 23/11/15 as completed by Advitech for the 3 mines. 2014 AR notes that Sentinex 121 used to gather data to assess whether it can provide adequate data for cumulative impact management. UCML hold Environment & Community Joint Meetings with Moolarben Coal Mine (MCM) and Wilpinjong Mines (WCPL). Viewed meeting minutes dated April 2013. Also viewed an example of an Agenda for one of these joint meetings dated 17/09/15. This confirmed that noise management is formally raised at these meetings. No exceedance as a result of cumulative noise have been recorded during the audit period. During the audit period complaints with regard to noise have reduced between 2013 and 2015. (see discussion in Section 5.10 of the main report.
Noise Management Plan	9.0	The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:		
		(a) be prepared in consultation with EPA and Council, and submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010;	Compliant	Previous audit confirmed compliance for preparation of original plan. This plan has been recently revised and approved by DP&E in a letter dated 08/12/15. The management plan was provided to MWRC for consult on 15/07/14 and the EPA on 8/8/14 (no responses received).
		(b) describe the noise mitigation measures that would be implemented to ensure compliance with conditions 2-8 of this schedule, including a real-time noise management system that employs both reactive and proactive mitigation measures;	Compliant	Section 3.2 of the NMP describes noise management and mitigation measures.
		(c) include a noise monitoring program that: - uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the project; and - includes a protocol for determining exceedances of the relevant conditions of this approval;	Compliant	Section 4.1 of the NMP describes UCML's Noise Monitoring Program and includes a combination of attended and unattended real time monitoring for evaluating compliance. Sections 4.1.1 of NMP describes UCML's use of attended noise monitoring to evaluate compliance and determine exceedances with the development consent.

Section	Sub-section	Requirement	Status	Comments																
		(d) include a protocol that has been prepared in consultation with the owners of the Moolarben and Wilpinjong mines for minimising and managing the cumulative noise impacts of the mines.	Compliant	Section 4.6 of the NMP covers cumulative noise management while Section 4.7 includes a protocol for joint acquisition of properties with MCM and WCPL. The Cumulative Noise Management Plan (CNMP) was prepared in consultation with MCM and WCPL																
		<i>Note: The effectiveness of the Noise Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>	Compliant	Section 5 of the NMP includes a protocol for ongoing review of the document.																
BLASTING																				
Operational Blasting Criteria	10.0	The Proponent shall ensure that operational blasting on site does not cause exceedances of the criteria in Table 7.	Compliant	2013 AR Section 3.11.2: all blast monitoring results were within relevant criteria. One blast event in May 2013 recorded an overpressure result of 115.5 dB, which is within 5% threshold for allowable exceedances. 2014 AR Section 3.11.2: all blast monitoring results were within relevant criteria. 2015 AR Section 4.2: no blast events in 2015.																
		<table><tr><th colspan="4">Table 7: Operational blast impact criteria</th></tr><tr><th>Location</th><th>Airblast overpressure (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr><tr><td>Residence on privately owned land</td><td>115</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td></td><td>120</td><td>10</td><td>0%</td></tr></table>	Table 7: Operational blast impact criteria				Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance	Residence on privately owned land	115	5	5% of the total number of blasts over a period of 12 months		120	10	0%		
Table 7: Operational blast impact criteria																				
Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance																	
Residence on privately owned land	115	5	5% of the total number of blasts over a period of 12 months																	
	120	10	0%																	

Section	Sub-section	Requirement	Status	Comments
	10.1	The Proponent shall ensure that operational blasting and construction blasting on the site does not damage Heritage Sites on site. Heritage Sites can be identified in Appendix 7 of this approval.	Compliant	2013 AR Section 3.11.2: no exceedances of blast impact criterion. No change to baseline condition of Aboriginal heritage sites 74, 1395 and 1396 identified in inspection by South East Archaeology and RAPs in February 2013; 2014 AR Section 3.11.2: no exceedances of blast impact criterion. No change to baseline condition of Aboriginal heritage sites identified in inspection by South East Archaeology and RAPs in August 2014; RS confirmed no impacts to Old Ulan as a result of blasting undertaken in 2013 and 2014 (no blasting in 2015). (RS Pers Comm) (see Plate 13). 2015 AR Section 4.2: no blast events in 2015. No change to baseline condition of Aboriginal heritage sites identified in inspection by South East Archaeology and RAPs in February 2015.
Operational Blasting Hours	11.0	The Proponent shall only carry out operational blasting on site between 9am and 5pm Monday to Saturday inclusive. No operational blasting is allowed on Sundays, public holidays, or at any other time without the written approval of Director-General.	Compliant	Viewed Attachment I of the 2013 and 2014 AR's, which confirm all blasts undertaken within approved hours. No open cut blasting undertaken in 2015.
Operational Blasting Frequency	12.0	The Proponent shall not carry out more than 1 operational blast a day on site, unless an additional operational blast is required following a blast misfire.	Compliant	Viewed Attachment I of the 2013 and 2014 AR's, which confirm no more than one blast event per day. No open cut blasting undertaken in 2015.
		<i>Note: A blast may involve a number of explosions within a short period, typically less than two minutes.</i>		
Construction Blasting Hours and Frequency	12.1	The Proponent shall only carry out construction blasting on site between 7am and 7pm daily where the Proponent confirms by design and prediction prior to construction blasting that the overpressure and vibration levels will be less than 95dB(A) and 1mm/sec, respectively at all private buildings.	Not Triggered	No blasting required for audit period construction activities (RS Pers Comm)

Section	Sub-section	Requirement	Status	Comments
Property Inspections	13.0	If the Proponent receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit on site for a property inspection to establish the baseline condition of any buildings and/or structures on their land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:	Not Triggered	Although not requested, a property inspection was offered by UCML and carried out for the Elia's residence following a blast complaint received from them on 21/10/14. The report was completed in March 2015 and concluded that the residence is in good structural condition. The report recommended ongoing blast monitoring to ascertain vibration levels. RS confirmed that blast monitor 3 is in place between this residence and the mine and that there have been no exceedances during the audit period.
		(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to: - establish the baseline condition of the buildings and/or structures on the land or update the previous property inspection report; and - identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and	Not Triggered	Although this condition is not strictly triggered, if this situation should arise in future, it is recommended the UCML seek approval from DPE for the proposed consultant to undertake any structural inspection.
		(b) give the landowner a copy of the new or updated property inspection report.	Not Triggered	
Property Investigations	14.0	If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim the Proponent shall:		
		(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and	Not Triggered	
		(b) give the landowner a copy of the property investigation report.	Not Triggered	
		If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.		

Section	Sub-section	Requirement	Status	Comments
		If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.		
Operating Conditions	15.0	The Proponent shall		
		(a) implement best blasting management practice on site to: • protect the safety of people and livestock in the surrounding area; • protect public or private property in the surrounding area; and • minimise the dust and fume emissions of the blasting;	Compliant	No exceedances during the audit period. Reported on fume during the audit period which occurred on 21/10/14. This did not travel offsite. No complaints received during the audit period. Section 3.2 of Blast Management Plan ULN SD PLN 0082 (Blast MP) states that all underground shotfiring is preceded by Risk Assessment. Section 3.3 of Blast MP states that should blasting occur at Bobadeen Basalt Quarry, UCML will undertake due diligence blast monitoring. Section 3.1.9 of Blast MP describes UCML's use of preliminary meteorological review and procedure for the pre-assessment of blasting on site during adverse weather conditions, to ensure that blasts are postponed during adverse weather conditions which have the potential to exacerbate dust, fume and/or overpressure impacts. Example pre-assessments for 16/12/13 and 14/4/14 were viewed and are appropriate. Section 3.7.1 of Blast MP states that email notification of blasts will be sent to Ulan No. 3, Ulan West, MCM and WCPL to establish safety measures. Section 3.1.4.12 of AQGHGMP states UCML will implement controls to reduce dust emissions from blasting operations.

Section	Sub-section	Requirement	Status	Comments
		(b) co-ordinate the blasting on site with the of blasting at the Moolarben and Wilpinjong mines to minimise the cumulative blasting impacts of the mines; and	Compliant	Section 3.7.4 of the Blast MP outlines the procedures for coordinating blast times. Blasting times are to be coordinated with MCM and WCPL via emails from the Drill & Blast Engineer. The 3 mines share emails 14 days in advance to ensure that no blasting is scheduled at the same time. Viewed example email from 25/02/15. This included the proposed time, blast map and possible road interactions. Also viewed example of a change of firing time dated 13/02/15. UCML holds Environment & Community Joint Meetings with Moolarben Coal Mine (MCM) and Wilpinjong Mines (WCPL). Viewed meeting minutes dated April 2013. Also viewed an example of an Agenda for one of these joint meetings dated 17/09/15. This confirmed that blast management is formally raised at these meetings. No incidents or complaints during the reporting period.
		(c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Director-General.	Compliant	As outlined in Section 3.7.1 of the Blast MP the Drill & Blast Engineer maintains the UCML Blast Contacts Register and contacts each person on the register at least 24 hours prior to the scheduled time of blasting. UCML also operate an Environmental Hotline which is advertised regularly in the local papers and on their website.
Blast Management Plan	16.0	The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Director-General. This plan must:		
		(a) be prepared in consultation with EPA and Council, and submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010;	Complaint	Previous audit confirmed required consultation undertaken and draft Blast MP submitted to DP&E for approval prior to required date. Viewed a letter from DP&E to UCML approving the current version of the Blast MP in a letter dated 23/03/16. The management plan was provided to MWRC for consult on 15/07/14 and the EPA on 8/8/14 (no responses received).

Section	Sub-section	Requirement	Status	Comments
		(b) describe the blast mitigation measures that would be implemented to ensure compliance with conditions 10-15 of this schedule;	Compliant	Section 3 of Blast MP provides a blasting checklist which outlines the standard protocol and/or items to be followed by UCML's open cut contractor for both pre-blasting and post-blasting considerations. Section 3.8 of the Blast MP states that blasting exceedances will be used to amend blasting design and procedures to reduce the potential for future blasting exceedances.
		(c) describe the measures that would be implemented to ensure the public can get up-to-date information on the proposed blasting schedule on site;	Compliant	Section 3.7 of the Blast MP describes UCML's notification of blasting (including time and location) provided to specified neighbouring stakeholders by phone or email prior to each blast occurring. Section 3.7 of the Blast MP describes UCML's blast information line, which is maintained 24hrs a day, 7 days a week and provides information about all surface blasting activities at the Ulan complex. Section 3.7 of the Blast MP states that UCML's open cut contractor will update the blast notification boards locate at the security gates at both the entrance to the Ulan surface operations and the Ulan no.3 underground operations.
		(d) include a blast monitoring program to evaluate the performance of the project; and	Compliant	Section 3.6 of the Blast MP states blast monitoring is only undertaken for the open cut mining areas (Ulan West Box Cut and Open Cut Extension), however if blasting is to take place at the Bobadeen Basalt Quarry, UCML will undertake monitoring at the property boundaries and nearest residential receptor. No blasting was undertaken at the quarry during the audit period Section 3.7 of the Blast MP states all blasts will be monitored with performance reviewed against the criteria and modelled impacts in the EA to inform future blast design.

Section	Sub-section	Requirement	Status	Comments
		(e) Include a protocol that has been prepared in consultation with the owners of the Moolarben and Wilpinjong mines for minimising and managing the cumulative blasting impacts of the mines.	Compliant	Section 3.7 of the Blast MP states that UCML's open cut contractor will notify MCM and WCM of scheduled blasts 48hrs prior to scheduled time. If there is no conflict, no further correspondence will be entered into. If there is conflict, further discussion will take place to ensure blasts are considerably apart to reduce the potential for cumulative impacts. The 3 mines share emails 14 days in advance to ensure that no blasting is scheduled at the same time. Viewed example email from 25/02/15. This included the proposed time, blast map and possible road interactions. Also viewed example of a change of firing time dated 13/02/15. No incidents or complaints during the reporting period.
		<i>Note: The effectiveness of the Blast Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>		Section 6 of Blast MP states that the document will be reviewed as required throughout the life of the Project or as otherwise directed by the Director-General. The plan has recently been reviewed with the changes and updated plan approved by DP&E on 23/03/16.
AIR QUALITY & GREENHOUSE GAS				
Odour	17.0	The Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act.	Compliant	No requests or issues raised by regulators and no issues identified in the ARs or under the EPL. Section 3.1.4.19 and 3.1.4.20 of the approved UCML Air Quality and Greenhouse Gas Management Plan ULN SD LN 0059 (AQGHGMP) describe management controls for odour and spontaneous combustion on site. No odour complaints received during the audit period.

Section	Sub-section	Requirement	Status	Comments
Greenhouse Gas Emissions	18.0	The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site including the release of Scope 2 greenhouse gas emissions attributable to operations at the site and which are under the control of the Proponent, in each case to the satisfaction of the Director-General.	Compliant	Section 4 of the AQGHGMP outlines measures to be implemented to minimise greenhouse gas emissions from site. Section 4.1.1 of the AQGHGMP outlines the objectives of the Plan for Greenhouse Gas emissions. Predominately this requires UCML to assess greenhouse gas and energy use performance for the site and undertake all reasonable and feasible measures to minimise greenhouse gas emissions from the site. Revised AQGHGMP approved by DP&E on 11/11/15. UCML report on the annual greenhouse gas monitoring that is conducted for the site in the AR and report against the predictions that were made in the EA. (see Section 4.7 of the 2015 AR). During the audit period they have been below the EA predictions. An energy mass baseline was reviewed in 2013, with the report of the review provided in May 2014. The report offered suggestions for electrical and diesel savings opportunities (Section 4.7 of the 2015 AR). The following examples are evidenced in projects implemented at the operation to minimise energy and GHG intensity: ☐ Pumps – new purchases to include consideration of energy efficiency; adjust pump speeds and automated to switch off when not in use. ☐ Improve pipe design and eliminate unnecessary flow paths. ☐ Implement preventative maintenance. ☐ Variable speed drives and premium-efficiency motor systems.
Air Quality Criteria	19.0	The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the particulate emissions generated by the project do not exceed the criteria listed in Tables 8, 9 and 10 at any residence on privately-owned land or on more than 25 percent of any privately owned land.	Compliant	Section 3.1.3 of the AQGHGMP. No exceedances were recorded during the audit period (eg. See Section 4.3 of the 2015 AR).

Section	Sub-section	Requirement		Status	Comments
		<i>Table 8: Long term criteria for particulate matter</i>			
		Pollutant	Averaging period	dCriterion	
		Total suspended particulate (TSP) matter	Annual	a90 µg/m	
		Particulate matter < 10 µm (PM10)	A nnual	a30 µg/m3	
		<i>Table 9: Short term criterion for particulate matter</i>			
		Pollutant	Averaging period	dCriterion	
		Particulate matter < 10 µm (PM10)	24 hour	a 50 µg/m3	
		<i>Table 10: Long term criteria for deposited dust</i>			
		Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total¹ deposited dust level
		cDeposited dust	Annual	b2 g/m2/month	a4 g/m2/month

Section	Sub-section	Requirement	Status	Comments									
		Notes for Tables 8 -10: a) Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to other sources); b) Incremental impact (i.e. incremental increase in concentrations due to the project on its own); c) Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method; and d) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agree to by the Director-General in consultation with EPA.											
Air Quality Acquisition Criteria	20.0	If the particulate matter emissions generated by the project exceed the criteria in Tables 11, 12, and 13 at any residence on privately-owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner the Proponent shall acquire the land in accordance with the procedures in Conditions 6 - 7 of Schedule 4.	Not Triggered	See Schedule 3 Condition 19.									
		Table 11: Long term acquisition criteria for particulate matter <table><tr><th>Pollutant</th><th>Averaging period</th><th>dCriterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>a90 µg/m3</td></tr><tr><td>Particulate matter < 10 µm (PM10)</td><td>Annual</td><td>a30 µg/m3</td></tr></table>			Pollutant	Averaging period	dCriterion	Total suspended particulate (TSP) matter	Annual	a90 µg/m3	Particulate matter < 10 µm (PM10)	Annual	a30 µg/m3
Pollutant	Averaging period	dCriterion											
Total suspended particulate (TSP) matter	Annual	a90 µg/m3											
Particulate matter < 10 µm (PM10)	Annual	a30 µg/m3											

Section	Sub-section	Requirement			Status	Comments
		Table 12: Short term acquisition criteria for particulate matter				
		Pollutant	Averaging period	dCriterion		
		Particulate matter < 10 µm (PM10)	24 hour	a150 µg/m3		
		Particulate matter < 10 µm (PM10)	24 hour	b50 µg/m3		
		Table 13: Long term acquisition criteria for deposited dust				
		Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	
		cDeposited dust	Annual	b2 g/m2/month	a4 g/m2/month	
		Notes for Tables 11 - 13: a Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to other sources); b Incremental impact (i.e. incremental increase in concentrations due to the project on its own); c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method; and d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agree to by the Director-General in consultation with EPA.				
Operating Conditions	21.0	The Proponent shall:				

Section	Sub-section	Requirement	Status	Comments
		(a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the project, including those generated by any spontaneous combustion on site,	Compliant	Section 3.1.4 of AQGHGMP details air quality controls to be implemented throughout the life of the operation. Viewed internal dust management procedure and Trigger Action Response Plan (TARP). This includes predictive forecasts daily, real time meteorological monitoring and alarms and applies to the open cut only. During the audit site visit water carts were frequently in use on haul roads, internal roads and MIA areas. Further it was noted that rehabilitation was being undertaken progressively. There have been no exceedances of the relevant air quality criteria during the audit period.
		(b) minimise any visible air pollution generated by the project; and	Compliant	Section 3.1.4 of the AQGHGMP. CCTV cameras installed at strategic positions to provide personnel with real time viewing of the operations. The CCTV cameras allow monitoring for any excessive dust generation in order to apply appropriate dust mitigation measures. Reported on fume during the audit period which occurred on 21/10/14. This did not travel offsite. No complaints received during the audit period. No visible air was observed during the audit site visit.
		(c) regularly assess the real-time air quality monitoring and meteorological forecasting data, and relocate, modify and/or stop operations on site to ensure compliance with the relevant conditions of this approval; and	Compliant	Section 3.1.5 and Section 3.2.1 of the AQGHGMP. Meteorological forecast data is used on site and reviewed daily by site operational managers. Machinery response TARP was viewed onsite. Also viewed example of OCE report in response to TEOM alarm due to elevated dust levels dated 06/05/15. In response ordered additional watering of roadways. Real time monitoring data is reviewed daily and discussed with operational managers as required (RS Pers Comms) No air quality exceedances for the audit period.

Section	Sub-section	Requirement	Status	Comments
		(d) co-ordinate air quality management on site with the air quality management at the Moolarben and Wilpinjong mines to minimise the cumulative air quality impacts of the mines, to the satisfaction of the Director-General.	Compliant	Sections 3.1.4.3, 3.1.5.2 and Section 3.2.1 of the AQGHGMP. UCML holds Environment & Community Joint Meetings with MCM and WCPL. Viewed minutes dated 31/07/14. Also viewed an example of an Agenda for one of these joint meetings dated 17/09/15. This confirmed that air quality management is formally raised at these meetings. No exceedance as a result of cumulative air quality issues have been recorded during the audit period and there is no evidence of cumulative dust impacts.
Air Quality & Greenhouse Gas Management Plan	22.0	The Proponent shall prepare and implement a detailed Air Quality & Greenhouse Gas Management Plan for the project to the satisfaction of the Director-General. This plan must:		
		(a) be prepared in consultation with EPA and Council, and submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010;	Compliant	Section 2.6 and Appendix A of the AQGHGMP. Viewed a letter from DP&E to UCML approving the current version of the AQGHGMP in a letter dated 11/11/15. The management plan was provided to MWRC for consult on 15/07/14 and the EPA on 8/8/14 (no responses received).
		(b) describe the measures that would be implemented to ensure compliance with conditions 17-21 of this schedule, including a real-time air quality management system that employs reactive and proactive mitigation measures; and	Compliant	Sections 3 and 4 of the AQGHGMP.
		(c) include an air quality monitoring program, that uses a combination of real-time monitors, high volume samplers and dust deposition gauges to evaluate the performance of the project, and includes a protocol for determining exceedances with the relevant conditions of this approval.	Compliant	Section 3.2.1 of AQGHGMP outlines UCLM's Air Quality Monitoring Program, including its use of High Volume Air Samplers (section 3.2.1.1) and dust deposition gauges (section 3.2.1.2).
		<i>Note: The effectiveness of the Air Quality & Greenhouse Gas Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>	Compliant	Section 5 of AQGHGMP states the plan will be reviewed as required throughout the life of the Project or as otherwise directed by the Director-General.

Section	Sub-section	Requirement	Status	Comments
METEOROLOGICAL MONITORING	23.0	During the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that:		
		(a) complies with the requirements in the <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> guideline; and	Compliant	Section 3.2.1.4 of the AQGHGMP. Viewed calibration certificate from Novecom dated 11/02/15
		(b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the <i>NSW Industrial Noise Policy</i> .	Not Compliant	RS confirmed that lapse rate data is not able to be measured onsite and as such it is sourced from Wilpinjong Coal Mine as it has the required equipment and is in the same air shed. This is not documented in the approved NMP and AQGHGMP and there is no evidence that DPE or EPA are accepting of this approach. There also appears to be an error in the NMP Section 4.3 as it states that : <i>WS1 is capable of continuous real-time measurement of temperature lapse rate in accordance with the INP.</i> Based onsite discussions it is understood that this should read <u>is not capable</u>. <i>Section 4.3 goes on to state that UCML will measure temperature lapse rate using the Sigma Theta method, as described in Appendix E of the INP (which aligns with onsite discussions).</i> It is recommended that UCML seek confirmation from the EPA and DP&E that they are accepting of the approach to utilise Wilpinjong Mines met station and update the NMP and AQGHGMP. The error identified above should also be corrected in the NMP.
SUBSIDENCE				

Section	Sub-section	Requirement	Status	Comments
Performance Measures	24.0	The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 14.	Compliant	Mining operations have been undertaken in the UUG LW Panels 27, 28 & 29 (partial) and Ulan West LW 1 & 2 (partial) during the auditing period. Subsidence impacts during the audit period have been largely in accordance with the predictions made in the EP/SMPs. See Table 1 of the 2015 Annual Subsidence Report for LW 1 and 2 and Table 1 of the EoP report for LW28 which provides a comparison of the subsidence parameters measured vs those that were predicted. There have been no impacts to the sites listed in Table 14 as a result of subsidence to date (BA Pers Comms). This was also confirmed following a review of the End of Panel Subsidence Reports for LW27 (16 April 2014), LW28 (19 June 2015).

Section	Sub-section	Requirement	Status	Comments
	<i>Table 14: Subsidence Performance Measures</i>			
	Water			Water
	Ulan, Mona & Cockabutta Creeks	No greater environmental consequences than predicted in the EA		Only Ulan Creek has been mined under during the audit period. Baseflow impacts have been within EA predictions (section 1.2 of the 2015 Annual Subsidence Report for LW 1 and 2).
	Biodiversity			Biodiversity
	Threatened species, populations, habitat or ecological communities	Negligible impact		Biodiversity monitoring undertaken by Ecological and reported in section 2.4 of the 2015 Annual Subsidence Report for LW 1 and 2 confirm negligible impacts. Biodiversity monitoring results are also reported in the ARs (eg see section 3.8 of the 2014 AR).
	Land			Land
	Cliffs in the Brokenback Conservation Area	Nil environmental consequences		No mining under any cliffs in the Broken back conservation area.
	Other cliffs	Minor environmental consequences		Impacts to "other cliffs" due to mining In Ulan West LW 1 and 2 confirmed minor by monitoring (less than 5-6% impacts as per criteria in the monitoring program which defines minor environmental consequences as being less than 20% impacted).
	Heritage			Heritage
	Aboriginal sites	Nil impact in the Brokenback Conservation Area, Grinding Groove Conservation Areas; and on Mona Creek/Cockabutta Creek Rock Shelter Sites		No mining under any heritage sites occurred during the audit period.
	Talbragar Fish Fossil Reserve	Negligible impact		
	Other Heritage Sites	No greater impact than predicted in the EA		
	Built Features			Built Features
	All built features	Safe, serviceable and repairable unless the owner agrees otherwise in writing		No built features are located above the areas longwall mined in the audit period (BA Pers Comms).
	Public Safety			Public Safety
	Public Safety	No additional risk due to mining		No public lands or areas accessible by the public are located above the areas longwall mined in the audit period (BA Pers Comms).
			Compliant	

Section	Sub-section	Requirement	Status	Comments
		Notes: - The Proponent will be required to define more detailed performance indicators for each of these performance measures in the various management plans that are required under this approval; and - For reference purposes, the heritage sites referred to in Table 14 are depicted in the figures in Appendices 6 & 7.		
First Workings	25.0	The Proponent shall not carry out any first workings on site that are inconsistent with the approved mine plan without the written approval of the Director-General.	Compliant	Viewed DPE letter dated 12/06/14 which approved UCML: to modify first workings for LW 9-11 and 31-33 at Ulan No. 3.
Extraction Plan	26.0	The Proponent shall prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Director-General. These plans must:		
		a) be prepared by a team of suitably qualified and experienced persons whose appointment has been endorsed by the Director-General;	Compliant	Viewed letter from DPE dated 11/7/11 approving GSSE and Strata Control to prepare the Extraction Plan (EP's) for LW 27-29. Viewed letter from DPE dated 23/05/13 approving Strata Control, Resource Strategies and Mackie Environmental Research (MER) to prepare the EP for LW1 and 2.
		(b) be approved by the Director-General before the Proponent carries out any of the second workings covered by the plan;	Compliant	Preliminary approval for LW 27 provided by DPE dated 17/12/12 (LW 27 commenced 18/03/13). Viewed letter from DPE dated 23/05/13 for EP covering LW27-29. DPE approval for LW 1 and 2 provided 25/03/14. (LW 1 commenced 19/05/14).
		(c) include detailed plans of the proposed second workings and any associated surface development;	Compliant	Relevant plans provided within Section 1 of the EP's.
		(d) include detailed performance indicators for each of the performance measures in Table 14;	Compliant	Provided within Section 1.7.2 of the EP for LW 1-2 and Section 5.6 for LW27-29 EP.
		(e) provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed second workings, incorporating any relevant information obtained since this approval;	Compliant	Provided within Section 1.7 of the EP for LW1-2 and Section 5 of the LW27-29 EP.
		(f) describe the measures that would be implemented to ensure compliance with the performance measures in Table 14, and remediate any predicted impacts and/or environmental consequences;	Compliant	Provided within Section 1.7.3 and 4.1 of the EP for LW1-2 and Section 4.3 of LW27-29 EP.

Section	Sub-section	Requirement	Status	Comments
		(g) include the following to the satisfaction of DRE:	Compliant	Viewed approval letter from DRE dated 09/04/14
		- a subsidence monitoring program to: - provide data to assist with the management of the risks associated with subsidence; - validate the subsidence predictions; and - analyse the relationship between the subsidence effects and impacts under the Extraction Plan and any ensuing environmental consequences;	Compliant	Provided within Section 3 and Appendix G of the EP for LW 1-2 and for LW27-19 EP the Subsidence Monitoring Program (ULN SD PLN 0061).
		a Built Features Management Plan, which has been prepared in consultation with the owner/s of any relevant features, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings on these features	Compliant	Included in approved EP for LW1-2 and shown on plan dated 18/10/13 and for LW27-29 EP Built Features Management Plan (ULN SD PLN 0029).
		a Public Safety Management Plan to ensure public safety in the mining area;	Compliant	Provided as Appendix E of the EP for LW1-2 and for LW27-29 Public Safety Management Plan (ULN SD PLN 0030).
		a revised Rehabilitation Management Plan; and	Compliant	Provided as Appendix H of the EP for LW1-2
		(h) include:		
		revised Water, Biodiversity, and Heritage Management Plans for the project, which specifically provide for the management of any potential subsidence impacts and/or environmental consequences of the proposed second workings;	Compliant	Provided as Appendix A, C and E of the EP respectively.
		a Land Management Plan that has been prepared in consultation with relevant landowners, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on land in general; and	Compliant	Provided as Appendix B of the EP
		a program to collect sufficient baseline data for future Extraction Plans	Compliant	Provided as Appendix G of the EP
		This condition does not apply to the second workings for longwalls 26, West 2 and West 3 which are covered by an existing Subsidence Management Plan.	Not Triggered	Not mined in the audit period (BA pers comms).

Section	Sub-section	Requirement	Status	Comments
		<i>Note: To identify the longwalls referred to in this condition, see the relevant figure in Appendix 2.</i>		
Payment of Reasonable Costs	27.0	The Proponent shall pay all reasonable costs incurred by the Department to engage suitably qualified, experienced and independent persons to review the adequacy of any aspect of the Extraction Plan.	Not Triggered	No independent requests made in the audit period (BA pers comms).
SOIL & WATER				
Water Licences	28.0	The Proponent shall obtain all necessary water licences for the project under the <i>Water Act 1912</i> or the <i>Water Management Act 2000</i> .	Compliant	UCML currently holds a water licence under the <i>Water Management Act 2000</i> for the construction of water supply works on Moolarben Creek (Moolarben Dam.) This is WAL 19047 which has a volumetric allocation of 600ML. Water licences during the audit period are described in: 2013 AR: Section 1.4.6; 2014 AR: Section 1.4.7; and 2015 AR: Section 2.1.3. 17 water licences held at the end of 2015. Water licencing is described in Section 3.4 of the UCML Water Management Plan ULN SD PLN 0017 (WMP). UCML engaged Col Mackie to calculate groundwater licence requirements for Ulan out to 2016. Viewed his report dated 21/01/14. This determined that Ulan's licensing requirements up until 2016 are 730ML from the Murray Darling Basin (MDB) Water Sharing Plan and 5,500 ML from the Hunter River (HR) Water Sharing Plan. Ulan currently holds licensing well in excess of these requirements (1,454ML in the MDB and 7,060ML in the HR). With regard to unregulated take UCML has calculated that it currently has Harvestable Rights for 1,088ML which is well in excess of their projected take of 79ML.

Section	Sub-section	Requirement	Status	Comments
Baseflow Offsets	29.0	The Proponent shall offset the loss of any baseflow to the Goulburn and Talbragar Rivers caused by the project to the satisfaction of the Director-General. The offset should be effected by the retirement of water entitlements within the catchments of the Goulburn and Talbragar Rivers unless the Proponent can provide alternative means of offsetting baseflow to the satisfaction of the Director-General, in which case the Proponent may offset any losses by those alternative means.	Not Compliant	Goulburn River baseflow losses (currently estimated to be 0.05 ML/d) are offset by licensed discharges of 15ML/day via LDP 6 (Bobadeen) and LDP 19 Ulan Underground. The alternative method of offsetting baseflow losses via discharges to the Goulburn River have not been approved by the Secretary. Letter from UCML provided to DPE and DPI-Water dated 08/07/13 seeking their approval (no response received) and no evidence of follow up provided. Modelling and monitoring suggests that Talbragar River baseflow losses have not occurred to date but are estimated to commence by 2019. It is recommended that UCML seeks approval from the Secretary regarding the alternative method for offsetting baseflow losses in the Goulbourn River. It is also recommended to commence seeking a long term solution to the loss of baseflow prior to the next audit.
		<i>Note: As at the date of this approval, baseflow losses for the Goulburn River and Talbragar River are modelled as 0.05 ML/day and 0.13 ML/day respectively. Improved or additional hydrological data may lead to amendments to these modelled losses.</i>		
Compensatory Water Supply	30.0	The Proponent shall provide a compensatory water supply to any owner of privately-owned land whose supply is adversely impacted (other than an impact that is negligible) as a result of the project, in consultation with NOW, and to the satisfaction of the Director-General.	Not Triggered	This has not been requested by any privately land owner (RS pers comms).
		The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply must be provided (at least on an interim basis) within 24 hours of the loss being identified.		

Section	Sub-section	Requirement	Status	Comments
		If the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director- General for resolution.		
		If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Director-General.		
Surface Water Discharges	31.0	The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.	Not Compliant	Minor exceedance of the EC threshold occurred at LMP18 on several days over 2013 and 2014. Investigations found that the exceedances were not due to UCML releases. The exceedances were reported to EPA. The LMP18 EC compliance limit was removed from the EPL in 31 March 2014 with LDP EC thresholds reduced at the same time. Pipe leak from the Treble Tanks which occurred on 14/10/13 resulting in approximately 0.4ML of water being discharged to Ulan Creek. This was reported to EPA on 14/10/13. In response the pipeline was decommissioned.
Remediation of the Goulburn River Diversion	32.0	The Proponent shall remediate the Goulburn River Diversion to the satisfaction of the Director-General, in general accordance with the proposed strategy in the EA.	Administrative Non-Compliance	Reviewed the GRDRP dated 03/12/13. This plan was approved by DPE on 19/06/14. Section 11 of the plan includes correspondence with regulators. The remediation works on the Goulburn River Diversion have commenced but are approx. 1 year behind the revised schedule provided in the approved plan. The timeframe for the works is delayed from the timeframe given in the EA. It is recommended that the Plan be revised to update the new agreed timing for completion of works.

Section	Sub-section	Requirement	Status	Comments
Water Supply to "The Drip"	33.0	The Proponent shall ensure that the project has no impact on the water supply to the "Drip".	Compliant	The monitoring program for "the Drip" is described in the audit period AR's. Monitoring bore installed late 2015/2016. To be reported in 2016 AR. The monitoring program for the Drip is described in the WMP as Approved by DPE in consult with DPI-Water.
Water Management Plan	34.0	The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:		Viewed letter from DPE approving the WMP dated 11/11/15. Consult letters sent to EPA and DPI-Water on 23/07/15.
		(a) be prepared in consultation with EPA, NOW, DRE and Council by suitably qualified and experienced persons whose appointment has been approved by the Director-General;	Compliant	Section 3.4 and Appendix A of the WMP outlines the consultation that has been undertaken with EPA, DP&I and MWRC. Appendix A includes the letter from DPE approving Umwelt to prepare the WMP.
		(b) be submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010); and	Compliant	Version 5.1 of the plan was submitted on 15 June 2012 within 3 months of the date of the final orders. Previous audit confirmed compliance.
		(c) include:	Compliant	Section 4.9 & 4.10 of the WMP.
		• a Site Water Balance;		
		• the Goulburn River Diversion Remediation Plan;	Compliant	Current plan version 6 effective from 3/12/13. This plan was approved by DPE on 19/06/14.
		• an Erosion and Sediment Control Plan;	Compliant	Current plan version 7 effective from 30/6/15
		• a Surface Water Monitoring Program;	Compliant	Current plan version 5 effective from 21/5/15
		• a Groundwater Monitoring Program; and	Administrative Non-Compliance	Section 5.2 of the WMP Groundwater Monitoring Program effective from 11/11/2015. The reporting process for the biennial review of depressurisation of coal measures is not included in relevant section of WMP The WMP should be revised to include a reporting process for the biennial review of depressurisation of coal measures and comparison of responses with aquifer model predictions.
		• a Surface and Ground Water Response Plan.	Compliant	Current plan version 6 effective from 9/3/16

Section	Sub-section	Requirement	Status	Comments
		<i>Note: The effectiveness of the Water Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>		Section 5 of WMP states the plan will be reviewed as required throughout the life of the Project or as otherwise directed by the Director-General of the DPE. The plan has recently been reviewed and is with DPE for approval of the changes made.
	35.0	The Site Water Balance must:		
		(a) include details of: sources and security of water supply;	Compliant	Section 4.10 of the WMP
		water use on site;	Compliant	Section 4.10 of the WMP
		water management on site;	Compliant	Section 4.10 of the WMP
		off-site water transfers; and	Compliant	Section 4.10 of the WMP
		(b) describe what measures would be implemented to minimise potable water use on site.	Compliant	Section 4.10 of the WMP
	36.0	Goulburn River Diversion Remediation Plan must include:		Reviewed the GRDRP dated 03/12/13.
		(a) geomorphic and geotechnical assessment of the existing diversion;	Compliant	GRDRP Section 2.5.3 describes the geomorphology of the stream and diversion. GRDRP Section 2.5.4 provides a geotechnical assessment of the existing diversion.
		(b) assessment of flood hydraulics of the existing diversion;	Compliant	GRDRP Section 2.5.5 provides an assessment of flood hydraulics of the existing diversion.
		(c) staging and timing of remediation works;	Compliant	GRDRP Table 3.1 in Section 3.1 provides an indicative program of the proposed remediation works. Note that the works have commenced but are 2 years behind schedule.
		(d) detailed design of bed and bank remediation works;	Compliant	GRDRP Section 3.2 and 3.3 details the remediation works, including detailed designs of the bed and bank remediation works.
		(e) revegetation and rehabilitation methods;	Compliant	GRDRP Section 3.4 outlines the rehabilitation methods for the diversion.
		(f) a program to monitor surface water flows, quality, stream health and channel stability; and	Compliant	GRDRP Section 4 details the scope of the monitoring program for the Goulburn River Diversion.

Section	Sub-section	Requirement	Status	Comments
		(g) an implementation program.	Compliant	GRDRP Section 3 details the remediation works, including their implementation. Table 3.1 provides an indicative timeline.
	37.0	The Erosion and Sediment Control Plan must:		
		(a) be consistent with the requirements of the <i>Managing Urban Stormwater: Soils and Construction Manual</i> (Landcom 2004, or its latest version);	Compliant	Section 3.1 of the ESCP states that standard erosion and sediment control techniques will be utilised in accordance with the requirements of 'Managing Urban Stormwater: Soils and Construction Volume 1, 2A, 2C, 2D and 2E.
		(b) identify activities that could cause soil erosion and generate sediment;	Compliant	Section 2.6.3 of ESCP lists sources of erosion and sediment
		(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;	Compliant	Sections 3.2 to 3.4 of the ESCP outline the range of erosion and sediment controls designed to control and manage erosion and sediment that may result from mining and related activities
		(d) describe the location, function, and capacity of erosion and sediment control structures; and	Compliant	The ESCP outlines the basic principles to be followed. but the locations and capacities are provided in site specific ESC plans for specific works as they are undertaken. Viewed ESCP for the Goulburn River Diversion Project Pilot Area and the associated Ground Disturbance Permit which included relevant details. Peters Dam, Wrights Dam, Truck Fill Dam, Rail Loop Sump, Car Wash Dam and Shearers Dam have been labelled as dirty water dams. These dams should not be managed as dirty water dams under the ESCP. It is recommended that the ESCP be updated in this regard.
		(e) describe what measures would be implemented to maintain the structures over time.	Compliant	Section 4 of ESCP outlines the measurement and evaluation process for the ESC measures.
	38.0	The Surface Water Monitoring Program must include:		Reviewed the UCML SWMP dated 21/05/15.

Section	Sub-section	Requirement	Status	Comments
		(a) detailed baseline data on surface water flows and quality in creeks and other waterbodies that could be affected by the project (including the Goulburn River, Talbragar River, Spring Gully, Ulan Creek, Bobadeen Creek, Curra Creek, Mona Creek and Cockbutta Creek);	Administrative Non-Compliance	Section 3.1 of the SWMP provides baseline data for the Goulburn River, Talbragar River and Spring Gully. Data for the other streams has not been provided. It needs to be confirmed if the other sources are being monitored, and WMP updated to include a summary of the data.
		(b) a program to augment the baseline data over the life of the project;	Compliant	Section 3.1.3.2 of the SWMP has outlined a program to augment the baseline data.
		(c) surface water quality and stream health assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts; and	Compliant	Section 3.2.2 outlines the water quality trigger levels
		(d) a program to monitor: surface water flows, quality, and impacts on water users;	Compliant	SWMP Section 4.1 outlines the surface water quality and quantity monitoring program.
		stream health; and		SWMP Section 4.1.6 outlines the stream health monitoring program
		channel stability, in the Goulburn River, Talbragar River, Spring Gully, Ulan Creek, Bobadeen Creek, Curra Creek, Mona Creek and Cockbutta Creek.		SWMP Section 4.1.5 outlines channel stability monitoring undertaken for the Goulburn River, Talbragar River, Ulan Creek, Spring Gully, Bobadeen Creek, Curra Creek, Mona Creek and Cockabutta Creek.
	39.0	The Groundwater Monitoring Program must include:		Reviewed the UCML GWMP dated 11/11/15.
		(a) detailed baseline data of groundwater levels, yield and quality in the region, and particularly any groundwater bores, springs and seeps (including spring and seep fed dams) that may be affected by mining operations on site;	Compliant	GWMP Section 3.1.4 states baseline data for the groundwater monitoring program consists of various datasets for historic groundwater quality / levels and groundwater springs and seeps. GWMP (2015) Section 3.0 states baseline data for the groundwater monitoring program consists of various datasets for historic groundwater quality / levels and groundwater springs and seeps.
		(b) a program to augment the baseline data over the life of the project;	Compliant	GWMP (2015) Section 3.1.4 states that ongoing monitoring will be used to augment the existing baseline data and to confirm the groundwater model developed for the EA.

Section	Sub-section	Requirement	Status	Comments
		(c) groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;	Compliant	GWMP Section 3.2 describes groundwater assessment criteria, including water quality and water level trigger levels for privately owned and UCML bores. It is recommended that the GWMP updated to clearly stipulate the trigger levels for water quality for the site monitoring network now that groundwater levels are beginning to recover within the mined out panels to the south. With recovery of these groundwater levels it is recommended that changes in groundwater chemistry also be monitored. In addition, the SGWRP would benefit from including details on training staff and protocols for identifying and documenting groundwater related issues that require further action in accordance with the UCML's TARP process.
		(d) a program to monitor and/or validate		
		groundwater inflows to the open cut and underground mining operations;	Compliant	GWMP Section 4.1 outlines UCML's groundwater monitoring program, which monitors groundwater inflows to open cut pit and underground mine workings
		- the impacts of the project on: - the alluvial, Triassic, coal seam and interburden aquifers; - base flows to the Goulburn and Talbragar Rivers and associated creeks; - any groundwater bores, springs and seeps on privately-owned land; - the "Drip"; and - riparian vegetation along the Goulburn and Talbragar Rivers and associated creeks; and	Compliant	The GWMP has been updated to state that piezometers are proposed at two locations near 'The Drip'. It is understood that one multi-level VWP was installed in late 2015.
		the seepage/leachate from any tailings dams, water storages or backfilled voids on site; and	Compliant	GWMP Section 4.1
		(e) a program to calibrate and validate the groundwater model for the project, and calibrate it to site specific conditions.	Compliant	GWMP Section 4.2.1 describes the groundwater model validation/calibration method

Section	Sub-section	Requirement	Status	Comments
		<i>Note: The program to monitor and/or validate the impacts of the project on the "Drip" will need to be prepared and implemented in collaboration with the owners of the Moolarben coal mine.</i>	Compliant	'The Drip' monitoring program has been revised and it is understood one multi-level VWP was installed in late 2015. It is understood that the plan was prepared in collaboration with Moolarben however there is no longer mention of collaboration with Moolarben Coal Mine in GWMP (2015) Section 4.1.6. It is recommended that the GWMP be updated to include reference to the requirements for collaboration with Moolarben.
	40.0	The Surface and Ground Water Response Plan must describe what measures and/or procedures would be implemented to:	Compliant	Reviewed the UCML SWGWRP dated 09/03/16.
		(a) respond to any exceedances of the surface water, stream health, and groundwater assessment criteria;	Compliant	SWGWR Section 3.1.6 outlines the actions and responses required to deal with exceedance of any trigger levels listed in the SWMP.
		(b) offset the loss of any base flow to the Goulburn and/or Talbragar Rivers and/or associated creeks caused by the project;	Compliant	SWGWRP Table 6 in Section 3.1.6 outlines strategy for identifying loss of baseflow.
		© compensate landowners of privately-owned land whose water supply is adversely affected by the project; and	Compliant	Section 3.2.3 of the SWGWRP.
		(d) mitigate and/or offset any adverse impacts on riparian vegetation.	Compliant	SWGWRP Table 4 in Section 3.1.6 outlines the strategy for managing impacts on riparian vegetation.
BIODIVERSITY				

Section	Sub-section	Requirement	Status	Comments
Biodiversity Offset	41.0	The Proponent shall implement the offset strategy outlined in Table 15, described in the EA, and shown conceptually in the figure in Appendix 4 to the satisfaction of the Director-General.	Administrative Non-Compliance	Reviewed the UCML Biodiversity Management Plan ULN SD PLN 0026 (BMP) approved by DPE on 11/11/15. The current BMP is inconsistent with Table 15. The inconsistencies occur for the Bobadeen Offset Area and the Bobadeen East Offset Area. Additional ground-truthing of these biodiversity offset areas have determined that the Bobadeen Offset Area contains less native vegetation and EEC vegetation and that the Bobadeen East Offset Area contains less EEC vegetation. The BMP outlines that the Bobadeen Vegetation Offset Corridor has been included within the package of offset land and the additional native vegetation and EEC vegetation will contribute to meeting the minimum requirement for the Bobadeen Offset Area. The BMP also outlines that the boundary of the Bobadeen East Offset Area has been extended to include an additional area of EEC vegetation to contribute to meeting the minimum requirement for that offset. It is noted that the March 2016 consent modification (MOD 3) has been updated to take into account the revised mapping. This issue has been resolved via MOD3.

Section	Sub-section	Requirement					Status	Comments
	Table 15: Biodiversity Offset Strategy						Administrative Non-Compliance	See Above.
		Clearing, Offset Areas Removal and/or Disturbance	Offset Areas					
			Spring Gully Cliffline	Brokenback	Bobadeen	Bobadeen		
			Management Area	Conservation Area	Vegetation Offset Area	East Offset Area		
Native Vegetation (ha)	408	211	58	1,116	229			
EEC / CEEC (ha)	69	-	-	296	169			
Cliffline (km)	11.7	9	3	-	-			

Section	Sub-section	Requirement	Status	Comments
	41a	The Proponent shall ensure that the offset areas contain suitable habitat for any significant and/or threatened species identified in the areas to be cleared, removed and/or disturbed.	Not Compliant	Current plans broadly indicate that there is suitable habitat present in the offset areas for threatened species. However, it is currently difficult to corroborate this through provision of supporting documentation. This is because the BMP or monitoring reports do not specify the areas/types of habitat present for each relevant species or what species the improvement/re-vegetation works will target. Thus, there is no adequate framework within which to review the progress of the offset areas. It is recommended that the BMP includes a summary table indicating the list of significant and/or threatened species identified within the areas to be cleared, removed and/or disturbed, and the areas of habitat within each of the offset areas. Monitoring reports should also clearly indicate which species have been recorded within each offset area.
	42.0	The Proponent shall ensure that at least 244 hectares within the Bobadeen Vegetation Offset Area and 169 hectares within the Bobadeen East Offset Area includes the re-establishment and/or improvement of:	Administrative Non-Compliance	The current BMP is inconsistent with this condition as a result of the alterations to the composition of the biodiversity offset areas for the Project. The BMP indicates that an additional area of land (the Bobadeen Vegetation Offset Corridor) has been included within the package of offset land to contribute to meeting the minimum requirement for the Bobadeen Offset Area. Additionally, the boundary of the Bobadeen East Offset Area has been extended to include an additional area of EEC vegetation to contribute to meeting the minimum requirement for that offset. It is noted that MOD3 has been updated to take into account the biodiversity offset area amendments. No further action is required.

Section	Sub-section	Requirement	Status	Comments
		(a) significant and/or threatened plant communities, including - White Box Woodland; - Blakely's Red Gum Open Forest; and	Not Verified	Existing areas of significant and/or threatened plant communities contained within the biodiversity offset areas. Management of existing vegetation in accordance with the BMP will assist in improving the condition within the biodiversity offset areas. Evidence of plantings and direct seeding within the biodiversity offset areas was observed during the site inspection. Monitoring undertaken within the biodiversity offset areas to assess the condition of the vegetation against benchmark data will assist in determining the success of revegetation and/or improvement works. Whilst saplings of canopy species were observed in areas managed through plantings and direct seeding were observed during the site inspection, there is currently insufficient evidence to indicate that these areas are progressing towards White Box Woodland or Blakely's Red Gum Open Forest due to the age of the plants. Such results are not anticipated to occur for a number of years.
		(b) significant and/or threatened plant communities; and:	Not Verified	See Condition 42 (a).
		(c) habitat for significant and/or threatened animal species.	Not Compliant	Current plans do not specify the areas/types of habitat required for each relevant species or what species the improvement/re-vegetation works will target. It is recommended that this be added to the BMP.
Long Term Security of Offset	43.0	Within 1 year of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010, the Proponent shall make suitable arrangements to provide appropriate long term security for the Bobadeen Vegetation Offset Area, the Bobadeen East Offset Area, the Brokenback Conservation Area, the stand of <i>Acacia ausfeldii</i> along the eastern side of Highett Road and the Spring Gully Cliffline Management Area to the satisfaction of the Director-General.	Compliant	Extension of time to 31/12/16 in letter dated 9/12/15. It is recommended that UCML strongly endeavour to finalise a preferred mechanism and set it in place with the DPE

Section	Sub-section	Requirement	Status	Comments
Biodiversity Management Plan	44.0	The Proponent shall prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:		
		(a) be prepared in consultation with OEH and Council by suitably qualified and experienced persons;	Compliant	Viewed DPE approval letter dated 11/11/15. Section 2.3 and Appendix C of the BMP outlines the consultation undertaken with regulation agencies, including the NSW Office of Environment and Heritage (OEH) and Mid-western Regional Council (Council) in 2011 and 2012. Also viewed consultation letters to MWRC and OEH dated 23/7/15 with regard to the latest version. Section 1.1 of the BMP notes that the document was "prepared by qualified personnel of Eco Logical Australia Limited (Eco Logical), as detailed in the revision history". Section 11.3 provides details of persons editing the BMP. Review of their CV's indicate that they are suitably qualified and experienced persons. Their CV's are shown in Appendix B of the Ecology Review Report in Appendix F . It is recommended that the BMP be updated to include a summary of the qualifications and experience of the persons that prepared the BMP at the next review and consulted with OEH and Council.
		(b) be submitted to the Director-General for approval by the end of June 2012;	Compliant	Previous audit confirmed compliance
		(c) describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site (see below);	Compliant	Various sections of the BMP refer to the implementation of measures both within the Biodiversity Offset Areas and the mine rehabilitation areas (e.g. Section 6 – Management Zone Stratification) Section 7 – Land Management Strategies, Section – Flora and Fauna Monitoring).
		(d) include:		

Section	Sub-section	Requirement	Status	Comments
		- a description of the short, medium, and long term measures that would be implemented to: - implement the offset strategy; and - manage the remnant vegetation and habitat, both on site and in the offset areas;	Compliant	Section 7 of the BMP outlines the short, medium and long-term measures for implementation the offset strategy and managing remnant vegetation and habitat. It is noted that remnant vegetation and habitat will not occur within the mine site following clearing activities. As such, management of remnant vegetation and habitat is confined to the Biodiversity Offset Areas. However, other management measures will be undertaken within the mine site.
		detailed completion criteria as well as performance criteria for measuring the short, medium and long term success of the offset strategy, including annual indicators and trigger values for the regeneration/revegetation of both the Box-Gum Woodland and <i>Acacia ausfeldii</i>, and the provision of suitable habitat for threatened woodland birds;	Compliant	Appendix A of the BMP sets out the proposed completion criteria for the short, medium and long term management measures for the management strategies outlined within Section 7. Performance criteria for the management strategies are outlined within Section 7. It is noted that the BMP section reference in Table A-1 are incorrect. It is recommended that subsequent revisions of the BMP rectify this error. Table 20 of the BMP outlines the annual indicators and trigger values for the regeneration/revegetation of Box Gum Woodland and provision of habitat for threatened woodland birds. Table 36 of the BMP provides annual monitoring objectives and trigger values for the <i>Acacia ausfeldii</i> along Highett Road. Table 37 of the BMP provides annual monitoring objectives and trigger values for the translocated <i>Acacia ausfeldii</i> individuals. It is considered that the objectives listed in the tables are equivalent to the indicators referred to in the consent condition.
		a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:		
		implementing revegetation and regeneration within the offset areas, including the establishment of canopy, sub-canopy (if relevant), understorey and ground strata;	Compliant	Section 7.1.9 and Section 7.1.10 of the BMP provide details on revegetation and regeneration within the biodiversity offset areas. Appendix E of the BMP provides a list of species to be utilised in revegetation works.

Section	Sub-section	Requirement	Status	Comments
		– protecting vegetation and soil outside the disturbance areas;	Not Compliant	Whilst the BMP contains management measures for vegetation and soil within the biodiversity offset areas, it does not provide details for protecting vegetation and soil outside the disturbance areas.
		– rehabilitating creeks and drainage lines on the site (both inside and outside the disturbance areas), to ensure no net loss of stream length and aquatic habitat;	Compliant	Details relating to rehabilitation of creeks and drainage lines is included in relevant extraction plans, referenced in related documents Section 1.1.1. Creeks within the Project Area are identified on Figure 3 of the BMP. Section 6 of the BMP notes that the Mining Operations Plan contains details of the rehabilitation works within the operational areas.
		– managing any potential conflicts between the proposed restoration works in the biodiversity areas and any Aboriginal heritage values (both cultural and archaeological);	Compliant	Section 7.1.2 and Section 7.1.5 of the BMP note management of cultural heritage. Section 5.9 of the OMP provides details of the integration of ecological works with the Heritage Management Plan
		– managing salinity;	Compliant	Section 7.1.17 of the BMP provides details on managing salinity within the Salinity Offset Area.
		– undertaking pre-clearance surveys;	Compliant	Section 7.1.16 of the BMP provides details on pre-clearing surveys.
		– managing impacts on fauna;	Compliant	Various sections within Chapter 7 of the BMP refer to management of impacts to fauna species.
		– minimising the impacts on fauna, including providing important habitat features (e.g. hollows) during the period of revegetation and rehabilitation;	Compliant	Various sections within Chapter 7 of the BMP refer to management of impacts to fauna species. Section 7.1.8.2 of the BMP includes provision of next boxes where hollow resources are lower, for example within the mine rehabilitation area.
		– landscaping the site, and particularly the land adjoining public roads, to minimise visual and lighting impacts;	Not Compliant	Details not provided within BMP. An internal Visual and Landscape Management Plan (VLMP) has been prepared for the Project. It is recommended the BMP be updated to include reference to the VLMP, or transfer the relevant information into the BMP.
		– collecting and propagating seed;	Compliant	Section 7.1.7 of the BMP provides details on collecting and propagating seed.

Section	Sub-section	Requirement	Status	Comments
		– salvaging and reusing material from the site for habitat enhancement;	Compliant	Section 7.1.8 of the BMP provides details on salvaging and reusing material from the site for habitat enhancement.
		– propagating threatened flora and native grassland (including <i>Acacia ausfeldii</i>);	Administrative Non-Compliance	Section 7.1.7 of the BMP provides details on propagation; however does not specifically mention threatened flora (including <i>Acacia ausfeldii</i>) . It is noted that Section 4.9.6.4 of the Integrated Mining Operations Plan details seed collection and propagation of <i>Acacia ausfeldii</i> for the purposes of rehabilitation. Section 7.7.7 of the BMP notes that native grass species may potentially be targeted for seed collection. It is recommended that the BMP be updated to specifically mention propagation of <i>Acacia ausfeldii</i> and native grasses.
		– protecting and managing <i>Acacia ausfeldii</i> ;	Compliant	Section 6.5 of the BMP notes that management of the Hightett Road population of <i>Acacia ausfeldii</i> will be the same as Management Zone 1.
		– controlling weeds and feral pests;	Compliant	Section 7.1.12 and Section 7.1.13 of the BMP provides details on controlling weeds and feral pests.
		– managing grazing and agriculture on site;	Compliant	Section 7.1.6 of the BMP provides details on managing grazing and agriculture.
		– controlling access; and	Compliant	Section 7.1.3 of the BMP provides details on controlling access.
		– bushfire management;	Compliant	Section 7.1.4 of the BMP provides details on Bushfire Management.
		• a program to monitor and report on the effectiveness of these measures and the performance of the offset strategy, with summary reporting to be carried out annually and comprehensive reporting every three years following the independent environmental audit (see condition 8 of schedule 5);	Administrative Non-Compliance	Section 8 of the BMP provides details on the monitoring of the management measures outlined in the BMP. Section 10 of the BMP outlines reporting requirements. There is no current reference within this section to carry out comprehensive reporting every three years following the independent environmental audit. It is recommended that Section 10 of the BMP be updated to include comprehensive reporting every three years following the independent environmental audit. This could be included in the Annual Review.

Section	Sub-section	Requirement	Status	Comments
		a description of the contingency measures that would be implemented to improve the performance of the offset strategy if the detailed performance criteria above are not being met in any given year; and	Compliant	Section 9 of the BMP outlines the contingency measures for implementation should trigger values be met.
		details of who would be responsible for monitoring, reviewing, and implementing the plan.	Compliant	Section 3 of the BMP outlines the responsibilities for monitoring, reviewing and implementing the plan.
		<i>Note: The effectiveness of the Biodiversity Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>	Compliant	Section 10 of the BMP outlines the review and auditing process for the plan.
Conservation Bond	45.0	Within 6 months of the approval of the Biodiversity Management Plan (see above), the Proponent shall lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond shall be determined by:	Compliant	Section 5.3 of the BMP. The BMP was approved the first time on 09/03/15. Conservation bond lodged with DPE on 09/09/15 which is within 6 months.
		(a) calculating the full cost of implementing the offset strategy; and	Compliant	Viewed calculations and NAB Bank Guarantee dated 08/09/15. Submitted to DPE on 09/09/15.
		(b) employing a suitably qualified quantity surveyor to verify the calculated costs, to the satisfaction of the Director-General.	Compliant	Viewed letter from DPE dated 26/06/12 which agreed that this is not required to be completed by a quantity surveyor and that UCML are to calculate.
		If the offset strategy is implemented to the satisfaction of the Director-General, the Director-General will release the conservation bond.	Not Triggered	
		If the offset strategy is not implemented to the satisfaction of the Director-General, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory implementation of the offset strategy.	Not Triggered	
HERITAGE				

Section	Sub-section	Requirement	Status	Comments
Long Term Security of Proposed Conservation Areas	46.0	Within 1 year of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010, the Proponent shall make suitable arrangements to provide appropriate long term security for the two Grinding Groove Conservation Areas to the satisfaction of the Director-General.	Compliant	DPE initially granted extension to 14/02/14. Letter from DPE dated 08/01/14 provided a further extension to 28/02/15. The Bobadeen Grinding Groove Conservation Agreement was provided to OEH and DPE on 19/02/15. This was secured with OEH in 2015 (signed by OEH on 22/12/15). Viewed letter from OEH dated 20/01/16 confirming that the VCA is complete. The Valley Way Grinding Groove Conservation Agreement is to be finalised in 2016 (Section 11 of the 2015 AR). During the audit we viewed a draft and yet to be signed copy of the VCA as sent to OEH and DPE. Also viewed an email from OEH dated 02/10/15 confirming that this is being progressed with OEH and crown lands. This VCA requires updates to UCML's crown land licence (no. 204946) to cover the VCA. This has caused some delay (RS Pers Comm). It is recommended that UCML seeks to have the Valley Way Grinding Groove VCA finalised and secured as soon as possible.
		Note: For reference purposes, these areas are depicted in the figure in Appendix 6.		
Heritage Management Plan	47.0	The Proponent shall prepare and implement Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:	Compliant	The Heritage Management Plan ULN SD PLN 0013 (HMP) was originally approved by DPE on 20/2/12. The current version was approved by DPE on 11/11/15. The HMP is supported by the appended: - UCML Aboriginal Heritage Site Location Maps ULN SD ANN 0050; and the - Management Strategies for Identified Aboriginal Sites (ULN SD ANN 0051).
		(a) be prepared in consultation with OEH, the Aboriginal community, the Heritage Branch, Council, any local historical organisations and relevant landowners;	Compliant	Section 1.3 of the HMP outlines the consultation that has been undertaken with OEH, the Aboriginal community and MWRC with regard to the draft plan.
		(b) be submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010;	Compliant	The revised plan was submitted to DPE on 3/7/12.
		(c) include the following in relation to Aboriginal heritage management on site:		

Section	Sub-section	Requirement	Status	Comments
		a detailed plan of management for the Brokenback Conservation Area, the two Grinding Groove Conservation Areas;	Compliant	Management of the grinding groove conservation areas is described in the UCML Aboriginal Conservation Management Plan ULN SD PLN 0060 (ACMP) dated 18/05/15.
		- program/procedures for: -recording, salvaging, excavating and/or managing the Aboriginal sites and potential archaeological deposits within the project disturbance area; -conserving, managing, and monitoring the Aboriginal sites outside the project disturbance area, including the 11 rock shelters located adjacent to Mona and Cockabutta Creeks, 27 rock shelter within the Brokenback Conservation Area, 4 groove sites within the two Grinding Groove Conservation Areas; - managing the discovery of any new Aboriginal objects or skeletal remains during the project; - maintaining and managing access to archaeological sites by the Aboriginal community; and - ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site.	Compliant	Section 3 and Section 5 of the HMP and Sections 4 - 5 of the ACMP.
		(d) include the following for the management of other heritage on site:		
		conservation management plans for the Old Ulan Village and Bobadeen Homestead	Compliant	Viewed Bobadeen Homestead Conservation Management Plan (BHCMP) dated April 2011. Further an Annexure to this management plan was approved by DPE on 09/03/15. This provided a revised schedule for a safe program of work to undertake inspections and protect the structure from deterioration. Viewed Old Ulan Conservation Management Plan (OUCMP) dated April 2011.

Section	Sub-section	Requirement	Status	Comments
		• program/procedures for: – photographic and archival recording of potentially affected heritage items; – -making the conservation management plans and photographic and archival recording publicly available once they are completed; – protection and monitoring of heritage items outside the project disturbance area; – baseline dilapidation surveys of all heritage items potentially affected by subsidence and/or blasting; – -monitoring, notifying and managing the effects of subsidence and/or blasting on potentially affected heritage items; and – -additional archaeological excavation and/or recording of any significant heritage items requiring demolition.	Compliant	Sections 7-11 of BHCMP and OUCMP
		<i>Note: The effectiveness of the Heritage Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>	Compliant	Section 6 of HMP.
TRANSPORT				
Monitoring of Coal Transport	48.0	The Proponent shall:		
		(a) keep accurate records of the:	Compliant	
		• amount of coal transported from the site (on a monthly basis); and	Compliant	AR's for the audit period document coal volumes transported from site, by month (included in Table 11 of the AR).
		• the date and time of each train movement from the site; and	Compliant	Train movements from the site during the audit period are documented on the UCML website. These are also included in Table 11 of the AR.
		(b) make these records publicly available on its website at the end of each calendar year.	Compliant	Train movements from the site during the audit period are documented on the UCML website.
Operating Conditions	49.0	The Proponent shall:		

Section	Sub-section	Requirement	Status	Comments
		(a) schedule shift changes on site to occur outside the school bus hours;	Compliant	Viewed Ulan complex shift change schedule for 2015. This avoided shift changes between 3pm and 4:15pm.
		(b) notify Council of any changes to the shifts on site;	Compliant	Viewed examples of correspondence to MWRC with regard to advising them of shift changes dated 15/06/15.
		(c) co-ordinate the shift changes on site with the shift changes of the adjoining Moolarben and Wilpinjong mines to minimise the cumulative traffic impacts of the three mines; and	Compliant	RS explained that annual shift change schedules are coordinated with Moolarben and Wilpinjong mines. An internal UCML excel spreadsheet was viewed which showed each mines proposed shift change times for 2015. Also viewed evidence of this being convened in writing with neighbouring mines.
		(d) implement all reasonable and feasible measures to minimise the project's contribution to the traffic on Ulan Road, to the satisfaction of the Director-General.	Not Verified	RS explained that this is largely addressed through encouraging carpooling among the workers (RS Pers Comm). It is recommended that UCML summarise all measures that are implemented in AR's going forward.
Ulan Road Strategy	50.0	By the end of December 2011, unless the Director-General directs otherwise, the Proponent shall prepare to the satisfaction of the Director-General a strategy for the upgrade and maintenance of Ulan Road between Mudgee and the entrance to the underground surface facilities at the Ulan mine over the next 21 years.	Compliant	Draft plan was submitted for approval in December 2011. The Ulan Road Strategy was approved by DP&E on 27/05/13 (2013 AR, Sections 3.1, 6.1).
		This strategy must be prepared in conjunction with the owners of both the Moolarben and Wilpinjong mines, and the cost of preparing the strategy should be shared equally between the Proponent and the owners of these mines.	Compliant	Previous audit confirmed compliance
		The strategy must:		
		(a) be prepared by a suitably qualified, experienced and independent person whose appointment has been endorsed by the Director-General;	Compliant	Previous audit confirmed compliance.
		(b) be prepared in consultation with both the RMS and Council;	Compliant	Viewed Appendix B of the strategy which includes Stakeholder Consultation Meeting minutes which confirms that RMS and MWRC have been consulted during the preparation of the strategy.

Section	Sub-section	Requirement	Status	Comments
		(c) determine the design standard of the relevant section of road (and any associated intersections) to the satisfaction of the RMS (based on the relevant road design guideline(s));	Compliant	Provided in Section 5 of the Ulan Road Strategy
		(d) identify the works required to upgrade the road to the designated design standard;	Compliant	Provided in Section 8 of the Ulan Road Strategy
		(e) estimate the cost of these works and the likely annual costs for maintaining the upgraded road;	Compliant	Provided in Section 9.2.3 & 9.5 of the Ulan Road Strategy
		(f) identify any measures that could be implemented to reduce the amount of mine traffic on the road, such as providing long-term parking in Mudgee to support increased car-pooling, and the likely cost of implementing these measures;	Compliant	Provided in Section 6.2 of the Ulan Road Strategy
		g) identify any measures that could be implemented to minimise the traffic noise impacts of mine traffic on Ulan Road on adjoining residences, and the likely cost of implementing these measures;	Compliant	Provided in Section 8.1.4 of the Ulan Road Strategy UCML have direct responsibility for this component of the strategy to undertake noise abatement at people's houses within 50m of the road. UCML has identified 18 houses that require works to be completed. It is recommended that UCML continue to work with its neighbouring mines to implement noise abatement in consultation with the identified houses as soon as practical.
		(h) include a detailed program for the proposed upgrade and maintenance of the road, implementation of traffic noise mitigation measures, and implementation of any works to support efforts to reduce the amount of mine traffic on the road;	Compliant	Provided in Section 8 & 9.5.2 of the Ulan Road Strategy
		(i) calculate what each mine and the Council shall contribute towards the implementation of the detailed program outlined in (h) above, including consideration of:	Compliant	Provided in Section 9 of the Ulan Road Strategy
		the likely traffic generated by each mine as a proportion of the total traffic on the road;		Provided in Section 9 of the Ulan Road Strategy
		any mine contributions that have been made towards the upgrading of the road in recent years; and		Provided in Section 9 of the Ulan Road Strategy
		any relevant planning agreements that deal with the funding or maintenance of roads in the Mid-Western LGA; and		Provided in Section 9 of the Ulan Road Strategy

Section	Sub-section	Requirement	Status	Comments
		(j) include a detailed contributions plan for the three mines and the Council to support the implementation of the detailed program described in (h) above.	Compliant	Provided in Section 9.1.3, 9.2.4 & 10 of the Ulan Road Strategy
		If there is any dispute between the various parties involved in either the preparation or the implementation of the strategy, then any of the parties may refer the matter to the Director-General for resolution.	Not Triggered	RS pers comm
	51.0	Once the Ulan Road Strategy has been approved by the Director-General, the Proponent shall contribute towards the implementation of the strategy in accordance with the detailed contributions plan in the strategy.	Compliant	Viewed the agreement dated July 2014 with MWRC about funding arrangements for the strategy which includes proportions from the 3 mines and resources for regions. Viewed required payments from UCML to MWRC for the audit period dated 14/10/14 and 20/01/15.
VISUAL				
Visual Amenity and Lighting	52.0	The Proponent shall:		
		(a) minimise the visual impacts, and particularly the off-site lighting impacts, of the main infrastructure area and associated ancillary surface works;	Compliant	Section 3.2 of the UCML Visual and Landscape Management Plan ULN SD PLN 0014 describes visual controls in place on site.
		(b) take all practicable measures to further mitigate off-site lighting impacts from the project; and	Compliant	Section 3.2 of the UCML Visual and Landscape Management Plan ULN SD PLN 0014 describes lighting controls in place on site.
		(c) ensure that all external lighting associated with the project complies with <i>Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting</i> , to the satisfaction of the Director-General.	Compliant	The Visual and Landscape Management Plan notes that all lighting is designed to comply with AS4282 (INT) 1995. Section 3.12 of the 2014 AR notes that a lighting audit of the site was completed on 20/08/14. No significant lighting impact issues were identified during the audit.
WASTE	53.0	The Proponent shall:		
		(a) minimise the waste (including coal reject) generated by the project; and	Compliant	Waste management and minimisation measures are described in Section 3 of the approved UCML Waste Management Plan (see Schedule 3, Condition 54).

Section	Sub-section	Requirement	Status	Comments
		(b) ensure that the waste generated by the project is appropriately stored, handled and disposed of, to the satisfaction of the Director-General.	Compliant	The storage, handling and disposal of waste on site is described in the approved UCML Waste Management Plan (see Schedule 3, Condition 54) and summarised in the audit period AR's. Waste management was observed to be adequate at most areas during the site inspection. However at the Ulan No 3 Underground infrastructure area however, general housekeeping was poor with hydrocarbon management and waste management in need of urgent attention. This is discussed further in Section 5.2. It is recommended that a plan for short and long term maintenance and upgrade of the area be prepared and implemented to assist in avoiding long term potential hydrocarbon contamination of the area.
	54.0	The Proponent shall prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must <i>describe the measures that would be implemented to ensure compliance with condition 53 above and be submitted to the Director-General within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010.</i>	Compliant	Viewed the UCML Waste Mgt Plan ULN SD PLN 0016 approved by DPE on 08/12/15. The plan was originally approved by DP&E in a letter dated 13/07/11. The previous audit confirmed that the Waste Management Plan was revised following the final orders of the Land and Environment Court as required.
		<i>Note: The effectiveness of the Waste Management Plan is be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>		

Section	Sub-section	Requirement	Status	Comments
REHABILITATION	55.0	The Proponent shall rehabilitate the site to the satisfaction of the Executive Director, Mineral Resources . This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA (and depicted conceptually in the figures in Appendix 5), and comply with the objectives in Table 16.	Compliant	A summary of rehabilitation performance was included in the audit period AR's. Rehabilitation was confirmed to be progressing generally in accordance with the EA and MOP during the site visit and inspections. It was notable that significant rehabilitation efforts have been made since the last audit as evidenced by the site inspection (see Plate 6 - 7). Viewed letter from DRE confirming satisfaction of rehab progress to date. Letter dated 19/05/15.

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Section	Sub-section	Requirement	Status	Comments
		(b) be prepared in accordance with any relevant DRE guideline;	Compliant	Described in Section 1 of the MOP
		(c) describe how the rehabilitation of the site would be integrated with the implementation of the offset strategy;	Compliant	Section 4.4 of MOP states that vegetation/regeneration land management activities as described in OMP are also applied within UCML's rehabilitated areas.
		(d) build, to the maximum extent practicable, on the other management plans required under this approval;	Compliant	Section 7 of MOP shows how the MOP fits in with UCML's EMS.
		(e) document the scientific knowledge gained during the rehabilitation, and make it publicly available; and	Compliant	Section 4.14 of MOP states that results from all rehabilitation and/or scientific trials undertaken onsite will be reported in the AR.
		(f) be submitted to the Executive Director, Mineral Resources for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010).	Compliant	The Rehabilitation Management Plan, as part of the 2012-2017 MOP, was revised as required in June 2012 following consult with DRE and submitted for approval on 1/7/12. Most recently the MOP was revised in April 2013 following consult with DRE and submitted for approval on 12/4/13. DRE approved the revised MOP on 7/5/13.
SCHEDULE 4				
NOTIFICATION OF LANDOWNERS	1.0	Within 1 month of the date of final Orders being made by the Land and Environment Court proceedings No. 10998 of 2010, the Proponent shall notify in writing the owners of:		
		(a) the land listed in Table 1 of Schedule 3 that they have the right to require the Proponent to acquire their land at any stage during the project;	Compliant	Previous audit confirmed compliance.
		(b) any residence on the land listed in Table 1 or Table 6 of Schedule 3 that they are entitled to ask for additional noise mitigation measures to be implemented at their residence at any stage during the project; and	Compliant	Previous audit confirmed compliance.
		(c) any privately-owned land within 2 kilometres of the approved open cut mining pit on site that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated.	Compliant	Previous audit confirmed compliance.
	2.0	Within 2 weeks of obtaining monitoring results showing:		

Section	Sub-section	Requirement	Status	Comments
		(a) exceedances of the relevant criteria in Schedule 3, the Proponent shall notify the affected landowners and/or tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the project is complying with the relevant criteria again;	Not Triggered	No exceedances of monitoring data occurred in the audit period.
		(b) exceedances of the relevant criteria in Condition 6(b) of Schedule 3, the Proponent shall notify in writing the applicable owner that they are entitled to ask for additional noise mitigation measures to be installed at their residence; and	Not Triggered	
		(c) exceedances of the relevant air quality criteria in Schedule 3, send the affected landowners and tenants (including the tenants of any mine-owned land) a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time).	Not Triggered	
INDEPENDENT REVIEW	3.0	If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.		
		If the Director-General is satisfied that an independent review is warranted, then within 2 months of the Director-General's decision the Proponent shall:	Compliant	Viewed letter dated 20/3/13 from DPE requesting UCML to fund an independent review (for noise assessment)
		(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:	Compliant	25/03/13 UCML raised a PO for DPE to engage a consultant to undertake the review. DPE engaged SKM.
		consult with the landowner to determine his/her concerns;	Compliant	DPE conducted consult.
		conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 3; and	Compliant	DPE coordinated monitoring.
		- if the project is not complying with these criteria then: - determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine towards the impact on the land; - identify the measures that could be implemented to ensure compliance with the relevant criteria; and	Compliant	DPE confirmed that the project is complying in an email dated 04/09/13.

Section	Sub-section	Requirement	Status	Comments
		(b) give the Director-General and landowner a copy of the independent review.	Not Verified	DPE provided a summary of the findings to the landowner on 04/09/13. It is unclear if DPE provided a copy of the report.
	4.0	If the independent review determines that the project is complying with the relevant criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.	Compliant	DPE confirmed that the project is complying in email dated 04/09/13.
		If the independent review determines that the project is not complying with the relevant impact assessment criteria in Schedule 3, and that the project is primarily responsible for this non-compliance, then the Proponent shall:	Not Triggered	
		(a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until the project complies with the relevant criteria; or	Not Triggered	
		(b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Director-General.	Not Triggered	
		If the independent review determines that the project is not complying with the relevant acquisition criteria in Schedule 3, and that the project is primarily responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in Conditions 6-7 below.		
	5.0	If the independent review determines that the relevant criteria in Schedule 3 are being exceeded, but that more than one mine is responsible for this exceedance, then together with the relevant mine/s the Proponent shall:		
		(a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until there is compliance with the relevant criteria; or	Not Triggered	
		(b) secure a written agreement with the landowner and other relevant mines to allow exceedances of the relevant criteria, to the satisfaction of the Director-General.	Not Triggered	

Section	Sub-section	Requirement	Status	Comments
		If the independent review determines that the relevant acquisition criteria in Schedule 3 are being exceeded, but that more than one mine is responsible for this exceedance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s in accordance with the procedures in Conditions 6-7 below.	Not Triggered	
LAND ACQUISITION	6.0	Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:	Compliant	Written request received from Residence 80 "Broken Back" in March 2014. Offer made by UCML on 14/07/2014. Offer accepted 21/07/2014.
		(a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the project, having regard to the:	Compliant	Acquisition has been completed (RS Pers Comm).
		existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and		
		presence of improvements on the land and/or any approved building or structure which has been physically commenced on the land at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional noise mitigation measures under Condition 6 of Schedule 3;		
		(b) the reasonable costs associated with:	Compliant	Acquisition completed (RS Pers Comm)
		relocating within the Mid-Western Regional local government area, or to any other local government area determined by the Director-General; and		
		obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and		
		(c) reasonable compensation for any disturbance caused by the land acquisition process.	Not Triggered	

Section	Sub-section	Requirement	Status	Comments
		However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.	Not Triggered	
		Upon receiving such a request, the Director-General will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:	Not Triggered	
		consider submissions from both parties;		
		determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;		
		prepare a detailed report setting out the reasons for any determination; and		
		provide a copy of the report to both parties.		
		Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.	Not Triggered	
		However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report disputing the independent valuer's determination, and any other relevant submissions.	Not Triggered	

Section	Sub-section	Requirement	Status	Comments
		Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.	Not Triggered	
		If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.	Not Triggered	
	7.0	The Proponent shall pay all reasonable costs associated with the land acquisition process described in Condition 6 above, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.	Compliant	Acquisition completed (RS Pers Comm).
SCHEDULE 5				
Environmental Management Strategy	1.0	The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:		
		(a) be submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010 ;	Compliant	The previous audit confirmed that the Environmental Management Strategy (EMS) had been submitted within the required timeframe. Reviewed the current version of the EMS ULN SD PLN 0050 as approved by DPE on 11/11/15.
		(b) provide the strategic framework for environmental management of the project;	Compliant	
		(c) identify the statutory approvals that apply to the project;	Compliant	Section 2.1 of EMS identifies statutory planning approvals for UCML.
		(d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;	Compliant	Sections 6 and 7 of EMS lists the roles and accountabilities of all key personnel. Accountabilities include responsibilities and authorities.
		(e) describe the procedures that would be implemented to:	Compliant	
		keep the local community and relevant agencies informed about the operation and environmental performance of the project;	Compliant	Section 3.5 of EMS states the use of a 'Social Impact Plan' which provides a framework to engage local communities.

Section	Sub-section	Requirement	Status	Comments
		receive, handle, respond to, and record complaints;	Compliant	Section 3.5 of EMS states the use of the 'Social Impact Plan' as a procedure to deal with community complaints, in addition to the hotline and email address.
		resolve any disputes that may arise during the course of the project;	Compliant	Section 3.5 of EMS describes the procedures in place to deal with disputes relating to noise, roads, land acquisition and cultural heritage.
		respond to any non-compliance;	Compliant	Section 3.5 outlines the evaluation of compliance, and response to non-compliance.
		respond to emergencies; and	Compliant	Section 3.10 of the EMS describes UCMLs' 'Emergency Response Management Plan' in place to respond to emergencies.
		(f) include:	Compliant	
		copies of any strategies, plans and programs approved under the conditions of this approval; and	Compliant	Section 1.5.1 of the EMS provides a list of supporting documents which form part of the EMS. Figure 1.6 provides a diagram which shows how all the components of the EMS work with each other.
		a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.	Compliant	Section 4.1 of the EMS lists all UCML's monitoring programs which will be carried out.
Management Plan Requirements	2.0	The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	Compliant	Relevant guidelines that have been used are stated up front in each management plan
		(a) detailed baseline data;	Compliant	
		(b) a description of:	Compliant	
		the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Compliant	All management plans list the statutory requirements relevant to that plan at the beginning of the document.
		any relevant limits or performance measures/criteria;	Compliant	All management plans list either limits (e.g. noise, air quality etc.) or performance criteria (e.g. biodiversity).
		the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Compliant	Management plans either use their achievement of staying within limits as performance criteria, or else have a timeline of when measures should be achieved.
		(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Compliant	Management plans all have an 'implementation' section which details the measures used to implement the plan to comply with statutory requirements.

Section	Sub-section	Requirement	Status	Comments
		(d) a program to monitor and report on the:		
		impacts and environmental performance of the project;	Compliant	Management plans include a monitoring component (e.g. noise, blast, air quality) to evaluate the environmental performance of the project and identify any impacts.
		effectiveness of any management measures (see c above);	Compliant	Included in plans and reported in AR
		(e) a contingency plan to manage any unpredicted impacts and their consequences;	Compliant	Management plans include TARPs which provide a procedure for responding to and managing unpredicted impacts. Management Plans also include procedures for identifying EPA and OEH in such events.
		(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Compliant	Management Plans contain a 'review and improvement' section.
		(g) a protocol for managing and reporting any: - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria; and	Compliant	Management plans contain protocols for managing and reporting (if required) incidents, complaints, non-compliances and exceedances of criteria.
		(h) a protocol for periodic review of the plan.	Compliant	All management plans have a section towards the end which outlines the protocol for periodic review.
		<i>Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>		
Annual Review	3.0	By the end of March 2012, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:	Compliant	Reviewed AR's for the audit period. Each AR document was submitted prior to the end of March for the relevant reporting period and includes the required content. Responses to the actions from annual regulatory review of the site are described in each AR.
		(a) describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;	Compliant	

Section	Sub-section	Requirement	Status	Comments
		(b) Include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the	Compliant	
		the relevant statutory requirements, limits or performance measures/criteria;	Compliant	
		the monitoring results of previous years; and	Compliant	
		the relevant predictions in the EA;	Compliant	
		(c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;	Compliant	
		(d) identify any trends in the monitoring data over the life of the project;	Compliant	
		(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	Not Triggered	
		(f) describe what measures will be implemented over the next year to improve the environmental performance of the project.	Compliant	
Revision of Strategies, Plans and Programs	4.0	Within 3 months of:		
		(a) the submission of an annual review under Condition 3 above;	Compliant	
		(b) the submission of an incident report under Condition 6 below;	Not Triggered	
		(c) the submission of an audit report under Condition 8 below; and	Not Triggered	
		(d) any modification to the conditions of this approval, (unless the conditions require otherwise), the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.	Compliant	

Section	Sub-section	Requirement	Status	Comments
		<i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.</i>		
Community Consultative Committee	5.0	The Proponent shall establish and operate a new Community Consultative Committee (CCC) for the projects within the Ulan mine complex in general accordance with the <i>Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects</i> (Department of Planning, 2007, or its latest version), and to the satisfaction of the Director-General. This CCC must be operating by the end of March 2011.	Compliant	Previous audit confirmed CCC established and operating by March 2011. CCC minutes for meetings during the audit period are available on the UCML website.
		Notes: - The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval; and - In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.		
REPORTING				

Section	Sub-section	Requirement	Status	Comments
Incident Reporting	6.0	The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.	Compliant	Reportable incidents are described in the audit period AR's. During the audit period there were two reportable environmental incidents, including: - One in 2013, relating to a pipe leak from the Treble Tanks which occurred on 14/10/13 resulting in approximately 0.4ML of water being discharged to Ulan Creek. This was reported to EPA on 14/10/13 and to the DPE on 21/10/13. In response the pipeline was decommissioned. - One in 2014, relating to biodiversity impacts outside of an approved GDP boundary (green waste pushed into Bobadeen Offset Area) which occurred on 07/03/14. DPE were informed and attended a site visit on 12/03/14. Following this DPE requested a report be provided. This was provided to DPE on 18/03/14. In response UCML removed the green waste material that was pushed into the offset area and installed sediment fencing. As a further goodwill offering UCML increased the offset area by 2000m3. - No reportable incidents in 2015 (Section 9 of 2015 AR).
Regular Reporting	7.0	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	Compliant	Confirmed these are available on the UCML website.
INDEPENDENT ENVIRONMENTAL AUDIT	8.0	By the end of June 2013 , and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:		This audit report.
		(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;	Compliant	Viewed DP&E letter to UCML dated 24/02/16 approving Hansen Bailey to conduct the audit.
		(b) include consultation with the relevant agencies;	Compliant	Prior to the audit DPE, DPI-Water, EPA, OEH, MWRC, DRE and the chair of the CCC were consulted and issues or concerns raised by them were covered in the audit. Details provided in audit report.

Section	Sub-section	Requirement	Status	Comments
		(c) assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);	Compliant	This audit report.
		(d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and	Compliant	This audit report.
		(e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals.	Compliant	This audit report.
		<i>Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Director-General.</i>	Compliant	This audit report. DP&E confirmed that the audit team should include experts in the fields of groundwater, surface water, noise and ecology.
	9.0	Within 6 weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.	Compliant	Draft report dated 24/07/13 Email extension granted by DPE. Audit report and response to recommendations submitted to DPE on 11/09/13
ACCESS TO INFORMATION	10.0	Within 1 month of the date of final Orders being made by the Land and Environment Court proceedings No. 10998 of 2010 , the Proponent shall:		
		(a) make copies of the following publicly available on its website:		
		the documents referred to in Condition 2 of Schedule 2;	Administrative Non-compliance	Confirmed available on UCML website. Two instances of noise monitoring results not completely reported (June 2015 and December 2015 monitoring reports). Original consultant reports are complete. Three instances of blast monitoring results not correctly reported (September 2013, December 2013, March 2014 monitoring reports). Overpressure results from one monitor were reported for both monitors. Original data does not show this fault.

Section	Sub-section	Requirement	Status	Comments
		all current statutory approvals for the project;	Compliant	Confirmed available on UCML website
		all approved strategies, plans and programs required under the conditions of this approval;	Compliant	Confirmed available on UCML website
		the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;	Compliant	Confirmed available on UCML website
		a complaints register, updated on a monthly basis;	Compliant	Confirmed available on UCML website
		minutes of CCC meetings;	Compliant	Confirmed available on UCML website
		the annual reviews of the project;	Compliant	Confirmed available on UCML website
		any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit;	Compliant	Confirmed available on UCML website
		any other matter required by the Director-General; and	Not Triggered	
		(b) keep this information up-to-date, to the satisfaction of the Director-General.	Compliant	

Section	Sub-section	Requirement				Status	Comments
GENERAL TERMS OF THE PLANNING AGREEMENT	Investment Area	Proposed Planning Contribution	Contribution Amount	Instalment Schedule	Comment	Compliant	See Schedule 2 Condition 16 Remittance has been paid by UCML during each of the years of the auditing period as per the below: 2013 Paid \$52,684 on 12/04/13 2014 Paid \$54,106 on 20/02/14 2015 Paid \$55,026 on 06/03/15
	Social	Community Infrastructure Fund	\$3.475 Million	To be paid in 2 installments, with: \$2 Million to be paid within 30 days of the planning agreement being made; and \$1.475 million to be paid within a year of the first payment.	Funding arrangements to be subject to a set of governance arrangements agreed to by Council and the Proponent.		
	Roads & Traffic	Contribution towards the maintenance of Cope Road	\$1.05 Million (21 x \$50,000)	- To be paid annually, with the first installment being paid within 30 days of the planning agreement being made; and - Payments			
Ref: 160701 ulan independent audit report.docx							HANSEN BAILEY

Section	Sub-section	Requirement	Status	Comments
STATEMENT OF COMMITMENTS				
Hours of Operation		6.2.1 Mining and associated activities for the Project may be undertaken 24 hours a day, seven days a week.	Compliant	
		6.2.2 Construction will generally be undertaken between 7.00 am and 7.00 pm daily. Construction activities may occur outside these hours when UCML is satisfied that such activities are inaudible at nearest private residences.	Compliant	Viewed GDP (example dated 30/07/13) with specific requirements for complying with work hours
Refinement of Mine Plan		6.2.3 Any refinements to the concept mine plan outlined in this EA report will be detailed and assessed as part of Extraction Plans required by the project approval or other relevant process.	Compliant	Refer Schedule 3 Condition 26
		6.2.4 The locations of ancillary surface infrastructure required to support underground mining will be documented and detailed within the operational approvals required for UCML to continue its mining and associated activities.	Compliant	Viewed approved MOP for 2012-2017.
Rail Haulage		6.2.5 The peak number of trains from UCML will be limited to a maximum of 10 per day i.e. 20 train movements.	Compliant	2013 AR – max 5 laden trains left site per day during September and November; 2014 AR – max 6 laden trains left site per day during September and October; 2015 AR- max 6 laden trains left site per day during August and September.
		6.2.6 No product coal will be transported from site by road transport except in an emergency situation with prior approval of the Director General.	Compliant	Confirmed onsite (RS Pers Comms)
		6.2.7 Annual average and maximum daily train movements and tonnages will be reported in the Annual Environmental Management Report (refer to commitment 6.17.1).	Compliant	2013 AR – max 5 laden trains left site per day during September and November; 2014 AR – max 6 laden trains left site per day during September and October; 2015 AR- max 6 laden trains left site per day during August and September.

Section	Sub-section	Requirement	Status	Comments
Subsidence		6.3.1 Where a potential subsidence impact is predicted on private property, UCML will prepare a Private Property Subsidence Management Plan for each of the potentially affected private landholders. These plans will clearly outline impacts of mining on the property and the management and remediation measures to be implemented, by agreement with the landowner.	Not Triggered	
Groundwater		6.4.1 A groundwater monitoring program will be implemented for the Project as outlined in Section 5.3 , or as otherwise agreed by the Director General, in accordance with the water management plan for the project. The groundwater monitoring program will include:		
		- Continued measurement of groundwater levels, pressures and water quality within the existing regional network of monitoring bores and an expanded network as underground mining progresses to the north and west, specifically considering: - depressurisation monitoring of at least three multi level piezometer strings equipped with vibrating wire transducers (or equivalent) and distributed within the Permian-Triassic strata; - strata hydraulic conductivity measurement on rock core obtained at these above noted piezometer locations; - daily or more frequent monitoring of pore pressures and piezometric elevations by installed auto recorders in selected new piezometers.	Administrative Non-compliance	The Drip' monitoring program was approved in July 2013 and included within the 2015 GWMP. Failure to install 3 proposed VWP's at 'The Drip'. One of the VWP's was recently installed in late 2015 but was not included within monitoring over the review period. The risk level is deemed Administrative as there are no predicted impacts on 'The Drip' based on numerical groundwater modelling, and part of the monitoring obligations (testing of groundwater expression) have been completed in accordance with commitments and reviewed by a qualified hydrogeologist. In addition, one multi-level VWP was installed in late 2015, which will in part address this commitment into the future.

Section	Sub-section	Requirement	Status	Comments
		- Mine water seepage monitoring, including: - measurement of all water pumped underground and all mine water pumped to surface on a daily basis. Measurement will be undertaken using calibrated flow meters or other suitable gauging apparatus; - routine monitoring of coal moisture content delivered from the working face, ventilation humidity and any build up of water storage in the goaf.	Compliant	See Schedule 3 Condition 34.
		- Groundwater monitoring will include: - monthly monitoring of basic water quality parameters pH and EC in pumped mine water. - six monthly monitoring of pH and EC in the regional monitoring network. - annual measurement of total dissolved solids (TDS) and speciation of water samples in selected piezometers to support identification of mixing of groundwater types.	Compliant	See Schedule 3 Condition 34.
		graphical plotting of basic water quality parameters and identification of trend lines and statistics including mean and standard deviation calculated quarterly. Comparison of trends with rainfall and any other identifiable processes that may influence such trends.	Administrative Non-compliance	Statistics, including mean and standard deviation, were not calculated quarterly. However, the graphical presentation of results and discussion on changing trends is considered more meaningful in the absence of trigger levels to compare these statistics to. As a result, there is considered to be no risk to the environment related to non-compliance in this area.
		The monitoring network and monitoring programme will be reviewed on an annual basis to determine ongoing suitability and any proposed changes will be discussed in the annual review of monitoring results.	Compliant	See Schedule 3 Condition 34.
Monitoring Review and Management Strategy		6.4.2 The results of groundwater monitoring and a comparison of measured and predicted impacts will be reported in the annual review required by project approval conditions.	Compliant	Audit period AR's include a section presenting groundwater monitoring results and a comparison with predicted modelling impacts.

Section	Sub-section	Requirement	Status	Comments
		6.4.3 Impacts on the privately owned licensed bores identified in Section 5.3 as being potentially affected, will be assessed by monitoring and in the event that any utilised privately owned bore is significantly adversely affected, an alternative water supply will be provided by UCML until such time as the bore is re-established or replaced, or appropriate compensation established, in accordance with project approval requirements.	Not Triggered	
		6.4.4 The groundwater monitoring results will be analysed (graphically and statistically) as new results become available i.e. quarterly or six monthly. In addition, a monitoring review and verification process will be established as part of the Water Management Plan process, to verify regional groundwater losses as necessary to refine groundwater mitigation strategies.	Compliant	See Schedule 3 Condition 34.
		6.4.5 Identification of any changes or long term trends in groundwater outside the predicted impacts will result in an investigation to determine if the trend is a result of the Project operations and if so, identify management strategies to be implemented to address the identified issues as per UCML's Internal TARP process (T – trigger; A – Action; R – response; P – Plan).	Compliant	See Schedule 3 Condition 34.
		6.4.6 Review of depressurisation of coal measures and comparison of responses with aquifer model predictions will be completed every two years. Expert review will be undertaken by a suitably qualified hydrogeologist, and reported in accordance with the process set out in the Water Management Plan.	Compliant	See Schedule 3 Condition 34.
Surface Water		6.5.1 As described in Section 5.4, UCML will implement clean water divisions to minimise the volume of water to be handled within the mine water management system.	Compliant	Viewed in field. See Section 4.1.7 of the main report.
		6.5.2 The staged remediation strategy for the Goulbourn River Diversion will be implemented, generally as described in Section 5.4 .	Administrative Non-compliance	See Schedule 3 Condition 32. Works are underway but behind schedule.

Section	Sub-section	Requirement	Status	Comments
		6.5.3 In addition to the detailed mine water seepage monitoring outlined in Commitment 6.4.1, water usage, rainfall, dam volumes and discharges (including transfers) will be monitored to assist in the management of the mine water management system. This monitoring will be conducted in a manner that enables the detailed water balance to be maintained and updated at least annually for ongoing operations. The water balance will be used on an ongoing basis for operational management and will also be reported in annual review required by project approval conditions.	Compliant	See Schedule 3 Condition 34.
		6.5.4 Subsidence monitoring will include pre and post mining within drainage lines. This will include monitoring of the presence of surface cracking, surface ponding or out of channel flows and remediation measures as appropriate (refer to Section 5.4).	Compliant	See Schedule 3 Condition 26.
		6.5.5 Water which is in excess of UCML operational needs will be managed in accordance with the following hierarchy: 1. water sharing; 2. Bobadeen Irrigation; and 3. offsite discharge.	Compliant	See Schedule 3 Condition 34. Sharing with Moolarben
		6.5.6 UCML will undertake a research study on the Talbragar River commenced at least six months prior to any discharge into this waterway. The study is to require UCML to satisfy the following: 1. Establish baseline ecological, hydrological and geomorphological conditions of the Talbragar River downstream of the discharge point. 2. develop a flow release protocol at the discharge point to maintain the conditions identified in (1) 3. develop a monitoring program to review the effectiveness of the release protocols	Not Triggered	

Section	Sub-section	Requirement	Status	Comments
Ecology		6.6.1 Underground mining will not be undertaken within the Brokenback Conservation Area, as shown on Figure 1.2.	Compliant	Confirmed onsite no mining has been or is planned to be undertaken in this area (RS Pers Comms)
		6.6.2 UCML will utilise existing disturbed ground areas, where practicable, for the placement of infrastructure associated with underground mining, to avoid impact on significant ecological features such as the White Box Woodland TEC.	Compliant	Confirmed this occurs onsite through the Environment Department (RS Pers Comms.) Also viewed example of this through the alignment of a new pipeline which followed existing cleared corridors/roadways.
		6.6.3 Surface infrastructure, e.g. pipelines, power lines and roads, will be co-located, where practicable, to minimise ground disturbance.	Compliant	Confirmed this occurs onsite through the Environment Department (RS Pers Comms.) Also viewed example of this through the alignment of a new pipeline which followed existing cleared corridors/roadways.
		6.6.4 UCML will rehabilitate and revegetate the open cut to self-sustaining native vegetation communities, being Grey Box Woodland and Ironbark Open Forest Complex on Sandstone communities which are characteristic of the pre-mining composition.	Compliant	See Schedule 3 Condition 55, 56 & 57.
		6.6.5 Revegetation works will use local provenance species, where possible.	Compliant	Native seed is being collected and germinated locally for planting out as part of the offset strategy. Have seed bank and collect seed annually.
		6.6.6 The results of the ecological monitoring and management measures will be reviewed and reported annually, in accordance with project approval requirements. Management measures will be adapted, as required, on the basis of monitoring outcomes.	Compliant	See Schedule 3 Condition 44. Ecological monitoring reported annually in the AR.
		6.6.7 UCML proposes to provide for long term conservation of the Bobadeen Vegetation Offset Area. The appropriate mechanism for achieving this long term conservation security will be determined in accordance with project approval requirements. At this stage it is proposed to involve rezoning for environmental protection	Compliant	See Schedule 3 Condition 45.

Section	Sub-section	Requirement	Status	Comments
		6.6.8 A rehabilitation area within the post-mining open cut area will be established to trial the success of <i>Acacia ausfeldii</i> seed germination. Should this trial prove unsuccessful UCML will establish a suitable offset which is located outside any future mining area in consultation with DECCW and DoP.	Compliant	Viewed in the field. Monitoring results from this are being reported annually in the AR.
		6.6.9 The design and construction of water crossings will be undertaken in accordance with the NSW Fisheries guidelines for Fish Friendly Waterway Crossings and in liaison with NSW Fisheries.	Compliant	Avoided the need for them in the design of the Goulbourn River Diversion Restoration Project by designing all works to not require crossing the river channel. All work undertaken on each side and doesn't interrupt stream flow
Aboriginal Archaeology		6.7.1 Impacts to the Mona Creek 23-30 rockshelter sites (ID# 180-187) and the Cockabutta Creek 18-20 sites (ID# 160-162) will be avoided under this project.	Compliant	Confirmed onsite (RS Pers Comms).
		6.7.2 Detailed recording of the stone arrangements (ID# 589, 603, 697 and 700) will be undertaken, prior to commencement of secondary extraction under these sites.	Not Triggered	RS confirmed that secondary extraction has not occurred under these sites.
		6.7.3 Archaeological survey of all potential impact areas that could not be accessed during the present investigation will be completed prior to any impact occurring in these areas.	Compliant	Ulan archaeology survey Nov 13 map confirmed only working in surveyed area
European and Natural Heritage		6.8.1 UCML will carry out archival recording of Old Ulan Village and Bobadeen Homestead to Heritage Branch, Department of Planning standards prior to longwall mining within 100 metres of the structure.	Compliant	2012 AEMR Section 3.14.2 states that detailed dilapidation inspections were completed for Old Ulan and the Bobadeen Homestead on 14 and 16 May 2012 prior to the commencement of long wall mining beneath this area or in the vicinity. Archival recording was completed for RV3 (timber cottage) in preparation for removal (viewed these during audit).
		6.8.2 A Conservation Management Plan or Strategy will be prepared for the site of Old Ulan Village, in accordance with project approval requirements, to ensure appropriate short and long term management strategies are determined. This will include a maintenance strategy for Old Ulan Village, to be developed prior to longwall mining within 100 metres of the structure.	Compliant	Viewed Old Ulan Conservation Management Plan dated April 2011.

Section	Sub-section	Requirement	Status	Comments
		6.8.3 The Talbragar Fish Fossil Reserve will be secured with appropriate fencing and suitable signage subject to landowner approval.	Compliant	Heritage Management Plan Table 1.5 states that Talbragar Fish Fossil Reserve is located within a fenced and secure site.
Air Quality		6.9.1 Measures to minimise dust emissions from the operation will be included in the project design such as enclosures on top of overland conveyors and spray systems for permanent coal stockpiles where practicable.	Compliant	See Schedule 3 Condition 19 & 22.
		6.9.2 The Project will minimise the total disturbance footprint and the area of untreated hardstand to the minimum practicable;	Compliant	Disturbance footprint did not appear excessive in the field.
		6.9.3 UCML will continue to implement existing dust controls, including:	Compliant	See Schedule 3 Condition 19 & 22.
		watering of active mining areas, active spoil emplacement areas and haul roads that are subject to frequent vehicle movements;	Compliant	See Schedule 3 Condition 19 & 22.
		all drill rigs are equipped with dust control systems and are regularly maintained for effective use;	Compliant	See Schedule 3 Condition 19 & 22.
		automatic sprays fitted to dump hopper and crushing plant to minimise dust from coal processing activities;	Compliant	See Schedule 3 Condition 19 & 22.
		topsoil stripping is preferentially undertaken when there is sufficient moisture content in the soil;	Compliant	See Schedule 3 Condition 19 & 22.
		minimising the area of disturbance by restricting vegetation clearing ahead of mining operations, rehabilitating mine spoil dumps as soon as practicable after mining and using existing facilities and infrastructure where possible;	Compliant	See Schedule 3 Condition 19 & 22.
		restricting blasting activities during adverse weather conditions	Compliant	See Schedule 3 Condition 19 & 22.

Section	Sub-section	Requirement	Status	Comments
		6.9.4 UCML will continue to implement the current spontaneous combustion management system to address the coal's susceptibility to spontaneous combustion, which includes procedures for identifying potential sources of carbonaceous material with spontaneous combustible properties and methods for handling and disposing of these materials.	Compliant	See Schedule 3 Condition 19 & 22.
Noise and Vibration		6.10.1 UCML will implement all reasonable and feasible measure to minimise the noise impact from the Project at residences.	Compliant	See Schedule 3 Condition 8
		6.10.2 UCML will design and undertake blasts to ensure the relevant vibration and blast overpressure criteria are met at private residences, unless there is an agreement with these residents in relation to blast impacts above the relevant criteria.	Compliant	See Schedule 3 Condition 10
		6.10.3 UCML will consult with residents surrounding the project area prior to the first blast on site and identify those residents that may wish to be notified of blasting times on an ongoing basis.	Not Triggered	Covered in previous audit
		6.10.4 UCML is committed to ameliorating any low frequency noise issues due to the Project in accordance with best practice guidelines and management practices, when the issue is identified.	Compliant	See Schedule 3 Condition 8. No complaints in this regard.
		6.10.5 Minor blasts such as that associated with small scale construction projects i.e. construction of ventilation shafts will not be limited in terms of frequency or require monitoring where UCML confirms by design and prediction prior to blasting that the overpressure and vibration levels will be less than 95dBL and 1 mm/sec at all private buildings or structures.	Compliant	See Schedule 3 Condition 10 None in the audit period
Traffic and Transport		6.11.1 UCML will participate in the preparation and implementation of the Ulan Road Strategy, in accordance with project approval requirements.	Compliant	See Schedule 3 Condition 50
Visual		6.12.1 UCML will implement the following visual controls to screen or filter views of project infrastructure from residential and public road locations:	Compliant	Section 3.2 of the Visual & Landscape Management Plan, dated 06/12/11, details the implementation of the listed visual controls to screen or filter views of infrastructure from residential and public road locations.

Section	Sub-section	Requirement	Status	Comments
		maintaining vegetation screening along Ulan Road;	Compliant	Viewed during site inspection
		ensuring that all lighting associated with the Project complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting;	Compliant	See Schedule 3 Condition 52
		all buildings and infrastructure potentially visible to the public to be coloured in suitable natural tones, where practicable;	Compliant	Viewed examples of vent shafts in natural green tones.
		directing light towards work areas and not towards private residences;	Compliant	See Schedule 3 Condition 52
		progressive rehabilitation of disturbed areas; and	Compliant	Viewed during site inspection
		revegetation will be progressively undertaken of the Goulburn River Diversion, as described in Section 5.4 of the EA	Compliant	See Schedule 3 Condition 32
Greenhouse Gas and Energy Assessment		6.13.1 UCML will continue to implement their existing greenhouse gas and energy management commitments, as described in Section 5.12 .	Compliant	2013 AR Section 3.22 2014 AR Section 3.22 2015 AR Section 4.7
		6.13.2 UCML will investigate and implement where feasible GHG and energy management and mitigation initiatives during the design, operation and decommissioning of the Project.	Compliant	Section 4.1.4 of the AQGHGMP details the implementation and investigation of initiatives throughout the design, procurement and operational stages of the Project, including continuous improvement.
		6.13.3 UCML will continue to monitor and seek to improve its energy and greenhouse gas performance against performance targets.	Compliant	Section 4.1.4 of the AQGHGMP details the implementation and investigation of initiatives throughout the design, procurement and operational stages of the Project, including continuous improvement. 2013 AR Section 3.22 2014 AR Section 3.22 2015 AR Section 4.7
		6.13.4 UCML will report is greenhouse and energy performance via legislative reporting requirements.	Compliant	2013 AR Section 3.22 2014 AR Section 3.22 2015 AR Section 4.7

Section	Sub-section	Requirement	Status	Comments
Decommissioning and Mine Closure		6.14.1 Within 12 months of project approval, UCML will revise the current conceptual mine closure plan. A detailed closure planning process will be undertaken for the Project five years prior to cessation of mining.	Compliant	Previous audit confirmed compliance
		6.14.2 Decommissioning of the mining operations and surface facilities associated with the Project will occur progressively throughout the life of the Project, in accordance with conditions of the relevant mining titles. This will include progressive decommissioning of mine entries, ventilation fans, ventilation shafts, borehole facilities and associated surface facilities. A decommissioning plan will be prepared for each stage as part of the extraction plan and/or rehabilitation management plan process.	Not Triggered	
Waste		6.15.1 The management of waste materials generated by the construction and operation of the Project will be managed through the design; procurement of construction materials and purchasing; identification and segregation of reusable and recyclable materials; processing materials for recycling; and considering environmental impacts for waste removal processes.	Compliant	See Schedule 3 Condition 54
Community				
Economic Development – Employment, Education and Training		6.16.1 UCML currently aims to maximise local employment and provide training and education opportunities through:	Compliant	
		Advertising employment, apprenticeships and traineeships in local media;	Compliant	Viewed Ulan website careers page
		Providing an employment pack that allows local residents to register their interest in employment opportunities at the UCML office;	Not verified	No examples in the reporting period were able to be provided. It is noted that this was confirmed by the previous audit.
		Sharing information about mining careers at UCML and corporate entity with local schools;	Compliant	Viewed Glencore apprenticeship presentation that is provided to local schools.

Section	Sub-section	Requirement	Status	Comments
		Offering training opportunities through partnerships with local tertiary education Providers;	Compliant	Viewed partnership arrangement between UCML and TAFE NSW Western Institute dated 04/03/16
		Participating in the corporate school scholarship program; and	Not verified	No examples in the reporting period were able to be provided. It is noted that this was confirmed by the previous audit.
		Continued implementation of Corporate and UCML Corporate Social Involvement (CSI) programs.	Compliant	Viewed example of CSI funding provided to Ulan Primary School for the installation of shade sails dated 29/09/15.
		6.16.2 In addition to current practices, UCML proposes to:		
		Formalise a policy that gives local residents employment preference where they have the required skills and experience, and demonstrate a cultural fit with the organisation	Compliant	This was confirmed to be in place at UCML (BS Pers Comms).
		Provide access to the corporate careers centre via the UCML website so that local residents can easily register their interest in employment online; and	Compliant	This is on the UCML website.
		Develop partnerships with other local organisations, such as the Mudgee Regional Tourism Inc. Committee, to promote employment opportunities in non-mining related sectors to the families of UCML employees.	Not verified	No examples in the reporting period were able to be provided. It is noted that this was confirmed by the previous audit.
Economic Development – Business Opportunities		6.16.3 UCML will continue to implement XCN Procurement Policy giving preference to sourcing materials and services from local companies where all other commercial factors are equal.	Compliant	Local companies are preferred for completing environmental monitoring (e.g. ALS Mudgee) (RS Pers Comms).
Quality of Life – Community Investment		6.16.4 UCML will review its social involvement program three yearly in consultation with key stakeholders such as the Community Consultative Committee and Mid-Western Regional Council to ensure the program's focus areas remain relevant and address issues of greatest community need/challenge.	Compliant	Viewed December 2014 CCC minutes. These included workshop with CCC on community investment opportunities. A suggested outcome was that UCML provide subsidy to Air Pelican to keep it operating from Mudgee. UCML paid \$25K to Air Pelican.
		6.16.5 UCML will continue to reduce the impacts of its workforce on local health services by continuing current activities such as:	Compliant	

Section	Sub-section	Requirement	Status	Comments
		Running an in-house annual influenza vaccination program;	Compliant	Viewed examples of Tool Box talks that informed workers about the flu vaccination program onsite for 2014 and 2015.
		Providing in-house employee medical assessments every three years;	Compliant	This was confirmed to be in place at UCML (RS Pers Comms).
		Offering First Aid training to employees;	Compliant	Viewed skill topic training matrix from 2015 that first aid training is offered and provided to employees.
		Delivering a health promotion program for UCML employees;	Compliant	Viewed Health and Wellness Activities Program for UCML which included 2 exercise programs and an early intervention program for employees with work and non-work related injuries.
		Encourage raising funds for health-related causes (e.g. hospital equipment, the Cancer Foundation etc) through staff volunteering and fund raising activities.	Compliant	Viewed group emails circulated to UCML employees dated encouraging participation in the Biggest Morning Tea. Viewed 11/10/13 Guardian article promoting Jane McGrath Foundation
Quality of Life – Road Safety		6.16.6 UCML will continue to promote safe driver practices in its internal newsletter and apply a driver fatigue policy to all employees	Compliant	Viewed Fatigue management procedure PRO 0028 onsite and training with regard to promoting safe driving practices.
		6.16.7 UCML will investigate the possibility of providing a bus to transport workers as part of the Ulan Road Strategy, required by project approval conditions.	Compliant	Covered in Section 6.2 of the Ulan road strategy confirming option will not be going forward
Cumulative Impacts		6.16.8 UCML will continue to work with representatives from neighbouring mines to discuss and address issues of common concern in relation to management of cumulative impacts, in accordance with project approval requirements.	Compliant	See Schedule 3 Condition 8c, 15b & 21d
		6.16.9 Ulan Coal Mines will participate in any working parties / forums which Council or government may establish to address the impact of regional development on health care, land availability, education and childcare services.	Compliant	Meet with council on quarterly basis with other mines. Glencore has established the Mudjee for Doctors Program (see website) and received an award for it. Donated rescue truck to volunteer rescue association. Also paid for playground shade shelters for the local school playground. Mudjee high school link program (see ARs). Viewed community investment program assessment approval process

Section	Sub-section	Requirement	Status	Comments
Residential Subdivision Commitments		6.16.10 UCML will develop the remaining 74 residential allotments required to complete the obligations outlined in the Deed of Agreement (1983) signed by the Minister, UCML and Council in relation to the development of 250 serviced residential lots, as part of the former approval of Ulan Colliery. This development will be completed in consultation with Mid Western Regional Council (MWRC) to stage the subdivision release to meet predicted residential demand in accordance with the MWRC Land Use Strategy.	Compliant	Previous audit confirmed compliance.
Voluntary Planning Agreement		6.16.11 By the end of December 2011, UCML will seek to enter into a planning agreement with Council in accordance with Division 6 of Part 4 of the EP&A Act. This agreement will take into account the above mentioned commitments and any relevant contributions under previous consents for mining operations on the site, in order to provide for further reasonable contributions towards the provision of local infrastructure and services to meet the demand generated by the project in the Mid-Western Regional local government area. The agreement will also take into account the contributions made to development and maintenance of the public road system, in accordance with relevant project approval conditions.	Compliant	See Schedule 2 Condition 16
Environmental Management, Monitoring, Auditing and Reporting				
Annual Review		6.17.1 UCML will prepare an Annual Review, in accordance with project approval requirements.	Compliant	Viewed 2013, 2014 and 2015 AR's. These are available on UCML website.
Surrender of Redundant Development Consents		6.17.2 UCML will surrender all other development consents that relate to activities that are adequately covered in the new project approval, in accordance with the new project approval conditions.	Compliant	See Schedule 2 Condition 8
Independent Environmental Audit		6.17.3 UCML will commission and pay the full cost of an Independent Environmental Audit of the Project in accordance with project approval conditions.	Compliant	This Audit

Table B
Other Licences & Approvals

Instrument	Status	Comments
EPL 394	Not Compliant	P1.1 Location of monitoring/discharge points and areas (Air): - All air monitoring points noted as correct with the exception of the following: - The figure referenced needs to be updated to re label EPL33 as EPL29 - The figure referenced needs to be updated to ensure that EPL 32 is labelled and shown on the figure. P1.3 Location of monitoring/discharge points and areas (Water): - All water monitoring points noted as correct however the maps referenced have been superseded. Need to update in EPL to reflect current version. P1.4 Location of monitoring/discharge points and areas (Noise): - Update map to include EPL numbers for noise monitor points. Reviewed Environment Protection Licence (EPL) 394 conditions and Annual Returns submitted to the EPA during the audit period. The following non-compliances were identified: <u>2013</u> M.2.3 (Water and/or Land Concentration Limits) - Weekly water quality grab samples not collected from LDP 06 during the week 08/07/13 although discontinuous and irregular discharge had occurred at some time during the week. UCML updated the monitoring system in response to ensure consistent frequency of monitoring. L1 Pollution of Waters - Pipe leak from the Treble Tanks which occurred on 14/10/13 resulting in approximately 0.4ML of water being discharged to Ulan Creek. This was reported to EPA on 14/10/13. In response the pipeline was decommissioned.

2014

M.2.2 Air Monitoring Requirements:

- Flannery HVAS monitor (EPA ID 15) did not complete full run time on 31/10/14 due to a power outage at the units outside of UCML control. No follow-up action required.

M.2.3 (Water and/or Land Concentration Limits)

- Weekly TSS sample collected at LDP 19 on 15/05/14 was not representative, being collected during a period when the outfall was not flowing. Continuous monitoring undertaken during the week indicates no adverse impacts to receiving waters. The NW Sedimentation Dam upgrade design was changed to include a revised discharge sample collection.

L2.4 (Water and/or Land Concentration Limits)

- EC monitoring results exceeded criteria of 900 $\mu\text{S}/\text{cm}$ at Downstream GR Gauging Station (EPA ID 18) on 30/03/14 (947 $\mu\text{S}/\text{cm}$), 31/03/14 (1,041 $\mu\text{S}/\text{cm}$) and 19/11/14 (910 $\mu\text{S}/\text{cm}$).
Monitoring results at LDPs 6 and 19 on 30 and 31 March 2014 were lower than the EC criteria and levels monitored in receiving waters of the GR. An UCML inspection of pipes and dams did not identify any leaks or unauthorised discharge. Higher EC levels may have occurred as a result of rainfall event following a relatively dry period.
Monitoring results at LDPs 6 and 19 on 19 November 2014 were lower than the EC criteria and levels monitored in receiving waters of the GR. An UCML inspection of pipes and dams did not identify any leaks or unauthorised discharge. Higher EC levels may have occurred as a result of rainfall event following a prolonged dry period.

	<u>2015</u> M.2.2 Air Monitoring Requirements: • Flannery and Merlene HVAS monitors (EPA IDs 15 and 29, respectively) did not complete full run time on 05/01/15 due to a power outage at the units outside of UCML control. No follow-up action required. • Merlene HVAS monitors (EPA ID 29) did not complete full run time on 23/01/15 due to a power outage at the units outside of UCML control. No follow-up action required. • Merlene HVAS monitors (EPA ID 29) did not complete full run time on 10/06/15 due to a failure with the unit. HVAS unit clock programming reset to rectify the issue. • Merlene HVAS monitors (EPA ID 29) did not complete full run time on 03/09/15 due to a failure with the unit. HVAS unit reprogrammed the monitor to rectify the issue. Depositional dust gauges left for 33 day period in monthly monitoring for September 2015. Data from the extended period was in compliance with impact criteria (contaminated results excepted). Corrective action put in place to ensure gauges are collected within the required timeframe in future. 8 Pollution Studies and reduction Programs <u>2014</u> • U1.2 Required a report detailing the water management system upgrade. This was submitted to the EPA as required on 31/03/14. <u>2015</u> • U1.1 (point 1) Requires UCML to finalise the management method of waste material produced from the treatment process . Extension approved by EPA until 31 July 2016. • U1.1 (point 2) Requires UCML to achieve stabilisation of the clean water diversion dams in rehab areas by 30 December 2016. RS confirmed that they are on track to achieve this by the required date (RS Pers Comm). • U2.1 Conduct an investigation and submit a report to the EPA on the trial of best practice measures for disturbing and handling overburden. This was completed and submitted to EPA on 14/04/14 as required.
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CCL 741	Compliant	Condition 3: Viewed approved MOP for 2012-2017. Condition 7: Rehabilitation was confirmed to be progressing in accordance with the MOP during the site visit and inspections. Condition 8: Viewed approved SMPs/EPs that covered underground mining during the audit period. Condition 10: UCML has not received any direction from the Department to this effect (pers comm BA). Condition 11: Viewed Annual Exploration Reports for CCL741 for period 12/05/13 to 11/05/14 and the period 12/05/14 to 11/05/15. Condition 15: All blasting within audit period within prescribed limits. Condition 17: Viewed drilling report for CCL741 dated 20 /12/13. Condition 28: Viewed UCML Rehabilitation Cost Estimate Submission form (ESU-F02) dated 14/06/13. This calculated that rehab cost estimate would be \$86.6M Security deposit of \$86.6M not able to be verified. Condition 30: Viewed letter from UCML to DRE on 25/03/15 notifying them of the commencement of "Intermittent Mining Operations at the Mine".
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APPENDIX F
Specialist Reports

Biodiversity Audit Review Report

2 June 2016

Dianne Munro
Principal
Hansen Bailey
6/127-129 John Street
Singleton NSW 2330

**ULAN COAL MINES LIMITED 2016 INDEPENDENT ENVIRONMENTAL
AUDIT - BIODIVERSITY**

Dear Dianne,

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1. Scope

Cumberland Ecology has been commissioned by Hansen Bailey Environmental Consultants (Hansen Bailey) on behalf of Ulan Coal Mine Limited (UCML) to conduct an independent environmental compliance audit against Project Approval (PA) 08_0184 MOD 2 for Ulan Coal Mine (Ulan).

We understand that our scope of work is to review the compliance of the Project against PA 08_0184 MOD 2 for the period 1 July 2013 – 31 December 2015 where it relates to the protection, management, re-vegetation and improvement of biodiversity in the Project Area and the Project Biodiversity Offset Areas. Specifically, the conditions that are included within our scope of review are Conditions 41-45, 55 and 57 in Schedule 3 of PA 08_0184 MOD 2.

2. Documents Reviewed

In order to complete our audit, we have reviewed and/or considered the following documents:

1. *Project Approval 08_0184* (May 2012), granted by the Land and Environment Court of New South Wales (MOD 2);
2. Umwelt Environmental Consultants (2009) *Ulan Coal Continued Operations Environmental Assessment. Appendix 8 Ecology Assessment*. Umwelt (Australia) Pty Limited, Toronto;

3. Umwelt Environmental Consultants (2011a) *ULN SD PLN 0026 Ulan Coal Biodiversity Management Plan. Version 2.0.* Ulan Coal Mines Limited, Mudgee;
4. Umwelt Environmental Consultants (2011b) *ULN SD ANN 0048 Ulan Coal Offset Management Program. Version 1.0.* Ulan Coal Mines Limited, Mudgee;
5. Ulan Coal Mines Limited (2012) *ULN SD PLN 0079 Integrated Mining Operations Plan (2012-2017). Version 3.* Ulan Coal Mines Limited, Mudgee;
6. Biodiversity Monitoring Services (2013) *Ecological Monitoring Program for Ulan Coal Mine 2013 -Terrestrial Fauna and Habitats.* Biodiversity Monitoring Services, Lithgow.
7. Eco Logical Australia (2014) *Ulan Coal Mines Limited Annual Floristic Monitoring Report 2013. Prepared for Ulan Coal Mines Limited.* Eco Logical Australia Pty Ltd;
8. Fly By Night Surveys (2014) *Microbat Monitoring of the Ulan Coal Mine Lease during 2013. A report to Ulan Coal Mines Limited.* Fly By Night Surveys, Belmont.
9. Ulan Coal (2014) *Annual Environment Review 1st January 2013 – 31st December 2013.* Ulan Coal Mines Limited, Mudgee;
10. Biodiversity Monitoring Services (2015a) *Ecological Monitoring Program for Ulan Coal Mine 2014 -Terrestrial Fauna and Habitats.* Biodiversity Monitoring Services, Lithgow.
11. Eco Logical Australia (2015) *Annual Floristic Monitoring Report 2014. Prepared for Ulan Coal Mines Limited.* Eco Logical Australia Pty Ltd;
12. Fly By Night Surveys (2015) *Microbat Monitoring of the Ulan Coal Mine Lease during 2014. A report to Ulan Coal Mines Limited.* Fly By Night Surveys, Belmont;
13. Ulan Coal (2015) *Annual Environment Review 1st January 2014 – 31st December 2014.* Ulan Coal Mines Limited, Mudgee;
14. Eco Logical Australia (2015) RE: Hollow-bearing tree assessment on Ulan Biodiversity Offset and Cliffline Management Areas. Letter to Ulan Coal Mines Limited;
15. Biodiversity Monitoring Services (2015b) *Ecological Monitoring Program for Ulan Coal Mine 2015 -Terrestrial Fauna and Habitats.* Biodiversity Monitoring Services, Lithgow;
16. Eco Logical Australia (2016) *Annual Floristic Monitoring Report 2015. Prepared for Ulan Coal Mines Limited.* Eco Logical Australia Pty Ltd;
17. Fly By Night Surveys (2016) *Microbat Monitoring of the Ulan Coal Mine Lease during 2015. A report to Ulan Coal Mines Limited.* Fly By Night Surveys, Belmont;
18. Ulan Coal (2016) *ULN SD REP 0004 Ulan Coal Annual Review 2015. Version 1.0.* Ulan Coal Mines Limited, Mudgee; and

19. Eco Logical Australia (2015) *ULN SD PLN 0026 Ulan Coal Biodiversity Management Plan. Version 3.0*. Ulan Coal Mines Limited, Mudgee.

We recognise that during the current audit period (1 July 2013 – 31 December 2015) the Biodiversity Management Plan Version 2.0 (Umwelt Environmental Consultants, 2011a) and the Offset Management Program Version 1.0 (Umwelt Environmental Consultants, 2011b) have been superseded by the consolidated Biodiversity Management Plan Version 3.0 (Eco Logical Australia, 2015). We are also aware that a further modification to PA 08_0184 (i.e. MOD 3) was made in March 2016, which is outside the audit period.

3. Site Inspection

Following the initial desktop review of documentation, Katrina Wolf (Senior Project Manager/Ecologist, Cumberland Ecology) attended a site inspection on 27 April 2016. Following an initial presentation by Ulan Coal Mines Limited, Ms Wolf consulted with Steve Hawkins (Rehabilitation Superintendent, Ulan Coal Mine) and Tara Stokes (Environment Scientist, Ulan Coal Mine) both in the site office and during the site inspection. The site inspection included a visit to mine rehabilitation areas, the Bobadeen East Offset Area, the Bobadeen Vegetation Offset Corridor and the Bobadeen Offset Area, as shown in Figures 6-8 of the Biodiversity Management Plan Version 3.0 (Eco Logical Australia, 2015).

Key observations from the site inspection include:

- Rehabilitation areas
 - Extensive cover of canopy (shrub height) and shrubs, with fewer groundcover species observed;
 - Presence of *Acacia ausfeldii*;
 - Various age classes of rehabilitation;
- Biodiversity offset areas:
 - Presence of fencing and signage at entry points;
 - Planting and direct seeding areas observed to predominately comprise canopy species;
 - Existing native grasses and understorey species observed adjacent to revegetation works;
 - Natural regeneration of canopy species observed adjacent to remnant canopy trees; and
 - Presence of nest boxes at some locations.

4. Key Findings

In the attached table in **Appendix A**, we have reproduced verbatim all relevant biodiversity approval conditions from PA 08_0184 (MOD 2). The compliance with each condition is indicated in the table and additional comments added in the final column where necessary.

Our review of the aforementioned documents and results of the site inspection indicates that the majority of the relevant biodiversity conditions of PA 08_0184 MOD 2 have been or are being addressed. The documents provided appear to be largely adequate in addressing the relevant conditions. However, a few items are not considered to be compliant and fall within the categories of 'non-compliant', 'administrative non-compliant', 'not verified' and 'not triggered' as described within the NSW Government's *Independent Audit Guideline* (2015).

The main reasons for conditions not being met include:

- Non-compliant: Where required items have been omitted from, or insufficient details are provided in, the Biodiversity Management Plan;
- Administrative non-compliance: Where amendments to the Project (such as extent of biodiversity offset areas) have been made which have not been reflected in the conditions;
- Not verified: Where timeframes for assessing compliance extend beyond the current audit period (such as success of revegetation); and
- Not triggered: Where timing trigger for compliance has not been reached.

Key areas identified for improvement in relation to the relevant biodiversity conditions of PA 08_0184 MOD 2 include the following:

- Inclusion of omitted items within the Biodiversity Management Plan;
- Assessment of habitat within the Biodiversity Offset Areas for threatened and/or significant fauna species.

Please see **Appendix A** for further details with regard to the specific findings.

If you have any questions about matters raised in the tables or in this letter, please contact myself or Katrina Wolf on (02) 9868 1933.

Yours sincerely,



Dr David Robertson
Director

david.robertson@cumberlandecology.com.au

Appendix A

Compliance Table

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments																
BIODIVERSITY																					
Biodiversity Offset	41.0	The Proponent shall implement the offset strategy outlined in Table 15, described in the EA, and shown conceptually in the figure in Appendix 4 to the satisfaction of the Director-General.	Administrative non-compliance	Administrative non-compliance	The current BMP is inconsistent with Table 15 . The inconsistencies occur for the Bobadeen Offset Area and the Bobadeen East Offset Area. Additional ground-truthing of these biodiversity offset areas have determined that the Bobadeen Offset Area contains less native vegetation and EEC vegetation and that the Bobadeen East Offset Area contains less EEC vegetation. The BMP outlines that the Bobadeen Vegetation Offset Corridor has been included within the package of offset land and the additional native vegetation and EEC vegetation will contribute to meeting the minimum requirement for the Bobadeen Offset Area. The BMP also outlines that the boundary of the Bobadeen East Offset Area has been extended to include an additional area of EEC vegetation to contribute to meeting the minimum requirement for that offset. It is noted that the March 2016 consent modification (MOD 3) has been updated to take into account the revised mapping.																
		<i>Table 15: Biodiversity Offset Strategy</i> <table> <tr> <th rowspan="2"></th><th rowspan="2">Clearing, Offset Areas Removal and/or Disturbance</th><th colspan="4">Offset Areas</th></tr> <tr> <th>Spring Gully Cliffline Management Area</th><th>Broken-back Conserv ation Area</th><th>Bobadeen Vegetati on Offset Area</th><th>Bobadeen East Offset Area</th></tr> <tr> <td>Native Vegeta tion (ha)</td><td>408</td><td>211</td><td>58</td><td>1,116</td><td>229</td></tr> </table>		Clearing, Offset Areas Removal and/or Disturbance	Offset Areas				Spring Gully Cliffline Management Area	Broken-back Conserv ation Area	Bobadeen Vegetati on Offset Area	Bobadeen East Offset Area	Native Vegeta tion (ha)	408	211	58	1,116	229	Administrative non-compliance	Administrative non-compliance	See above.
	Clearing, Offset Areas Removal and/or Disturbance	Offset Areas																			
		Spring Gully Cliffline Management Area	Broken-back Conserv ation Area	Bobadeen Vegetati on Offset Area	Bobadeen East Offset Area																
Native Vegeta tion (ha)	408	211	58	1,116	229																

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification						Assessment	Risk Level	Comments
		EEC / CEEC (ha)	69	-	-	296	169			
		Cliffline (km)	11.7	9	3	-	-			
	41a	The Proponent shall ensure that the offset areas contain suitable habitat for any significant and/or threatened species identified in the areas to be cleared, removed and/or disturbed.						Non-compliant	Low	Current plans broadly indicate that there is suitable habitat present in the offset areas for threatened species. However, it is currently difficult to corroborate this through provision of supporting documentation. This is because the BMP or monitoring reports do not specify the areas/types of habitat present for each relevant species or what species the improvement/re-vegetation works will target. Thus, there is no adequate framework within which to review the progress of the offset areas. It is recommended that the BMP includes a summary table indicating the list of significant and/or threatened species identified within the areas to be cleared, removed and/or disturbed, and the areas of habitat within each of the offset areas. Monitoring reports should also clearly indicate which species have been recorded within each offset area.
	42.0	The Proponent shall ensure that at least 244 hectares within the Bobadeen Vegetation Offset Area and 169 hectares within the Bobadeen East Offset Area includes the re-establishment and/or improvement of:						Administrative non-compliance	n/a	The current BMP is inconsistent with this condition as a result of the alterations to the composition of the biodiversity offset areas for the Project. The BMP indicates that an additional area of land (the Bobadeen Vegetation Offset Corridor) has been included within the package of offset land to contribute to meeting the minimum requirement for the Bobadeen Offset Area. Additionally, the boundary of the

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
					Bobadeen East Offset Area has been extended to include an additional area of EEC vegetation to contribute to meeting the minimum requirement for that offset. It is noted that the March 2016 consent modification has been updated to take into account the biodiversity offset area amendments.
		(a) significant and/or threatened plant communities, including:	Not-verified	n/a	Existing areas of significant and/or threatened plant communities contained within the biodiversity offset areas. Management of existing vegetation in accordance with the BMP will assist in improving the condition within the biodiversity offset areas. Evidence of plantings and direct seeding within the biodiversity offset areas was observed during the site inspection. Monitoring undertaken within the biodiversity offset areas to assess the condition of the vegetation against benchmark data will assist in determining the success of revegetation and/or improvement works. Whilst saplings of canopy species were observed in areas managed through plantings and direct seeding were observed during the site inspection, there is currently insufficient evidence to indicate that these areas are progressing towards White Box Woodland or Blakely's Red Gum Open Forest. Such results are not anticipated to occur for a number of years.
		White Box Woodland;	Not-verified	n/a	See above.
		Blakely's Red Gum Open Forest; and	Not-verified	n/a	See above.
		(b) significant and/or threatened plant communities; and:	Not-verified	n/a	This is a repeat of Condition 42 (a).

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
		(c) habitat for significant and/or threatened animal species.	Non-compliant	Low	Current plans do not specify the areas/types of habitat required for each relevant species or what species the improvement/re-vegetation works will target. It is recommended that this be added to the BMP.
Long Term Security of Offset	43.0	Within 1 year of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010, the Proponent shall make suitable arrangements to provide appropriate long term security for the Bobadeen Vegetation Offset Area, the Bobadeen East Offset Area, the Brokenback Conservation Area, the stand of <i>Acacia ausfeldii</i> along the eastern side of Highett Road and the Spring Gully Cliffline Management Area to the satisfaction of the Director-General.	Not triggered	n/a	Ulan was granted an extension of the timeframe in which an appropriate arrangement is made for the long term security of the Bobadeen Vegetation Offset Area, the Bobadeen East Offset Area, the Brokenback Conservation Area, the stand of <i>Acacia ausfeldii</i> along the eastern side of Highett Road and the Spring Gully Cliffline Management Area (see main audit report for evidence). Extension of time to 31/12/16 in letter from DPE dated 9/12/15.
Biodiversity Management Plan	44.0	The Proponent shall prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:			See below for individual assessment of each component.
		(a) be prepared in consultation with OEH and Council by suitably qualified and experienced persons;	Compliant	n/a	Section 2.3 and Appendix C of the BMP outlines the consultation undertaken with regulation agencies, including the NSW Office of Environment and Heritage (OEH) and Mid-western Regional Council (Council) in 2011 and 2012. Section 1.1 of the BMP notes that the document was "prepared by qualified personnel of Eco Logical Australia Limited (Eco Logical), as detailed in the revision history". Section 11.3 provides details of persons editing the BMP. Review of their CV's indicate that they are suitably qualified and experienced persons. Their CV's are shown in Appendix B .

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
					It is recommended that the BMP be updated to include a summary of the qualifications and experience of the persons that prepared the BMP.
		(b) be submitted to the Director-General for approval by the end of June 2012;	Compliant	n/a	Version 1.0 of the BMP was approved on 22 March 2012. The current version of the BMP (Version 3.0) was approved on 11 November 2015.
		(c) describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site (see below);	Compliant	n/a	Various sections of the BMP refer to the implementation of measures both within the Biodiversity Offset Areas and the mine rehabilitation areas (e.g. Section 6 – Management Zone Stratification) Section 7 – Land Management Strategies, Section – Flora and Fauna Monitoring).
		(d) include:			See below for individual assessment of each component.
		- a description of the short, medium, and long term measures that would be implemented to: – implement the offset strategy; and – manage the remnant vegetation and habitat, both on site and in the offset areas;	Compliant	n/a	Section 7 of the BMP outlines the short, medium and long-term measures for implementation the offset strategy and managing remnant vegetation and habitat. It is noted that remnant vegetation and habitat will not occur within the mine site following clearing activities. As such, management of remnant vegetation and habitat is confined to the Biodiversity Offset Areas. However, other management measures will be undertaken within the mine site.
		detailed completion criteria as well as performance criteria for measuring the short, medium and long term success of the offset strategy, including annual indicators and trigger values for the regeneration/revegetation of both the Box-Gum Woodland and <i>Acacia ausfeldii</i>, and the	Compliant	n/a	Appendix A of the BMP sets out the proposed completion criteria for the short, medium and long term management measures for the management strategies outlined within Section 7. Performance criteria for the management strategies are outlined within Section 7. It is noted that the BMP section reference in

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
		provision of suitable habitat for threatened woodland birds;			Table A-1 are incorrect. It is recommended that subsequent revisions of the BMP rectify this error. Table 20 of the BMP outlines the annual indicators and trigger values for the regeneration/revegetation of Box Gum Woodland and provision of habitat for threatened woodland birds. Table 36 of the BMP provides annual monitoring objectives and trigger values for the <i>Acacia ausfeldii</i> along Highett Road. Table 37 of the BMP provides annual monitoring objectives and trigger values for the translocated <i>Acacia ausfeldii</i> individuals. It is considered that the objectives listed in the tables are equivalent to the indicators referred to in the consent condition.
		a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:			See below for individual assessment of each component.
		implementing revegetation and regeneration within the offset areas, including the establishment of canopy, sub-canopy (if relevant), understorey and ground strata;	Compliant	n/a	Section 7.1.9 and Section 7.1.10 of the BMP provide details on revegetation and regeneration within the biodiversity offset areas. Appendix E of the BMP provides a list of species to be utilised in revegetation works.
		protecting vegetation and soil outside the disturbance areas;	Non-compliant	Low	Whilst the BMP contains management measures for vegetation and soil within the biodiversity offset areas, it does not provide details for protecting vegetation and soil outside the disturbance areas.
		rehabilitating creeks and drainage lines on the site (both inside and outside the disturbance areas), to ensure no net loss of stream length and aquatic habitat;	Non-compliant	Low	No details are provided in the BMP regarding the rehabilitation of creeks and drainage lines. Creeks within the Project Area are identified on Figure 3 of the BMP. Section 6 of the BMP notes that the Mining

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
					Operations Plan contains details of the rehabilitation works within the operational areas. It is recommended that the BMP be updated to include identify creeks and drainage lines, then describe measures for the rehabilitation of creeks and drainage lines within the project boundary to ensure no net loss of stream length and aquatic habitat.
		managing any potential conflicts between the proposed restoration works in the biodiversity areas and any Aboriginal heritage values (both cultural and archaeological);	Administrative non-compliance	Administrative non-compliance	Section 7.1.2 and Section 7.1.5 of the BMP note management of cultural heritage. Section 5.9 of the OMP provides details of the integration of ecological works with the Heritage Management Plan; however this information is not detailed within the BMP . It is recommended the BMP be updated to include the details from Section 5.9 of the OMP.
		managing salinity;	Compliant	n/a	Section 7.1.17 of the BMP provides details on managing salinity within the Salinity Offset Area.
		undertaking pre-clearance surveys;	Compliant	n/a	Section 7.1.16 of the BMP provides details on pre-clearing surveys.
		managing impacts on fauna;	Compliant	n/a	Various sections within Chapter 7 of the BMP refer to management of impacts to fauna species.
		minimising the impacts on fauna, including providing important habitat features (e.g. hollows) during the period of revegetation and rehabilitation;	Compliant	n/a	Various sections within Chapter 7 of the BMP refer to management of impacts to fauna species. Section 7.1.8.2 of the BMP includes provision of next boxes where hollow resources are lower, for example within the mine rehabilitation area.
		landscaping the site, and particularly the land adjoining public roads, to minimise visual and lighting impacts;	Administrative non-compliance	Administrative non-compliance	Details not provided within BMP. An internal Visual and Landscape Management Plan (VLMP) has been prepared

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
					for the Project. It is recommended the BMP be updated to include reference to the VLMP, or transfer the relevant information into the BMP.
		– collecting and propagating seed;	Compliant	n/a	Section 7.1.7 of the BMP provides details on collecting and propagating seed.
		– salvaging and reusing material from the site for habitat enhancement;	Compliant	n/a	Section 7.1.8 of the BMP provides details on salvaging and reusing material from the site for habitat enhancement.
		– propagating threatened flora and native grassland (including <i>Acacia ausfeldii</i>);	Administrative non-compliance	Administrative non-compliance	Section 7.1.7 of the BMP provides details on propagation; however does not specifically mention threatened flora (including <i>Acacia ausfeldii</i>) . It is noted that Section 4.9.6.4 of the Integrated Mining Operations Plan details seed collection and propagation of <i>Acacia ausfeldii</i> for the purposes of rehabilitation. Section 7.7.7 of the BMP notes that native grass species may potentially be targeted for seed collection. It is recommended that the BMP be updated to specifically mention propagation of <i>Acacia ausfeldii</i> and native grasses.
		– protecting and managing <i>Acacia ausfeldii</i> ;	Compliant	n/a	Section 6.5 of the BMP notes that management of the Hightett Road population of <i>Acacia ausfeldii</i> will be the same as Management Zone 1.
		– controlling weeds and feral pests;	Compliant	n/a	Section 7.1.12 and Section 7.1.13 of the BMP provides details on controlling weeds and feral pests.
		– managing grazing and agriculture on site;	Compliant	n/a	Section 7.1.6 of the BMP provides details on managing grazing and agriculture.
		– controlling access; and	Compliant	n/a	Section 7.1.3 of the BMP provides details on controlling access.
		– bushfire management;	Compliant	n/a	Section 7.1.4 of the BMP provides details on Bushfire Management.

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
		a program to monitor and report on the effectiveness of these measures and the performance of the offset strategy, with summary reporting to be carried out annually and comprehensive reporting every three years following the independent environmental audit (see condition 8 of schedule 5);	Administrative non-compliance	Administrative non-compliance	Section 8 of the BMP provides details on the monitoring of the management measures outlined in the BMP. Section 10 of the BMP outlines reporting requirements. There is no current reference within this section to carry out comprehensive reporting every three years following the independent environmental audit. It is recommended that Section 10 of the BMP be updated to include comprehensive reporting every three years following the independent environmental audit.
		a description of the contingency measures that would be implemented to improve the performance of the offset strategy if the detailed performance criteria above are not being met in any given year; and	Compliant	n/a	Section 9 of the BMP outlines the contingency measures for implementation should trigger values be met.
		details of who would be responsible for monitoring, reviewing, and implementing the plan.	Compliant	n/a	Section 3 of the BMP outlines the responsibilities for monitoring, reviewing and implementing the plan.
		<i>Note: The effectiveness of the Biodiversity Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>	Compliant		Section 10 of the BMP outlines the review and auditing process for the plan.
Conservation Bond	45	Within 6 months of the approval of the Biodiversity Management Plan (see above), the Proponent shall lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond shall be determined by:	Compliant		The BMP was initially approved on the 9 March 2015. The Conservation Bond was lodged on the 9 September 2015 which is within 6 months.
		(a) calculating the full cost of implementing the offset strategy; and	Compliant		Calculations reviewed and the NAB Bank Guarantee dated 08/09/15 was also reviewed. This was submitted to DPE on 09/09/15

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments										
		(b) employing a suitably qualified quantity surveyor to verify the calculated costs, to the satisfaction of the Director-General.	Compliant		Letter from DPE dated 26/06/12 which agreed that this is not required to be completed by a quantity surveyor and that UCML are to calculate was reviewed.										
		If the offset strategy is implemented to the satisfaction of the Director-General, the Director-General will release the conservation bond.	Not triggered		See above.										
		If the offset strategy is not implemented to the satisfaction of the Director-General, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory implementation of the offset strategy.	Not triggered		See above										
REHABILITATION															
Rehabilitation Objectives		The Proponent shall rehabilitate the site to the satisfaction of the Executive Director, Mineral Resources . This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA (and depicted conceptually in the figures in Appendix 5), and comply with the objectives in Table 16.			See below.										
		Table 16: Rehabilitation Objective <table><tr><th>Feature</th><th>Objective</th></tr><tr><td>Mine site (as a whole)</td><td>Safe, stable & non-polluting</td></tr><tr><td>Surface infrastructure</td><td>To be decommissioned and removed, unless the Director-General agrees otherwise</td></tr><tr><td>Watercourses to be undermined</td><td>Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining</td></tr><tr><td>Cliffs</td><td>No additional risk to public safety compared to prior to mining</td></tr></table>	Feature	Objective	Mine site (as a whole)	Safe, stable & non-polluting	Surface infrastructure	To be decommissioned and removed, unless the Director-General agrees otherwise	Watercourses to be undermined	Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining	Cliffs	No additional risk to public safety compared to prior to mining	Compliant	n/a	This audit relates to the following items within Table 16: - Watercourses to be undermined; and - Other land affected by the project. It is reported that undermined watercourses have not been significantly impacted by mining and therefore the requirement to undertake rehabilitation to ensure riparian vegetation is the same or better than prior to mining has not been triggered (T. Stokes pers. comm.). Rehabilitation works were observed to be being undertaken within the mining areas. Section 6.6 of the BMP notes that the primary objective of rehabilitation is a stable final landform with post-mining land use capability of self-sustaining native vegetation
Feature	Objective														
Mine site (as a whole)	Safe, stable & non-polluting														
Surface infrastructure	To be decommissioned and removed, unless the Director-General agrees otherwise														
Watercourses to be undermined	Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining														
Cliffs	No additional risk to public safety compared to prior to mining														

Section	Sub-section	Requirement		Assessment	Risk Level	Comments
		Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification				
		Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: · local native plant species; and · a landform consistent with the surrounding environment			communities characteristic of the pre-mining compositions including Ironbark Open Forest Complex, Grey Box Woodland and Open Forest /Grassland. Whilst saplings of canopy species, shrubs and groundcover species were observed within rehabilitation areas, there is currently insufficient evidence to indicate that these areas are progressing towards Ironbark Open Forest Complex, Grey Box Woodland and Open Forest /Grassland. Such results are not anticipated to occur for a number of years. It is recommended that additional floristic monitoring sites are established within mine rehabilitation areas in each of the proposed rehabilitated communities to enable comparisons to analogue sites.
		Built features affected by subsidence	Repair to pre-mining condition or equivalent unless the owner agrees otherwise			
		Community	Minimise the adverse socio-economic effects associated with mine closure			
Rehabilitation Management Plan	57	The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Executive Director, Mineral Resources. This plan must:		Compliant		The Rehabilitation Management Plan is provided in Sections 4 and 5 of the 2012-2017 MOP, as approved by DRE on 2/12/11.
		(a) be prepared in consultation with the Department, OEH, NOW, Council and the CCC;		Compliant		Previous audit confirmed compliance.
		(b) be prepared in accordance with any relevant DRE guideline;		Compliant		Described in Section 1 of the MOP
		(c) describe how the rehabilitation of the site would be integrated with the implementation of the offset strategy;		Compliant	n/a	Rehabilitation works are detailed within the Integrated Mining Operations Plan. Section 4.4 of the Integrated Mining Operations Plan details how the rehabilitation works are integrated with the implementation of the offset strategy.
		(d) build, to the maximum extent practicable, on the other management plans required under this approval;		Compliant	-	Section 7 of MOP shows how the MOP fits in with UCML's EMS.

Section	Sub-section	Requirement Red type represents the December 2011 modification Blue type represents the conditions modified by the November 2011 court judgement and associated Orders Green type represents the May 2012 modification	Assessment	Risk Level	Comments
		(e) document the scientific knowledge gained during the rehabilitation, and make it publicly available; and	Compliant	-	Section 4.14 of MOP states that results from all rehabilitation and/or scientific trials undertaken onsite will be reported in the AR.
		(f) be submitted to the Executive Director, Mineral Resources for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010).	Compliant	-	The Rehabilitation Management Plan, as part of the 2012-2017 MOP, was revised as required in June 2012 following consult with DRE and submitted for approval on 1/7/12. Most recently the MOP was revised in April 2013 following consult with DRE and submitted for approval on 12/4/13. DRE approved the revised MOP on 7/5/13.

Noise Audit Review Report

27 May 2016
Ref: J0130-107-L1

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78 Woodglen Close
P.O. Box 61
PATERSON NSW 2421

Phone: 02 4938 5866
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E-mail: bridgesacoustics@bigpond.com

Attn: Mr Daniel Sullivan

Dear Daniel,

RE: ENVIRONMENTAL COMPLIANCE AUDIT – ULAN COAL MINES LIMITED

INTRODUCTION

Ulan Coal Mines Limited (Ulan Coal) operates Ulan Mine, a combined open cut and underground coal mine located near the village of Ulan, approximately 38 km north east of Mudgee and 19 km north east of Gulgong in central western NSW. Ulan Mine is operated according to Project Approval PA08_0184 which was granted in 2008 and subsequently modified in November 2011, December 2011 and May 2012.

Hansen Bailey was engaged by Ulan Coal to complete an Independent Environmental Audit as required by Schedule 5, Conditions 8 and 9 of the Project Approval, which are reproduced below:

8. *By the end of June 2013, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:*
 - (a) *be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;*
 - (b) *include consultation with the relevant agencies;*
 - (c) *assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);*
 - (d) *review the adequacy of strategies, plans or programs required under the abovementioned approvals; and*
 - (e) *recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals.*

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

9. *Within 6 weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.*

Bridges Acoustics was engaged by Hansen Bailey to provide specialist advice regarding acoustic issues, in consultation with the Director General.

INITIAL DOCUMENT REVIEW

A number of relevant documents were supplied by Ulan Coal and Hansen Bailey for initial review, including:

- PA08_0184 Mod 2 Ulan Coal Mine Project Approval;
- Environment Protection Licence 394;
- Environmental Monitoring Program;
- Environmental Monitoring Summaries (quarterly, July 2013 to December 2015);
- Community Complaints Register covering July 2013 to December 2015;
- Blast Management Plan;
- Noise Management Plan;

SITE VISIT

Ulan Mine was visited by Hansen Bailey's audit team from Tuesday 26 to Friday 29 April 2016 and by Bridges Acoustics on Wednesday 27 April 2016. The acoustic site visit included the following components:

- Kickoff meeting including a presentation from Ulan Coal staff regarding recent and current mining operations.
- An inspection of the cumulative noise monitor location to confirm the location is appropriate. A tour of the mining area, facilities and noise and blast monitoring locations was offered by Ulan Coal staff, however such a tour was completed at the previous audit in 2013 and was not repeated;
- A lengthy discussion and question/answer session with Ulan Coal environmental staff to obtain information, view and obtain copies of documents and clarify acoustic issues; and
- A closing meeting to summarise the findings to date and detail remaining information requested to be supplied to complete the audit.

The active and helpful cooperation of Ulan Coal staff during and after the site visit is acknowledged.

FINAL DOCUMENT REVIEW

The following documents, or extracts from documents, were either viewed or were supplied by Ulan Coal during or a few days after the site visit:

- Various site and area plans showing receiver and monitoring locations in relation to the various mining and other working areas of Ulan Mine;
- Example Blast Sign-off Authorisation Forms for blasts on 16 December 2013 and 14 April 2014 including various attachments such as a plan showing distances to nearest receivers, table of charge weights per hole, overpressure and vibration predictions at all blast monitors and plan showing the predicted plume considering anticipated atmospheric conditions;
- Calibration certificates for blast monitors;
- Monitoring reports prepared by external noise monitoring consultants, including calibration certificates for attended noise monitoring equipment;
- Real time noise monitor calibration certificates;
- Cumulative Noise Management Plan;
- Cumulative Noise Management Plan Implementation Review;

- Contact list for blast notification which includes a number of personnel from neighbouring mining companies to assist in avoiding cumulative blasting impacts;

OUTCOMES

Information gathered during the document reviews and site visit indicated Ulan Coal is substantially complying with relevant project approval conditions and is strongly focussed on minimising and controlling environmental noise and blasting impacts.

The blast monitoring network is appropriate and indicates no exceedances of the blast criteria have occurred during the audit period, with no blasts during the later portion of the period. Blast management procedures, including control of vibration, overpressure and flyrock, are appropriate and evidence gathered during the site visit indicates the procedures are followed for each blast.

The noise monitoring network is appropriate, with the monitors located near closest and potentially most affected receptors. Measured noise levels are used to trigger alarms which in turn trigger an appropriate and comprehensive investigation and response strategy, with example reports showing triggered alarms and responses viewed during the site visit.

Noise related complaints also trigger a similar investigation and response strategy. Abundant evidence exists to indicate Ulan Coal responds to complaints in a professional manner and, where possible and practical, attempts to reduce noise levels in response to complaints despite meeting relevant project approval criteria at the time of the complaint.

Noise compliance monitoring indicates no exceedances of the project approval noise criteria at any sensitive receptor.

RECOMMENDATIONS

A number of recommendations, to correct minor issues or to improve noise and blasting outcomes, have been developed during the course of the audit investigation:

- Section 4.2 of the Noise Management Plan (NMP) requires regular reviews of historical real time noise data and correlation with operating and weather conditions, with any outcomes to be implemented as required. Given the complex and inter-related operating, weather and extraneous factors affecting received noise levels, such reviews are not considered likely to provide useful results or provide practical outcomes or recommendations. It is recommended that this requirement is removed when next revising the NMP.
- Blast monitoring data presented in the quarterly environmental monitoring reports from July 2013 to February 2014 included incorrect overpressure levels for one of the monitors. Inspection of UCML's original data in spreadsheet form indicates the original data are correct. Additional care is required to avoid this outcome.
- Attended noise monitoring data collected and reported by external consultants is not always correctly copied into the quarterly monitoring reports published by UCML, resulting in two instances of missed data in 2015. Additional care is required to avoid this outcome.
- Attended noise monitoring is required every 6 months and was generally carried out late in each period, however prolonged adverse weather resulted in the December 2014 noise survey being delayed until January 2015. Noise surveys should ideally be programmed to occur earlier in each period to allow for potential delays.

CONCLUSION

This audit of Ulan Coal's environmental performance from July 2013 to December 2015 has indicated compliance with the relevant project approval and environment protection licence conditions, with only administrative non-compliances of Schedule 5 Condition 10 arising as a result of noise and blast monitoring data not being correctly copied into published monitoring reports.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'M Bridges', is positioned below the 'Yours faithfully,' text.

MARK BRIDGES BE (Mech) (Hons) MAAS
Principal Consultant

Compliance Tables (Noise and Blasting Conditions)

Section	Sub-section	Requirement	Status	Comments																																												
SCHEDULE 3																																																
NOISE																																																
Noise Criteria	2.0	Except for the noise-affected land referred to in Table 1, the Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 2 at any residence on privately-owned land or on more than 25 percent of any privately-owned land	Compliant	Six-monthly attended noise monitoring: 2013 AR Section 3.10: no exceedances during June and December 2013 attended monitoring; 2014 AR Section 3.10: no exceedances during June and December 2014 / January 2015 attended monitoring; 2015 AR Section 4.1: no exceedances during June and December 2015 attended monitoring.																																												
		<table><tr><td colspan="5">Table 2: Noise Criteria dB(A)</td></tr><tr><td rowspan="2">Location</td><td>Day</td><td>Evening</td><td colspan="2">Night</td></tr><tr><td>LAeq (15 min)</td><td>LAeq (15 min)</td><td>LAeq (15 min)</td><td>LA1 (1 min)</td></tr><tr><td>254</td><td>38</td><td>38</td><td>37</td><td>45</td></tr><tr><td>57</td><td>37</td><td>37</td><td>36</td><td>45</td></tr><tr><td>7</td><td>36</td><td>36</td><td>36</td><td>45</td></tr><tr><td>All privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>Ulan Public School</td><td colspan="3">35 (internal) When in use</td><td>-</td></tr><tr><td>Ulan Anglican Church Ulan Catholic Church</td><td colspan="3">40 (internal) 40 (internal) When in use</td><td>-</td></tr></table>	Table 2: Noise Criteria dB(A)					Location	Day	Evening	Night		LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA1 (1 min)	254	38	38	37	45	57	37	37	36	45	7	36	36	36	45	All privately-owned land	35	35	35	45	Ulan Public School	35 (internal) When in use			-	Ulan Anglican Church Ulan Catholic Church	40 (internal) 40 (internal) When in use			-		
Table 2: Noise Criteria dB(A)																																																
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	LAeq (15 min)	LAeq (15 min)	LAeq (15 min)	LA1 (1 min)																																												
254	38	38	37	45																																												
57	37	37	36	45																																												
7	36	36	36	45																																												
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Ulan Anglican Church Ulan Catholic Church	40 (internal) 40 (internal) When in use			-																																												
		Notes: - To identify the locations referred to in Table 2, see figure in Appendix 3; and - Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.																																														

Section	Sub-section	Requirement	Status	Comments									
		However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.											
Noise Acquisition Criteria	3.0	If the noise generated by the project exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land in accordance with the procedures in Conditions 6 - 7 of Schedule 4.	Not Triggered	See response to 2.									
		<table><tr><td colspan="3">Table 3: Noise acquisition criteria dB(A) LAeq (15min)</td></tr><tr><td>Location</td><td>Day</td><td>Evening</td></tr><tr><td>All privately-owned land</td><td>40</td><td>40</td></tr></table>	Table 3: Noise acquisition criteria dB(A) LAeq (15min)			Location	Day	Evening	All privately-owned land	40	40		
Table 3: Noise acquisition criteria dB(A) LAeq (15min)													
Location	Day	Evening											
All privately-owned land	40	40											
		Notes: - Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. - For this condition to apply, the exceedances of the criteria must be systemic.											
Cumulative Noise Criteria	4.0	Except for the noise-affected land referred to in Table 1, the Proponent shall implement all reasonable and feasible measures to ensure that the noise generated by the project combined with the noise generated by other mines in the area does not exceed the criteria in Table 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.	Not Triggered	See response to 2. In addition, noise monitoring results discussed in Cumulative Noise Management Plan Implementation Review shows no systemic exceedances of criteria. Compliance with Condition 2 would also ensure compliance with this condition.									
		<table><tr><td colspan="3">Table 4: Cumulative noise criteria dB(A) LAeq (period)</td></tr><tr><td>Location</td><td>Day</td><td>Evening</td></tr><tr><td>All privately-owned land</td><td>50</td><td>45</td></tr></table>	Table 4: Cumulative noise criteria dB(A) LAeq (period)			Location	Day	Evening	All privately-owned land	50	45		
Table 4: Cumulative noise criteria dB(A) LAeq (period)													
Location	Day	Evening											
All privately-owned land	50	45											
		Note: Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.											

Section	Sub-section	Requirement	Status	Comments						
Cumulative Noise Acquisition Criteria	5.0	If the noise generated by the project combined with the noise generated by other mines in the area exceeds the criteria in Table 5 at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land on as equitable basis as possible with the relevant mines in accordance with the procedures in Conditions 6-7 of Schedule 4.	Not Triggered	See response to 2.						
		Table 5: Cumulative noise land acquisition criteria dB(A) LAeq (period) <table><tr><th>Location</th><th>Day</th><th>Evening</th></tr><tr><td>All privately-owned land</td><td>55</td><td>50</td></tr></table>	Location	Day	Evening	All privately-owned land	55	50		
Location	Day	Evening								
All privately-owned land	55	50								
		- Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy; and - For this condition to apply, the exceedances of the criteria must be systemic.								
Additional Noise Mitigation Measures	6.0	Upon receiving a written request from the owner of any residence:	Not Triggered	No requests for mitigation described in the 2013 – 2015 Annual Reviews.						
		a) on the land listed in Tables 1 or 6; or								
		(b) on privately-owned land where subsequent noise monitoring shows that the noise generated by the project is greater than or equal to LAeq (15 minute) 38 dB(A) on a systemic basis, the Proponent shall implement additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible.								

Section	Sub-section	Requirement	Status	Comments				
		If within 3 months of receiving this request from the owner, the Proponent and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.						
		Table 6: Land where additional noise mitigation is available at the residence upon request <table><tr><th>Location</th><th>Receiver</th></tr><tr><td>254</td><td>Geoffrey Mitchell & Mary Mitchell</td></tr></table>	Location	Receiver	254	Geoffrey Mitchell & Mary Mitchell		
Location	Receiver							
254	Geoffrey Mitchell & Mary Mitchell							
		Note: To identify the locations referred to in Table 6, see the figure in Appendix 3.						
Rail Noise	7.0	The Proponent shall seek to ensure that its rail spur is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with noise limits L6.1 to L6.4 in RailCorp's EPL (No. 12208 L2) and ARTC's EPL (No. 3142) or a Pollution Control Approval issued under the former Pollution Control Act 1970.	Compliant	Email from Freightliner dated 20/11/2015 which confirmed that all locomotives are approved in EPL's. Email from Pacific National dated 25/11/2015 which confirmed that all locomotives are approved in EPL's.				
Operating Conditions	8.0	The Proponent shall:						
		(a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational, low frequency, rail, and road traffic noise generated by the project;	Compliant	Compliance with relevant noise criteria confirms noise mitigation measures are appropriate and are being adequately implemented and maintained				

Section	Sub-section	Requirement	Status	Comments
		(b) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify, and/or stop operations on site to ensure compliance with the relevant conditions of this approval; and	Compliant	No noise exceedances have been recorded against this approval for the audit period. Section 4.1 of NMP describes UCML's noise monitoring program and associated real time noise monitoring. Section 4.3 of NMP describes UCML's meteorological monitoring, including its meteorological facilities and forecasting capabilities. Section 4.2 of NMP describes UCML's proactive noise management, implemented from real time noise and meteorological monitoring, which sends information to UCML's environmental staff and operational personnel if noise criteria are at risk of being triggered. This data can be used to guide operations under prevailing wind speed and direction to ensure compliance. Example daily reports were viewed to confirm the procedures are implemented.
		(c) co-ordinate the noise management on site with the noise management at Moolarben and Wilpinjong mines to minimise the cumulative noise impacts of the mines, to the satisfaction of the Director-General	Compliant	Viewed cumulative noise management plan dated 23/11/15 as completed by Advitech for the 3 mines. 2014 AR notes that Sentinex 121 used to gather data to assess whether it can provide adequate data for cumulative impact management. UCML hold Environment & Community Joint Meetings with Moolarben Coal Mine (MCM) and Wilpinjong Mines (WCPL). Hansen Bailey (HB) reported meeting minutes dated April 2013 were viewed. HB also viewed an example of an Agenda for one of these joint meetings dated 17/09/15. This confirmed that noise management is formally raised at these meetings. No exceedance as a result of cumulative noise have been recorded during the audit period.
Noise Management Plan	9.0	The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. This plan must:		

Section	Sub-section	Requirement	Status	Comments
		(a) be prepared in consultation with EPA and Council, and submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010;	Compliant	Previous audit confirmed compliance for preparation of original plan. This plan has been recently revised and approved by DP&E in a letter dated 08/12/15. The management plan was provided to MWRC for consult on 15/07/14 and the EPA on 8/8/14 (no responses received).
		(b) describe the noise mitigation measures that would be implemented to ensure compliance with conditions 2-8 of this schedule, including a real-time noise management system that employs both reactive and proactive mitigation measures;	Compliant	Section 3.2 of the NMP describes noise management and mitigation measures.
		(c) include a noise monitoring program that: - uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the project; and - includes a protocol for determining exceedances of the relevant conditions of this approval;	Compliant	Section 4.1 of the NMP describes UCML's Noise Monitoring Program and includes a combination of attended and unattended real time monitoring for evaluating compliance. Sections 4.4-5 of the NMP describes UCML's use of attended noise monitoring to evaluate compliance and determine exceedances of the development consent criteria.
		(d) include a protocol that has been prepared in consultation with the owners of the Moolarben and Wilpinjong mines for minimising and managing the cumulative noise impacts of the mines.	Compliant	Section 4.7 of the NMP includes a protocol for joint acquisition of properties with MCM and WCPL. Section 1.4 of the cumulative noise management plan states it was prepared in consultation with MCM and WCPL
		Note: The effectiveness of the Noise Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).	Compliant	Section 5 of the NMP includes a protocol for ongoing review of the document.
BLASTING				
Operational Blasting Criteria	10.0	The Proponent shall ensure that operational blasting on site does not cause exceedances of the criteria in Table 7.	Compliant	2013 AR Section 3.11.2: all blast monitoring results were within relevant criteria. One blast event in May 2013 recorded an overpressure level of 115.5 dB, which is within 5% threshold for allowable exceedances up to 120 dB. 2014 AR Section 3.11.2: all blast monitoring results were within relevant criteria. 2015 AR Section 4.2: no blast events in 2015.

Section	Sub-section	Requirement				Status	Comments
		Table 7: Operational blast impact criteria					
		Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance		
		Residence on privately owned land	115	5	5% of the total number of blasts in a period of 12 months		
			120	10	0%		
	10.1	The Proponent shall ensure that operational blasting and construction blasting on the site does not damage Heritage Sites on site. Heritage Sites can be identified in Appendix 7 of this approval.				Compliant	2013 AR Section 3.11.2: no exceedances of blast impact criterion. No change to baseline condition of Aboriginal heritage sites 74, 1395 and 1396 identified in inspection by South East Archaeology and RAPs in February 2013; 2014 AR Section 3.11.2: no exceedances of blast impact criterion. No change to baseline condition of Aboriginal heritage sites identified in inspection by South East Archaeology and RAPs in August 2014; 2015 AR Section 4.2: no blast events in 2015. No change to baseline condition of Aboriginal heritage sites identified in inspection by South East Archaeology and RAPs in February 2015.
Operational Blasting Hours	11.0	The Proponent shall only carry out operational blasting on site between 9am and 5pm Monday to Saturday inclusive. No operational blasting is allowed on Sundays, public holidays, or at any other time without the written approval of Director-General.				Compliant	Attachment I of the 2013 and 2014 AR's confirm all blasts undertaken within approved hours. No open cut blasting undertaken in 2015.
Operational Blasting Frequency	12.0	The Proponent shall not carry out more than 1 operational blast a day on site, unless an additional operational blast is required following a blast misfire.				Compliant	Attachment I of the 2013 and 2014 AR's confirm no more than one blast event per day. No open cut blasting undertaken in 2015.
		Note: A blast may involve a number of explosions within a short period, typically less than two minutes.					
Construction Blasting Hours and Frequency	12.1	The Proponent shall only carry out construction blasting on site between 7am and 7pm daily where the Proponent confirms by design and prediction prior to construction blasting that the overpressure and vibration levels will be less than 95dB(A) and 1mm/sec, respectively at all private buildings.				Not Triggered	No blasting required for audit period construction activities (RS Pers Comm to HB).

Section	Sub-section	Requirement	Status	Comments
Property Inspections	13.0	If the Proponent receives a written request from the owner of any privately-owned land within 2 kilometres of the approved open cut mining pit on site for a property inspection to establish the baseline condition of any buildings and/or structures on their land, or to have a previous property inspection report updated, then within 2 months of receiving this request the Proponent shall:	Not Triggered	Although not requested a property inspection was carried out for the Elia's residence following a blast complaint received from them on 21/10/14. The report was completed in March 2015 and concluded that the residence is in good structural condition. The report recommended ongoing blast monitoring to ascertain vibration levels. RS confirmed that blast monitor 3 is in place between this residence and the mine and that there have been no exceedances during the audit period.
		(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to: - establish the baseline condition of the buildings and/or structures on the land or update the previous property inspection report; and - identify any measures that should be implemented to minimise the potential blasting impacts of the project on these buildings and/or structures; and	Not Triggered	
		(b) give the landowner a copy of the new or updated property inspection report.	Not Triggered	
Property Investigations	14.0	If the owner of any privately-owned land claims that the buildings and/or structures on his/her land have been damaged as a result of blasting on site, then within 2 months of receiving this claim the Proponent shall:		
		(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and	Not Triggered	
		(b) give the landowner a copy of the property investigation report.	Not Triggered	
		If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damages to the satisfaction of the Director-General.	Not Triggered	

Section	Sub-section	Requirement	Status	Comments
		If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.	Not Triggered	
Operating Conditions	15.0	The Proponent shall		
		(a) implement best blasting management practice on site to: · protect the safety of people and livestock in the surrounding area; · protect public or private property in the surrounding area; and · minimise the dust and fume emissions of the blasting;	Compliant	No exceedances during the audit period. Section 3.3 of Blast MP states that should blasting occur at Bobadeen Basalt Quarry, UCML will undertake due diligence blast monitoring. Section 3.1.9 of Blast MP describes UCML's use of preliminary meteorological review and procedure for the pre-assessment of blasting on site during adverse weather conditions, to ensure that blasts are postponed during adverse weather conditions which have the potential to exacerbate dust, fume and/or overpressure impacts. Example pre-assessments for 16/12/13 and 14/4/14 were viewed and are appropriate. Section 3.7.1 of Blast MP states that email notification of blasts will be sent to Ulan No. 3, Ulan West, MCM and WCPL to establish safety measures. Section 3.1.4.12 of AQGHGMP states UCML will implement controls to reduce dust emissions from blasting operations.

Section	Sub-section	Requirement	Status	Comments
		(b) co-ordinate the blasting on site with the of blasting at the Moolarben and Wilpinjong mines to minimise the cumulative blasting impacts of the mines; and	Compliant	Section 3.7.4 of the Blast MP outlines the procedures for coordinating blast times. Blasting times are to be coordinated with MCM and WCPL via emails from the Drill & Blast Engineer. The 3 mines share emails 14 days in advance to ensure that no blasting is scheduled at the same time. HB viewed example email from 25/02/15. This included the proposed time, blast map and possible road interactions. HB also viewed example of a change of firing time dated 13/02/15. UCML hold Environment & Community Joint Meetings with Moolarben Coal Mine (MCM) and Wilpinjong Mines (WCPL). HB viewed meeting minutes dated April 2013. HB also viewed an example of an Agenda for one of these joint meetings dated 17/09/15. This confirmed that blast management is formally raised at these meetings.
		(c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Director-General.	Compliant	As outlined in Section 3.7.1 of the Blast MP the Drill & Blast Engineer maintains the UCML Blast Contacts Register and contacts each person on the register at least 24 hours prior to the scheduled time of blasting. UCML also operate an Environmental Hotline which is advertised regularly in the local papers and on their website.
Blast Management Plan	16.0	The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Director-General. This plan must:		
		(a) be prepared in consultation with EPA and Council, and submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010;	Complaint	Previous audit confirmed required consultation undertaken and draft Blast MP submitted to DP&E for approval prior to required date. HB viewed a letter from DP&E to UCML approving the current version of the Blast MP in a letter dated 23/03/16. The management plan was provided to MWRC for consult on 15/07/14 and the EPA on 8/8/14 (no responses received).

Section	Sub-section	Requirement	Status	Comments
		(b) describe the blast mitigation measures that would be implemented to ensure compliance with conditions 10-15 of this schedule;	Compliant	Section 3 of Blast MP provides a blasting checklist which outlines the standard protocol and/or items to be followed by UCML's open cut contractor for both pre-blasting and post-blasting considerations. Section 3.8 of the Blast MP states that blasting exceedances will be used to amend blasting design and procedures to reduce the potential for future blasting exceedances.
		(c) describe the measures that would be implemented to ensure the public can get up-to-date information on the proposed blasting schedule on site;	Compliant	Section 3.7 of the Blast MP describes UCML's notification of blasting (including time and location) provided to specified neighbouring stakeholders by phone or email prior to each blast occurring. Section 3.7 of the Blast MP describes UCML's blast information line, which is maintained 24hrs a day, 7 days a week and provides information about all surface blasting activities at the Ulan complex. Section 3.7 of the Blast MP states that UCML's open cut contractor will update the blast notification boards locate at the security gates at both the entrance to the Ulan surface operations and the Ulan no.3 underground operations.
		(d) include a blast monitoring program to evaluate the performance of the project; and	Compliant	Section 3.6 of the Blast MP states blast monitoring is only undertaken for the open cut mining areas (Ulan West Box Cut and Open Cut Extension), however if blasting is to take place at the Bobadeen Basalt Quarry, UCML will undertake monitoring at the property boundaries and nearest residential receptor. No blasting was undertaken at the quarry during the audit period. Section 3.7 of the Blast MP states all blasts will be monitored with performance reviewed against the criteria and modelled impacts in the EA to inform future blast design.

Section	Sub-section	Requirement	Status	Comments
		(e) Include a protocol that has been prepared in consultation with the owners of the Moolarben and Wilpinjong mines for minimising and managing the cumulative blasting impacts of the mines.	Compliant	Section 3.7 of the Blast MP states that UCML's open cut contractor will notify MCM and WCM of scheduled blasts 48hrs prior to scheduled time. If there is no conflict, no further correspondence will be entered into. If there is conflict, further discussion will take place to ensure blasts are considerably apart to reduce the potential for cumulative impacts. The 3 mines share emails 14 days in advance to ensure that no blasting is scheduled at the same time. HB viewed example email from 25/02/15. This included the proposed time, blast map and possible road interactions. HB also viewed example of a change of firing time dated 13/02/15.
		Note: The effectiveness of the Blast Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).		Section 6 of Blast MP states that the document will be reviewed as required throughout the life of the Project or as otherwise directed by the Director-General. The plan has recently been reviewed with the changes and updated plan approved by DP&E on 23/03/16.
SCHEDULE 5				
ACCESS TO INFORMATION	10.0	Within 1 month of the date of final Orders being made by the Land and Environment Court proceedings No. 10998 of 2010, the Proponent shall:		
		(a) make copies of the following publicly available on its website:		
		the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;	Administrative non-compliance	Confirmed available on UCML website. Two instances of noise monitoring results not completely reported (June 2015 and December 2015 monitoring reports). Original consultant reports are complete. Three instances of blast monitoring results not correctly reported (September 2013, December 2013, March 2014 monitoring reports). Overpressure results from one monitor were reported for both monitors. Original data does not show this fault.

Surface Water Audit Review Report

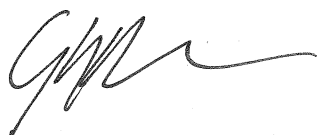
Surface Water Audit

Ulan Coal Mine

Hansen Bailey

0952-02-C1, 6 June 2016

For and on behalf of WRM Water & Environment Pty Ltd
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NOTE: This report has been prepared on the assumption that all information, data and reports provided to us by our client, on behalf of our client, or by third parties (e.g. government agencies) is complete and accurate and on the basis that such other assumptions we have identified (whether or not those assumptions have been identified in this advice) are correct. You must inform us if any of the assumptions are not complete or accurate. We retain ownership of all copyright in this report. Except where you obtain our prior written consent, this report may only be used by our client for the purpose for which it has been provided by us.

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1 Introduction

1.1 OVERVIEW

WRM Water & Environment Pty Ltd (WRM) has been requested to assist with the surface water aspects of the Ulan Coal Mine (UCML) independent environmental compliance audit for the Department of Planning and Environment (DPE). The audit is required to meet the requirements outlined in Schedule 5 (condition 8) of the UCML Project Approval (PA) 08_0184 and covers the period between 1 July 2013 and 31 December 2015.

UCML provided several documents for the audit. These documents have been reviewed to assess compliance with their licence conditions and their commitments. An assessment of UCML's compliance with the licence conditions and commitments is attached. Outlined below are comments on the suitability of the plans to protect the environment including an assessment of licenced discharge points water quality results against the compliance requirements.

1.2 DOCUMENTS REVIEWED

The following documents and plans have been provided for the review:

- The Environmental Protection Licence (EPL) 394 dated 22 March 2013 covering the period to 31 March 2014 and the revised EPL dated 28 January 2015 covering the period after 31 March 2014
- Project Approval PA 08_0184 incorporating MOD 2
- ULN SD PLN 0017 Water Management Plan (Version 5 & 6)
 - ULN SD PLN 0054 Goulburn River Diversion Remediation Plan (Version 6) (Glencore, 2013)
 - ULN SD PLN 0057 Surface Water and Groundwater Response Plan (Version 5 & 6)
 - ULN SD PLN 0025 Erosion and Sediment Control Plan (Version 6 & 7)
 - ULN SD PLN 0055 Surface Water Monitoring Program (Version 4 & 5)
- Ulan Coal Environmental Assessment (Umwelt, 2009) including:
 - Surface Water Assessment Summary
 - Section 6 -Statement of Commitments
 - Appendix 7 Surface Water Assessment
- 2013, 2014, 2015 Annual reviews
- ULN SD PLN 0103 Longwalls 1&2 Subsidence Management Plan and Extraction Plan
- ULN SD ANN 0064 Subsidence Monitoring Program Longwall 1&2

2 Assessment of compliance

2.1 ENVIRONMENT PROTECTION LICENCE CONDITIONS

EPL 394 currently contains six licensed discharge points (LDP) and three licensed monitoring points (LMP) as follows:

- LDP1 Effluent Storage Dam (to land);
- LDP2 Millers Dam;
- LDP3 Rowans Dam to Ulan Creek;
- LDP4 Truckfill Dam to Unnamed Watercourse;
- LDP6 Bobadeen Water Treatment Facility (WTF) to Ulan Creek;
- LMP18 Goulburn River Downstream;
- LDP19 North West Sediment Dam to Ulan Creek;
- LMP23 Ulan West Box Clean Water Diversion; and
- LMP33 Goulburn River upstream.

The EPL stipulates both volumetric and water quality limits of releases from the LDPs. However, the LDP6 and LDP 19 electrical conductivity (EC) concentration limits in the EPL are not clear. The EPL specifies 50th percentile and a 100th percentile concentration limits for EC at LDP6 and LDP 19 and requires continuous monitoring during releases. The EPL does not specify the timeframe that the percentile values are to be calculated, which makes it difficult to determine whether UCML have complied with their EPL. This timeframe requires clarification in the EPL (by EPA).

Given that continuous (instantaneous) monitoring is undertaken, it would be assumed that all instantaneous values recorded at any time during the day must be below the 100th percentile value. UMCL only report daily average concentrations of releases in their annual report and as such, it is not possible to determine whether the instantaneous releases have complied with the EPL from the annual report. It has however reported breaches of the 100th percentile value when they have occurred.

The EPL is less clear as to how the 50th percentile release criteria is to be achieved as no timeframe has been provided in the EPL to calculate compliance. That is, it is not clear whether releases have to meet the 50th percentile criteria of each day, month or year.

UCML assess compliance with the 50th percentile criteria from an analysis of average daily concentrations of releases made over the year, which appears reasonable as this is effectively limiting the annual salts loads. If this is the intent of the EPL, then further clarity could be achieved by limiting the annual (or daily) loads in condition L3.1 and removing the 50th percentile concentration limit in L2 from these discharge points.

2.2 SURFACE WATER DISCHARGES

For the purpose of this review, the average daily concentrations have been used to assess compliance with the 100th percentile limits and the January to December period have been used to assess compliance with the 50th percentile limits. That is, 50% of the average daily concentrations over the year must be below the 50th percentile limit.

Note that changes to the EPL water conditions occurred over the audit period in 18 September 2014 (Licence Variation No. 1524598) and 22 December 2014 (Licence Variation No. 1527455). The most significant change relates to the removal of the concentration limit from the lower Goulburn monitoring site (LMP19), which appears to have occurred

because of the frequency of exceedances that occurred that were not the result of a UCML release. It appears that the 50th and 100th percentile conductivity limits for licence points 6 and 19 were lowered to account for the removal of LMP18 concentration limit, which is reasonable.

A review of the available water quality data from the 2013, 2014 and 2015 annual reviews showed the following:

- There were no releases from LDP1, LDP2, LDP3 and LDP4 over the audit period;
- Releases from LDP6 satisfied the quality and quantity conditions in the EPL.
- Releases from LDP19 satisfied the quality and quantity conditions in the EPL. One minor non-compliance occurred on 21 May 2013 when LDP19 exceed the 100th percentile criteria of 1,000 $\mu\text{S}/\text{cm}$. A fault occurred on the automation network system known as 'devicenet'. The fault resulted in a plant shutdown with the blended water outlet valve remaining in its last known position which was open, allowing approximately 0.036 mega litres (ML) of blend water to discharge to LDP 19. The blended water outlet valve, whilst designed for fail safe operation (i.e. valve to close) for fail scenarios did not close under this specific fault scenario. The 24 average EC remained within limits, 795 $\mu\text{S}/\text{cm}$ for 21 May 2013. A PRP action was issued by the EPA and the device net design was modified to ensure it 'fails to safe' in all modes of operation.
- Minor exceedance of the EC threshold occurred at LMP18 on several days over 2013 and 2014. Investigations found that the exceedances were not due to UCML releases. The exceedances were reported to EPA. The LMP18 EC compliance limit was removed from the EPL in 31 March 2014 with LDP EC thresholds reduced at the same time.

2.3 SURFACE WATER LICENCES

UCML have a water access licence (WAL) No. 19047 issued under the *Water Management Act 2000* and its subordinate legislation *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009* to extract up to 600 units of water from the Upper Goulburn River water source. They also have a valid water supply works approval (20WA209953) for the Overshot Dam and associated water supply pump on Moolarben Creek to access this water. UCML advised that they have not drawn water from the dam over the audit period.

Condition 5 of the water supply works approval requires UCML to continually release at a flow rate of 7l/s from the dam unless inflows are lower than 7l/s. UCML advised that a water level probe has been installed downstream of the dam to monitor releases and that releases have been complied with. The remote monitoring equipment from the dam was temporarily down at the time of the inspection. Long term data from this site has not been reviewed.

With regard to unregulated take, UCML has calculated that they currently have Harvestable Rights for 1,088ML which is well in excess of their take of 79ML.

2.4 BASEFLOW OFFSET AND MONITORING

The loss of baseflow associated with lowering the groundwater levels has been assessed by the groundwater consultant.

Goulburn River baseflow losses (currently estimated to be 0.05 ML/d) are offset by licensed discharges of 15ML/day via LDP 6 (Bobadeen) and LDP 19 Ulan Underground. The alternative method of offsetting baseflow losses via discharges to the Goulburn River have not been approved by the Secretary.

It is recommended that UCML seek approval from the Secretary regarding the alternative solution. It is also recommended to commence seeking a long term solution to the loss of baseflow prior to the next audit.

2.5 WATER MANAGEMENT PLAN

The Ulan Coal Water Management Plan satisfies the requirements of the project approval. Some comments on the Water Management plan with respect to water management are given in the following sections.

2.5.1 Surface water management

UMCL Water management plan details the general principles and objectives of the surface water system. The surface water management system is generally sufficient at meeting the objectives of the water management plan. However, a recent study commissioned by UCML (Arkhil, 2015) to assess the performance of the various mine water storages identified a number of issues that require action. A discussion of these issues is given below:

- The open cut clean water drain, which collects clean water runoff from the undisturbed catchment to the west of the open cut mining areas, is currently diverted into the sediment dams within the disturbance footprint. These sediment dams may not have been designed for this additional catchment and therefore could potentially be overwhelmed and not function as designed for the catchment they are supposed to treat. The clean water drains have been in place for a number of years and should be diverted off site as soon as water quality data demonstrates that there is minimal environmental harm.
- The Peanut Dam is the final polishing sediment dam that collects runoff from the rehabilitated and partially rehabilitated areas of the Ulan surface operations. It also collects runoff from the diverted open cut clean water drain catchment. The Peanut Dam is thought to seep to the underground via existing sink holes on the edge of the dam. Although the volume of seepage is not known, it is potentially not consistent with the water management principles of separating water based on source.
- The Peters Dam and Wrights Dam are mine water dams that collect runoff from hardstand and coal stockpile areas. They are not a licensed discharge points for mine affected water but have the potential to overflow to the Goulburn River every 5 years on average. The potential for environmental harm of overflows from these catchments are not known. However, UCML need to demonstrate that there is no risk of overflow, or undertake works to reduce the likelihood of overflows.

It is understood that UCML are considering the recommendations in the draft report. However, no actions have been undertaken to date. It is noted that the report has been available in draft form since August 2013 with the final version provided in March 2015.

2.5.2 Water balance

UCML have a spreadsheet based water balance model that is used on an ongoing basis for operational management and is reported in annual review. The spreadsheet model appears to incorporate the main inflows and outflows in the system to determine the overall site water inventory.

2.5.3 Reverse osmosis treatment plant waste management

UCML currently manage the salt waste generated from the reverse osmosis treatment plant on-site by using it in coal washing or for dust suppression with the water balance model shown to demonstrate that there is no long term build-up of salts on the site.

The water treatment plant generates small volumes of iron and manganese, which is currently stored in containers. A long term strategy for the disposal of the waste has not yet been developed however it is noted that this is the focus of a PRP under their current EPL.

2.5.4 Bobadeen irrigation scheme and salinity offset scheme

UCML operate the Bobadeen Irrigation scheme to use some of the excess water generated on site. The scheme is operated under a management plan that was developed in 2005 and includes a scheme to offset the additional salt loads to the Talbragar River catchment.

The UCML water balance model tracks the salt loads to the Bobadeen irrigation scheme and is reported in the annual reports.

2.5.5 Surface water monitoring program

The annual reviews show that surface water monitoring is undertaken in accordance with the surface water monitoring program. The surface water monitoring program has been updated in recent years to enable an increased number of water quality samples from the surrounding creeks. Samples are now collected on an event basis and some sites have been updated to collect samples automatically as well as allow stream flows to be measured. The monitoring program could be further improved by including an approximate (or actual) flow rate when a sample is taken.

2.5.6 Erosion and sediment control plan

The erosion and sediment control plan (ESCP) has been developed to be consistent with the conditions of approval and includes the general principals and objectives that are to be achieved. It relies on the use of local plans that specifies the measures that are to be used for each area. UCML provided a local plan for the Goulburn River Diversion Rehabilitation plan, which appeared to satisfy the objectives of the ESCP.

There remains an inconsistency in the water management plan relating to the definition of the on-site storages. The Water Management Plan defines mine water as water from coal stockpiles areas etc. However, several of the on-site water storages including Peters Dam, Wrights Dam, Truck Fill Dam, Rail Loop Sump, Car Wash Dam and Shearers Dam have been labelled as dirty water dams. These dams should not be managed as dirty water dams under the ESCP.

2.5.7 Surface and groundwater response plan

The Surface and Groundwater Response Plan is satisfactory.

2.5.8 Subsidence management and stream health monitoring

UCML are monitoring and reporting the stream health associated with mine subsidence in accordance with the Subsidence Management Plan. An inspection of a tributary of Ulan Creek that had been subsided by Ulan West LW1 (near survey line UW-B) generally concurred with the results in the annual review (Ulan West Flow Line 2). That is, there were no obvious signs of subsidence induced surface cracks.

2.5.9 Goulburn River Diversion

The approved Goulburn River Diversion Remediation Plan (GRDRP) has commenced at Pilot Area 3. The works appear to be constructed in accordance with the plan. However works are currently almost 2 years behind the schedule given in the plan.

3 Recommendations

The following surface water issues were identified by the audit:

- The LDP6 and LDP 19 EC concentration limits in the EPL require clarification with the EPA. The EPL specifies 50th percentile and a 100th percentile concentration limits for EC at LDP6 and LDP 19 and requires continuous monitoring during releases. The EPL does not specify the timeframe that the percentile values are to be calculated, which makes it difficult to determine whether UCML have complied with their EPL. This timeframe requires clarification in the EPL.
- Assuming the 100th percentile limit is based on an instantaneous reading, releases have mostly been compliant with this condition. One minor non-compliance occurred on 21 May 2013 when 0.036 mega litres (ML) was released from LDP19 that exceeded the limit. A PRP action was issued by the EPA for this event.
- UCML assess compliance with the 50th percentile criteria from an analysis of average daily concentrations of releases made over the year, which appears reasonable as this is effectively limiting the annual salt loads. If this is the intent of the EPL, then further clarity in the EPL could be achieved by limiting the annual (or daily) loads in condition L3.1 and removing the 50th percentile concentration limit in L2 from these discharge points.
- UCML should seek approval from the Secretary regarding the current method of offsetting the Goulburn River baseflow losses. It is also recommended to commence seeking a long term solution to the loss of baseflow prior to the next audit.
- The Ulan Coal Water Management Plan satisfies the requirements of the project approval. Some comments on the Water Management plan with respect to water management are given below:
 - The open cut clean water drain is currently diverted into the sediment dams within the disturbance footprint. The drain should be diverted off site as soon as water quality data demonstrates that there is minimal environmental harm.
 - The Peanut Dam is thought to seep to the underground via existing sink holes on the edge of the dam. Although the volume of seepage is not known, it is potentially not consistent with the water management principles of separating water based on source.
 - The Peters Dam and Wrights Dam are mine water dams that have the potential to overflow to the Goulburn River every 5 years on average. UCML need to demonstrate that there is no environmental harm associated with an overflow, or undertake works to reduce the likelihood of overflows from these dams.
 - The water treatment plant generates small volumes of iron and manganese, which is currently stored in containers. A long term strategy for the disposal of the waste should be developed.
 - The surface water monitoring program has been improved since the last audit. The monitoring program could be further improved by including an approximate (or actual) flow rate when a sample is taken.
 - The water management plan should clarify the definition of the on-site storages. Dams that drain coal stockpiles areas should be defined as mine water storages.

Groundwater Audit Review Report



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Memorandum

Project number G1816

To Daniel Sullivan

Company Hansen Bailey

From Claire Stephenson

Date 06/06/2016

RE **Independent Environmental Audit – Groundwater
Ulan Coal Mine Limited**

1 Introduction

Ulan Coal Mine Complex is operated by Ulan Coal Mines Limited (UCML), which is a joint venture between Glencore Coal Assets Australia (Glencore) and Mitsubishi Development. The Ulan Mine is located in the central west of New South Wales near the town of Ulan, which is approximately 38 km north-northeast of Mudgee. The Ulan Coal Mine Complex is within EPL 394, and was first assessed under Part 3A of the EP&A Act 1979 and approved on the 15th November, 2010 (PA 08_0184).

An Independent Environmental Audit is being coordinated by Hansen Bailey for the Ulan Coal Mine, on behalf of Glencore New South Wales. The period to which this Audit applies is from 1 July 2013 to 30 December 2015 (the audit period). Australasian Groundwater and Environmental Consultants Pty Ltd (AGE) have been engaged by Hansen Bailey, to review the performance of the project for groundwater, and to:

- assess whether Ulan Coal are complying with the requirements stipulated within the Environmental Assessment (EA) and any relevant Environment Protection Licence (EPL) or Mining Lease (ML);
- review the adequacy of strategies, plans or programs in addressing groundwater issues; and
- recommend, if required, any appropriate measures or actions to improve the environmental performance of the project.

1.1 Project description

The Ulan Coal Mine includes an open cut and underground longwall mine. The mine targets the Illawarra Coal Measures that consist of sequences of coal seams, sandstones, mudstones and conglomerates. The coal measures dip at approximately 1° to the northeast, and show structural deformation from igneous intrusions in the Gulgong area to the southwest, and the Liverpool Ranges to the northeast (MER, 2009). The coal measures are overlain by Quaternary / Tertiary valley deposits, with thicker sequences localised along the Goulburn River, Ulan Creek and Talbragar River.

1.2 Scope of audit

Groundwater management requirements stipulated within the project approval for UCML are addressed under the following management plans:

- Water Management Plan (incorporating the Site Water Balance) (UCML Document ULN SD PLN 017) – Addresses project approval Condition 34 & Condition 35;
- Groundwater Monitoring Program (UCML Document ULN SD PLN 056) – Addresses project approval Condition 39; and
- Surface and Ground Water Response Plan (UCML Document ULN SD PLN 057) – Addresses project approval Condition 40.

Review of each of the management plans is included within Section 1.3.

In addition, under Schedule 5 (Environmental management, reporting and auditing) of the project approval, Ulan Coal is required to conduct an independent environmental review by the end of June 2013, and every three years thereafter. The audit must:

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

Note: This audit team must be led by a suitably qualified auditor and include experts in any field specified by the Secretary.

Project approval was granted for the Ulan Coal – Continued Operations Project by the Minister for Planning on 10 November 2010 for Modification 2 and March 2016 for Modification 3 (PA 08_0184). MOD 3 as granted in March 2016 occurs outside of the audit period and therefore has not been considered as part of this IEA.

Requirements under the project approval include:

34. *The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Secretary. This plan must:*

- a) be prepared in consultation with EPA, DPI Water, DRE and Council by suitably qualified and experienced persons whose appointment has been approved by the Secretary;*
- b) be submitted to the Secretary for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010); and*
- c) include:*
 - *a Site Water Balance;*
 - *the Goulburn River Diversion Remediation Plan;*
 - *an Erosion and Sediment Control Plan;*
 - *a Surface Water Monitoring Program;*
 - *a Groundwater Monitoring Program; and*
 - *a Surface and Ground Water Response Plan.*

Note: The effectiveness of the Water Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).

35. *The Site Water Balance must:*

- a) include details of:*
 - *sources and security of water supply;*
 - *water use on site;*
 - *water management on site;*
 - *off-site water transfers; and*
- b) describe what measures would be implemented to minimise potable water use on site water use on site.*

39. *The Groundwater Monitoring Program must include:*

- a) detailed baseline data of groundwater levels, yield and quality in the region, and particularly any groundwater bores, springs and seeps (including spring and seep fed dams) that may be affected by mining operations on site;*
- b) a program to augment the baseline data over the life of the project;*
- c) groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;*
- d) a program to monitor and/or validate:*
 - *groundwater inflows to the open cut and underground mining operations;*
 - *the impacts of the project on:*
 - *the alluvial, Triassic, coal seam and interburden aquifers;*
 - *base flows to the Goulburn and Talbragar Rivers and associated creeks;*
 - *any groundwater bores, springs and seeps on privately-owned land;*
 - *the “Drip”;* and
 - *riparian vegetation along the Goulburn and Talbragar Rivers and associated creeks;*
 - *the seepage/leachate from any tailings dams, water storages or backfilled voids on site; and*
- e) a program to calibrate and validate the groundwater model for the project, and calibrate it to site specific conditions.*

Note: The program to monitor and/or validate the impacts of the project on the “Drip” will need to be prepared and implemented in collaboration with the owners of the Moolarben coal mine.

40. *The Surface and Ground Water Response Plan must describe what measures and/or procedures would be implemented to:*

- a) respond to any exceedances of the surface water, stream health, and groundwater assessment criteria;*
- b) offset the loss of any base flow to the Goulburn and/or Talbragar Rivers and/or associated creeks caused by the project;*
- c) compensate landowners of privately-owned land whose water supply is adversely affected by the project; and*
- d) mitigate and/or offset any adverse impacts on riparian vegetation.*

Review of these commitments is summarised in Table 3.1 of Section 3, and each of the commitments are further discussed in Section 3.1 to Section 3.10.

1.3 Documents reviewed

Numerous reports were reviewed as part of the groundwater audit, which include routine monitoring reports and revised groundwater assessments and plans. During the review period there were no revisions to mine plan approvals. UCML also revised the groundwater monitoring plan (GWMP) in 2015.

Documents reviewed include (but were not limited to):

- Groundwater monitoring program:
 - GWMP active from 2011 to November 2015: Umwelt (2011)¹; and
 - GWMP active from November 2015: Umwelt (2015)².
- Water management plans:
 - Umwelt (2011)³; and
 - Ulan Coal Mines Limited (2015)⁴.
- Surface Water and Groundwater Response Plan (SWGRP) – 2011⁵ and 2016⁶;
- Groundwater model recalibration reports:
 - Mackie Environmental Research (2010)⁷;
 - Mackie Environmental Research (2013)⁸; and
 - Mackie Environmental Research (2015)⁹.
- Annual groundwater reviews:
 - 2015 groundwater annual review: Coffey (2016)¹⁰;
 - 2015 annual review of 'The Drip' monitoring: Mackie Environmental Research (2016)¹¹;
 - 2014 groundwater annual review: Coffey (2015)¹²;

¹ Umwelt Environmental Consultants 2011, 'Groundwater Monitoring Program', prepared for Ulan Coal Mines Limited, ULN SD PLN 0056, July 2011.

² Umwelt Environmental Consultants 2015, 'Groundwater Monitoring Program', prepared for Ulan Coal Mines Limited, ULN SD PLN 0056.

³ Umwelt Environmental Consultants 2011, 'Water Management Plan', prepared for Ulan Coal Mines Limited, ULN SD PLN 0017, July 2011.

⁴ Ulan Coal Mines Limited 2015, 'Water Management Plan', document ULN SD PLN 0017, November 2015.

⁵ Umwelt 2011, 'Surface Water and Groundwater Response Plan', prepared for Ulan Coal Mines Limited, document ULN SD PLN 0057, July 2011.

⁶ Ulan Coal Mines Limited 2016, 'Surface Water and Groundwater Response Plan', document ULN SD PLN 0057, March 2016.

⁷ Mackie Environmental Research 2010, 'Regional Groundwater Model Recalibration', as Attachment E – Groundwater Monitoring Results, in UCML (2010) *Annual Environmental Management Report – 1 November 2009 – 31 October 2010*, Ulan Coal Mines Limited.

⁸ Mackie Environmental Research 2013, 'Groundwater model update', prepared for Ulan Coal Mines Ltd, April 2013.

⁹ Mackie Environmental Research 2015, 'Assessment of Groundwater Related Impacts Arising From Modifications to the Ulan West Mine Plan', prepared for Ulan Coal Mines Limited, January 2015.

¹⁰ Coffey 2016, 'Groundwater Monitoring Quarterly Report – December 2015', Attachment D in *Annual Review 2015*, prepared for Ulan Coal Mines Limited, March 2016.

¹¹ Mackie Environmental Research 2016, 'Drip Water Quality Monitoring', in Attachment D *Groundwater Monitoring 2015*, prepared for Ulan Coal Mines Limited.

- 2014 annual review of 'The Drip' monitoring: Mackie Environmental Research (2015)¹³;
 - 2013 groundwater annual review: Coffey (2014)¹⁴; and
 - 2013 annual review of 'The Drip' monitoring: Mackie Environmental Research (2014)¹⁵.
- Quarterly groundwater reviews, all prepared by Coffey;
 - Flow meter calibration sheets (2014); and
 - Community complaints register for 2013, 2014 and 2015.

1.4 NSW Audit Guidelines

The compliance status of each requirement or commitment has been assessed in accordance with the criteria detailed within the NSW Government *Independent Audit Guideline*¹⁶, which is presented in **Error! Reference source not found.** below.

Table 1.1 Compliance assessment criteria

Assessment	Criteria
Compliant	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit.
Not verified	Where the auditor has not been able to collect sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit. In the absence of sufficient verification the auditor may in some instances be able to verify by other means (visual inspection, personal communication, etc.) that a requirement has been met. In such a situation, the requirement should still be assessed as not verified. However, the auditor could note in the report that they have no reasons to believe that the operation is non-compliant with that requirement.
Non-compliant	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent of one or more specific elements of the regulatory approval have not been complied with within the scope of the audit.
Administrative non-compliance	A technical non-compliance with a regulatory approval that would not impact on performance and that is considered minor in nature (e.g. report submitted but not on the due date, failed monitor or late monitoring session). This would not apply to performance-related aspects (e.g. exceedance of a noise limit) or where a requirement had not been met at all (e.g. noise management plan not prepared and submitted for approval).

¹² Coffey 2015, 'Groundwater Monitoring Quarterly Report – December 2014', Attachment D in *Annual Review 2014*, prepared for Ulan Coal Mines Limited, March 2015.

¹³ Mackie Environmental Research 2015, 'Drip Water Quality Monitoring', in Attachment D *Groundwater Monitoring 2014* of *Annual Review 2014*, prepared for Ulan Coal Mines Limited.

¹⁴ Coffey 2014, 'Groundwater Monitoring Quarterly Report – December 2014', Attachment D in *Annual Review 2013*, prepared for Ulan Coal Mines Limited, February 2014.

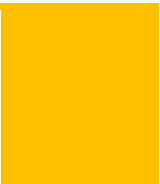
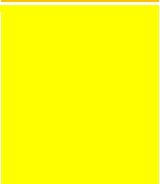
¹⁵ Mackie Environmental Research 2014, 'Appendix G Private Water Bore Survey Database', in Attachment D *Groundwater Monitoring 2013* of *Annual Review 2015*, prepared for Ulan Coal Mines Limited.

¹⁶ NSW Government 2015, *Independent Audit Guideline: Post-approval requirements for State significant developments*, October 2015.

Assessment	Criteria
Not triggered	A regulatory approval requirement has an activation or timing trigger that had not been met at the time of the audit inspection, therefore a determination of compliance could not be made.
Observation	Observations are recorded where the audit identified issues of concern which do not strictly relate to the scope of the audit or assessment of compliance. Further observations are considered to be indicators of potential non-compliances or areas where performance may be improved.
Note	A statement or fact, where no assessment of compliance is required.

Risk levels for any non-compliance items have been identified as stipulated within the NSW Government *Independent Audit Guideline* [Error! Bookmark not defined.](#), which is presented in **Error! Reference source not found.** below.

Table 1.2 Risk levels for non-compliance

Risk level	Colour code	Description
High		Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence
Medium		Non-compliance with: • potential for serious environmental consequences, but is unlikely to occur; or • potential for moderate environmental consequences, but is likely to occur
Low		Non-compliance with: • potential for moderate environmental consequences, but is unlikely to occur; or • potential for low environmental consequences, but is likely to occur
Administrative non-compliance		Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

2 Management and monitoring compliance

Groundwater management requirements stipulated within the project approval for UCML are addressed the Water Management Plan (WMP), Groundwater Monitoring Program (GWMP) and Surface and Ground Water Response Plan (SGWRP). This section provides a high level review of each of these management documents.

Review of the WMP has found that it is compliant and meets nearly all requirements stipulated within Condition 34 and Condition 35 of the project approval. One omission noted within the WMP is the lack of clear reporting protocols for the biennial review of depressurisation of coal measures and comparison of response within aquifer model predictions. This is required under Commitment 6.4.6 of the project approval. While a clear process is not stipulated within the WMP or GWMP, adequate reporting has been conducted in 2013 and 2015.

Both the GWMP and SGWRP have been found to comply with most of the conditions of the project approval. The GWMP details monitoring and review requirements for the existing groundwater monitoring network, which encompasses the key stratigraphic units of alluvium, Jurassic sediments (Purlewaugh siltstone), Triassic sediments (Wollar Sandstone) and Permian coal measures. Proposed development of a monitoring network to assess impacts on “the Drip” is detailed within the GWMP. The 2015 GWMP provides less detail on the location and construction of the proposed piezometers and no longer refers to data sharing with Moolarben Coal Mine.

General water quality triggers based on ANZECC guidelines have been included for private landholder bores within the most recent (2015) GWMP. The 2015 GWMP also recommends collection of adequate baseline data for site-specific triggers into the future. However, the GWMP does not clearly stipulate trigger levels for water quality for the site monitoring network. The GWMP states that site water quality triggers are not in place due to predictions that all overlying strata within the subsidence zone will be dewatered. While this is considered valid, it is noted that groundwater levels are beginning to recover within the mined out panels to the south. With recovery of these groundwater levels it is recommended that changes in groundwater chemistry also be monitored. In addition, the SGWRP would benefit from including details on training staff and protocols for identifying and documenting groundwater related issues that require further action in accordance with the UCML’s TARP process (T – trigger; A – Action; R – response; P – Plan).

Appendix A presents the project approval criteria and indicates where the project is compliant in regards to groundwater specific conditions.

3 Compliance to project approval commitments

Under Appendix 9 of the project approval (PA 08_0184) are the statements of commitments required of UCML. Commitments specific to groundwater are stipulated under Sections 6.4.1 to 6.4.6. Table 3.1 details the individual commitments, the status of compliance, and refers to the sections where assessments of compliance and recommendations have been documented within this report.

Table 3.1 Compliance summary

Section	Commitment detailed within the Project Approval	Assessment	Risk level of non-compliance	Section discussed in report
6.4.1 - a	<i>Continued measurement of groundwater levels, pressures and water quality within the existing regional network of monitoring bores and an expanded network as underground mining progresses to the north and west, specifically considering:</i> <i>depressurisation monitoring of at least three multi-level piezometer strings equipped with vibrating wire transducers (or equivalent) and distributed within the Permian-Triassic strata;</i> <i>strata hydraulic conductivity measurement on rock core obtained at these above noted piezometer locations;</i> <i>daily or more frequent monitoring of pore pressures and piezometric elevations by installed auto recorders in selected new piezometers.</i>	Compliant in regards to site groundwater monitoring and reporting. Compliant in regards to the 2011 GWMP for monitoring at 'The Drip'. Administrative non-compliance in regards to 'The Drip' monitoring program approved in July 2013 and included within the 2015 GWMP. Failure to install proposed VWPs above 'The Drip'. One of the VWPs was recently installed in late 2015 but was not included within monitoring over the review period. The risk level is deemed Administrative as there are no predicted impacts on 'The Drip' based on numerical groundwater modelling and part of the monitoring obligations (testing of groundwater expression) have been completed in accordance with commitments and reviewed by a qualified hydrogeologist. In addition, one multi-level VWP was installed in late 2015, which will in part address this commitment into the future.	Administrative non-compliance	Section 3.1
6.4.1 - b	<i>Mine water seepage monitoring, including:</i> <i>measurement of all water pumped underground and all mine water pumped to surface on a daily basis. Measurement will be undertaken using calibrated flow meters or other suitable gauging apparatus;</i> <i>routine monitoring of coal moisture content delivered from the working face, ventilation humidity and any build up of water storage in the goaf.</i>	Compliant in regards to regular (approximately weekly) monitoring of water levels within the goaf and the use of calibrated equipment; however, the calibration should be undertaken annually. Not verified in regards to documenting the daily pumped volumes and routine monitoring of coal moisture and ventilation humidity. This data was not provided for review; however, provision of this data for the purpose of updating and validating the numerical groundwater model was mentioned within the model recalibration reports (MER, 2013; MER, 2015).	-	Section 3.2

Section	Commitment detailed within the Project Approval	Assessment	Risk level of non-compliance	Section discussed in report
6.4.1 - c	<i>Groundwater monitoring will include:</i> <i>monthly monitoring of basic water quality parameters pH and EC in pumped mine water.</i> <i>six monthly monitoring of pH and EC in the regional monitoring network.</i> <i>annual measurement of total dissolved solids (TDS) and speciation of water samples in selected piezometers to support identification of mixing of groundwater types.</i>	Not verified – water quality data for pumped mine water was not supplied for the audit review. Compliant – the regional monitoring network was tested for pH and EC at the required frequency where the bores were accessible and had sufficient water present for testing. Compliant – selected bores were tested for a full suite of water quality samples to assess changes in groundwater quality.	-	Section 3.3
6.4.1 - d	<i>Graphical plotting of basic water quality parameters and identification of trend lines and statistics including mean and standard deviation calculated quarterly. Comparison of trends with rainfall and any other identifiable processes that may influence such trends.</i>	Compliant – basic water quality parameters were graphically plotted against rainfall and other identifiable processes. Administrative non-compliance – statistics, including mean and standard deviation, were not calculated quarterly. However, the graphical presentation of results and discussion on changing trends is considered more meaningful in the absence of trigger levels to compare these statistics to. As a result, there is considered to be no risk to the environment related to non-compliance in this area.	Administrative non-compliance	Section 3.4
6.4.1 - e	<i>The monitoring network and monitoring programme will be reviewed on an annual basis to determine ongoing suitability and any proposed changes will be discussed in the annual review of monitoring results.</i>	Compliant – the annual reviews described the condition of the bores and provided recommendation for some bores to be repaired over the review period. Six additional bores were also installed over the review period with expansion of the mine.	-	Section 3.5
6.4.2	<i>The results of groundwater monitoring and a comparison of measured and predicted impacts will be reported in the annual review required by project approval conditions.</i>	Compliant – the annual review compares predicted and actual water levels at site monitoring bores. Comparison shows that the model predictions have a good fit or are slightly conservative.	-	Section 3.6

Section	Commitment detailed within the Project Approval	Assessment	Risk level of non-compliance	Section discussed in report
6.4.3	<i>Impacts on the privately owned licensed bores identified in Section 5.3 as being potentially affected, will be assessed by monitoring and in the event that any utilised privately owned bore is significantly adversely affected, an alternative water supply will be provided by UCML until such time as the bore is re-established or replaced, or appropriate compensation established, in accordance with project approval requirements.</i>	Compliant – all identified privately owned bores were monitored at the required frequency where access was granted by the landholder and bores were accessible / not in use. During the monitoring, no private bores were identified as being affected by mining. It has been noted that a private landholder made comment that their bore was affected but did not provide further communication or access to the bore. This was not reported within the formal Community Complaints Register and the TARP process does not appear to have been followed over the review period. However, it is understood a field assessment of the bore is currently being planned with the new owners of the property.	-	Section 3.7
6.4.4	<i>The groundwater monitoring results will be analysed (graphically and statistically) as new results become available i.e. quarterly or six monthly. In addition, a monitoring review and verification process will be established as part of the Water Management Plan process, to verify regional groundwater losses as necessary to refine groundwater mitigation strategies.</i>	Compliant – groundwater monitoring data was analysed as new results became available, and the analysis and results presented within the quarterly and annual groundwater reports. Further work is required in order to assess the construction, status and condition of private landholder bores to ensure predicted impacts are representative.	-	Section 3.8
6.4.5	<i>Identification of any changes or long term trends in groundwater outside the predicted impacts will result in an investigation to determine if the trend is a result of the Project operations and if so, identify management strategies to be implemented to address the identified issues as per UCML's Internal TARP process (T – trigger; A – Action; R – response; P – Plan).</i>	Compliant – the annual review compares predicted and actual water levels at site monitoring bores. Comparison shows that the model predictions have a good fit or are slightly conservative. The TARP process was not triggered as there were no major deviations from model predictions.	-	Section 3.9

Section	Commitment detailed within the Project Approval	Assessment	Risk level of non-compliance	Section discussed in report
6.4.6	<i>Review of depressurisation of coal measures and comparison of responses with aquifer model predictions will be completed every two years. Expert review will be undertaken by a suitably qualified hydrogeologist, and reported in accordance with the process set out in the Water Management Plan.</i>	Compliant – the numerical groundwater model was re-calibrated in 2013 and 2015 by a suitably qualified hydrogeologist (MER).	-	Section 3.10

3.1 Commitments for groundwater, Section 6.4.1-a

Continued measurement of groundwater levels, pressures and water quality within the existing regional network of monitoring bores, and an expanded network as underground mining progresses to the north and west, specifically considering:

- depressurisation monitoring of at least three multi-level piezometer strings equipped with vibrating wire transducers (or equivalent) and distributed within the Permian-Triassic strata;*
- strata hydraulic conductivity measurement on rock core obtained at these above noted piezometer locations;*
- daily or more frequent monitoring of pore pressures and piezometric elevations by installed auto recorders in selected new piezometers.*

Assessment:

Based on details within the 2015 annual groundwater review, the North Monitoring Network (NMN) network currently includes 35 monitoring standpipes at 17 locations, which are monitored quarterly for water level, annually for field water quality (pH and EC), and a subset are monitored annually for laboratory water quality. Three of the standpipes are equipped with data loggers to obtain 6 hourly water level readings (R755A, PZ07C and PZ08C).

The current NMN network of standpipes target the:

- Basalt – 1 standpipe;
- Jurassic sediments – 5 standpipes;
- Triassic sediments – 13 standpipes;
- Permian sediments – 7 standpipes; and
- Permian coal seam (Ulan Seam) – 9 standpipes.

Slight discrepancies have been identified between the annual groundwater reviews and the GWMP (2015), which include:

- Difference in total depth of standpipe PZ07A and PZ28A, but the same screened interval.
- In 2015 review standpipes PZ14A and R753A were noted as being abandoned and destroyed, but are included within the GWMP for ongoing monitoring.
- Standpipe PZ07C, PZ08C and R755A were omitted from all discussion in the 2015 review but is included in the GWMP for ongoing monitoring. The status of this bore is therefore unclear.
- Different coordinates for newly installed VWP (TAL2, UW2 and UW3).

Since 2013, the NMN network has expanded from 64 vibrating wire piezometers (VWPs) at 12 locations, to 66 VWPs at 17 locations. The VWPs are set to take recordings on an hourly or half-hourly basis. However, the data is only assessed based on weekly readings for the quarterly groundwater reviews.

Over the review period, four sensors (1, 2, 4 and 5) at one VWP location (R855) were decommissioned due to erroneous readings. An additional eight VWP sensors at six locations are still suspected of malfunctioning and having erroneous readings (DDH270-2, DDH336-3 and DDH336-7, R894-1, R933-6 and R933-7, R936-3 and R988-1). As documented within the three annual reviews, VWP location DDH247 was also removed from the network, but is classified as operational. It should be noted for future reference that DDH247-1 was previously noted as being erroneous.

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Over the review period VWP's at six locations were installed as part of the NMN network, in order to address monitoring commitments for the Water Management Plan for Longwalls 1 and 2. The initial three VWP's (TAL1, UW1 and UW4) were installed in December 2013, and a further three VWP's (TAL2, UW2 and UW3) were installed in November 2014.

Blockages in nine bores within the NMN were investigated, with three bores (PZ08B, PZ11B and PZ12C) cleared and six bores remaining blocked (PZ07B, PZ09D, PZ10B, PZ11A, PZ12B and PZ14C). The annual reviews include detail on the cause of the blockages, which are largely due to sampling bailers being caught within the standpipe.

The current VWP network targets the:

- Jurassic sediments (Purlewaugh Sandstone) – 3 VWP sensors;
- Quartzose Triassic – 7 VWP sensors;
- Lithic Triassic – 12 VWP sensors;
- Permian sediments (including contact zone with Triassic) – 24 VWP sensors;
- Permian coal seam (IRD and MLB) – 2 VWP sensors;
- Permian coal seam (Ulan Seam) – 13 VWP sensors; and
- Lower Permian sediments – 5 VWP sensors.

As reported in MER (2009)^{Error! Bookmark not defined.} eight exploration borehole locations were hydraulically tested using either a single packer drill stem assembly or a straddle packer assembly, with test intervals varying from 3 m to 6 m. In addition, laboratory tests were conducted on selected cores from two exploration holes. Based on these tests, the vertical and horizontal hydraulic conductivities of the Permian-Triassic strata in over 3 locations were established, as required under *Section 6.4.1 – Commitments for Groundwater*.

Under the GWMP (2011), *Section 4.1.7 The Drip*, one piezometer was proposed upslope of 'The Drip', and two additional VWP's with multiple high sensitivity sensors were proposed to be installed in the area between the Ulan Mine Complex and 'The Drip'. Pore pressure readings were to be analysed on a quarterly basis to validate the prediction of no impact on 'The Drip' due to mining at the Ulan Mine Complex.

In May 2013, Ulan Coal Mines Limited (UCML) proposed an addendum to the original monitoring plan for 'The Drip', due to likely environmental impacts relating to land clearance. The revised monitoring plan was approved by the Department of Planning and Infrastructure on the 13th June 2013 and is included within the GWMP (2015). This includes:

- Two monthly sampling of expressed groundwater at two locations along the cliff face of 'The Drip', with:
 - collection of field parameters for temperature, pH and electrical conductivity (EC);
 - laboratory analysis of major ions (Ca, Mg, Na, K, CO₃, HCO₃, Cl and SO₄) and metals (Al, As, B, Ba, Fe, Fe (soluble), Li, Mn, Se, Si, Sr and Zn); and
 - additional sampling conducted after significant rainfall events.
- Installation of two piezometers within already cleared areas north of 'The Drip', which will:
 - be equipped with pore pressure transducers set at various depths; and
 - readings taken daily, and analysed on a 3 monthly basis.

The 2013 addendum also incorporated collaboration with Moolarben Coal Operations to utilise groundwater data from two existing Moolarben VWP (PZ128 and PZ129). However, this is omitted from the 2015 GWMP and the bores are not reported on by Ulan.

As reported by Mackie Environmental Research (2014, 2015 and 2016), sampling of expressed groundwater at 'The Drip' was conducted by UCML personnel nine times in 2013, seven times in 2014 and eleven times in 2015. The laboratory water quality data was assessed by an experienced hydrogeologist and results visually presented on a Piper Plot to show changes with time. The laboratory results for pH and EC were used in the report; however, due to laboratory holding times, it is recommended that field results for pH be utilised.

As highlighted by MER (2014, 2016), pore pressure monitoring is considered best practice for assessing potential impacts at 'The Drip'. According to the 2015 fourth quarter environmental monitoring summary report (Ulan, 2015) one of the two proposed VWPs was installed above 'The Drip' in late 2015 and will be reported in the 2016 annual review. No further information has been supplied on the location or construction details.

Recommendations:

The groundwater monitoring network meets requirements stipulated under the GWMP (2011) *Section 6.4.1 – Commitments for Groundwater*. It is also noted that the status of bores is now stipulated within the annual reviews. It is recommended that the working condition of the piezometers continue to be regularly reviewed. In addition, the status and description of bores should be consolidated in a central database to ensure consistency between routine reporting and the GWMP.

Regarding 'The Drip', surface expression of groundwater was required to be sampled, and piezometers were required to be installed and monitored within the GWMP (2011) and 2013 addendum. Since 2013, sampling of groundwater expression at 'The Drip' has been conducted in accordance with the 2013 addendum. However, it is recommended that samples of expressed groundwater at 'The Drip' be tested in the field for pH and EC using calibrated equipment, in order to obtain representative results.

Between 2013 and 2015 no piezometers were installed to monitor pore pressures at 'The Drip' as required under the 2011 GWMP and 2013 addendum. However, it is noted that the revised GWMP (2015) states that piezometers are proposed at two locations near the Drip. It is understood that one of the piezometers was installed in late 2015.

Communication and collaboration with Moolarben Coal Operations regarding monitoring of 'The Drip' was not documented over the review period as required under the 2013 addendum. This requirement was later removed from the GWMP (2015). However, collaboration and documentation of this effort is recommended as it will ensure that one strategic monitoring network and program would be established, minimising the environmental impact (land clearance) and optimising groundwater data collection.

3.2 Commitments for Groundwater, Section 6.4.1-b

Mine water seepage monitoring, including:

- *measurement of all water pumped underground and all mine water pumped to surface on a daily basis. Measurement will be undertaken using calibrated flow meters or other suitable gauging apparatus;*
- *routine monitoring of coal moisture content delivered from the working face, ventilation humidity and any build up of water storage in the goaf.*

Assessment:

Under *Section 4.1.2 Groundwater Extraction of the Groundwater Monitoring Program*, the volume of water extracted from the open cut pit and underground mine workings will be monitored on a daily basis. The daily extraction rates or reference to calibration procedures for the flow meters are not referenced within the annual groundwater reviews. However, several flow meters have been installed at pump stations within the open-cut, underground and water storage facilities across the mine area.

Calibration of the flow meters was conducted by Yokogawa in July 2014, which found that the meters generally had a recording error of less than 0.4%. It was indicated by UCML during the previous audit that annual calibration of the flow meters at each pump station would be conducted. Based on the information provided, it appears that in the three years it was only conducted once. However; the small margin of error indicates that all readings taken over the review period can be considered representative.

The 2015 site water balance spreadsheet was provided, which documents volumes of groundwater pumped from the underground workings on a weekly basis over 2015. No further documentation was provided to show daily readings over the three year reporting period. However; provision of site water balance data is referred to within the model recalibration reports (2013 and 2015). In addition, the annual groundwater reviews (Section 9.1 of the reviews) and model recalibration reports (2013 and 2015) compare model inflow predictions to estimated water balance inflows. The results presented within the annual reviews indicate that the predicted inflows are generally conservative compared to the inflow estimates.

According to UCML during the 2013 audit, there was work being undertaken to incorporate real-time differential flow monitoring, which would provide an alarm to indicate either a pipe leak or flow meter problem. No further information about this system has been provided for this audit.

Within the groundwater and surface water monitoring programs, the coal moisture content from the working face has been estimated at 10 %, with no records of measured water content or ventilation humidity. UCML have a central database that documents water levels within the goaf, which have generally been surveyed on a weekly basis over the reporting period.

Recommendations:

It is recommended that:

- if not already done, groundwater abstraction from underground workings should be monitored and documented within a central database for use in water balance and numerical groundwater modelling and annual reviews;
- evidence of consultation with Moolarben Coal in relation to the Drip collated;
- annual calibration of the flow meters be undertaken and documented, with the calibration results reported on in the annual review;
- coal water content be recorded and used within the site water balance calculations; and
- ventilation humidity be recorded and used within the site water balance calculations.

3.3 Commitments for Groundwater, Section 6.4.1-c

Groundwater monitoring will include:

- *monthly monitoring of basic water quality parameters pH and EC in pumped mine water.*
- *six monthly monitoring of pH and EC in the regional monitoring network.*
- *annual measurement of total dissolved solids (TDS) and speciation of water samples in selected piezometers to support identification of mixing of groundwater types.*

Assessment:

Under the EA conditions, there are recommendations for monitoring and assessment; however, the specific bore networks are not clearly stipulated. This is addressed under the GWMP (2015), which details that groundwater levels and water quality will be monitored as follows:

- North Monitoring Network (NMN) – quarterly monitoring groundwater levels and annual monitoring of water quality within regional groundwater systems;
- Bobadeen Monitoring Network (BMN) – quarterly monitoring groundwater levels and water quality of unconsolidated sediments within the upper catchments of Mona Creek, Ulan Creek, and Spring Gully Creek (in the vicinity of the Bobadeen Irrigation Scheme); and
- Pleuger Monitoring Network (PMN) – daily automatic groundwater levels (from current active dewatering stations E20, MG22, MG26, MG27, MG29) or monthly manual groundwater levels (from decommissioned dewatering stations East 6, East 9, East 10, East 15, East 18 and MG21) and water quality fortnightly.

In addition, UCML maintains additional groundwater bores on site that have been used in earlier monitoring programs and are available for future monitoring, if required.

- Alluvium Monitoring Network (AMN) - used to monitor groundwater levels and water quality within the alluvium associated with the Goulburn River or Ulan Creek.
- Goulburn River Diversion Monitoring Network (GRDMN), which is also referred to as Goulburn River Diversion Baseline Assessment Monitoring Network (BRDBAMN) in some documents – used to monitor groundwater levels within the East Pit; in conjunction with the AMN to provide groundwater level data for aquifers associated with the Goulburn River.
- Intermittent Monitoring Network (IMN) – used to monitor groundwater levels and water quality in hardrock strata or mine spoil; provides additional data to complement the NMN monitoring data.

Under the GWMP (2011, 2015), the BMN will be monitored on a quarterly basis for standing water levels, pH and EC. In addition, samples from selected bores within the NMN are to be analysed on an annual basis for pH, EC, temperature, TDS, alkalinity bicarbonate, alkalinity carbonate, dissolved (filtered) metals for Al, Sb, As, Ba, B, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se, Ag and Zn, as well as strontium and lithium, major ions (Ca, Cl, K, Na, Mg and SO₄), nitrates, nitrites, nitrogen ammonia, fluorine and silica. However, the GWMP (2015) has been amended to stipulate bores that will be analysed on an annual basis for water quality, which are detailed in Table 3.2. However, from 2013 to 2015, the then current GWMP (2011) did not identify particular bores that required full water quality analysis.

Table 3.2 details the bores identified for groundwater quality sampling over the reporting period, and the frequency of sampling undertaken. Review of annual groundwater reports indicates that while all identified bores were sampled (where possible), analysis of fluorine was not undertaken. However, it is noted that the samples were tested for fluoride, which is an analyte under the ANZECC water guidelines. The current GWMP (2015) should be reviewed to verify if fluorine or fluoride is required for analysis.

In addition, samples delivered in September 2014 were outside the holding time for nitrate.

Table 3.2 NMN Bores – water quality sampling

Bore	Screened stratigraphy	Hole depth (mbgl)	Water Quality monitoring	2013	2014	2015
PZ01A	Triassic	165	Q & A	Y	Y	Y
PZ04A	Triassic	55	Q & A	Y	Y	Y
PZ06A	Lower PCM	169	Q & A	N	Y	Y
PZ06B	Ulan Seam	159	Q & A	Y	N	Y
PZ06C	Triassic	71	Q & A	Y	Y	Y
PZ07A	Lower PCM	274	Q & A	Y	N	
PZ07B	Ulan-Seam	255	Q & A	Inaccessible	Blocked	Y
PZ07C	Triassic	121	Q & A	Y	Y	Y
PZ08B	Permian	265	-	Blocked	Dry	
PZ08C	Triassic	130	Q & A	Y	Y	Y
PZ09A	Lower PCM	330	Q & A	Y	N	Y
PZ09B	Ulan Seam	310	Q & A	N	Y	Y
PZ09C	Triassic	165	Q & A	Y	Y	Y
PZ09D	Jurassic	80	Q & A*	Blocked	Blocked	Y
PZ10A	Triassic	165	Q & A	Y	Y	Y
PZ10B	Jurassic	46	Q & A	Y	Y	Y
PZ11A	Ulan Seam	175	-	Blocked	Blocked	Y
PZ11B	Triassic	82	Q & A	Y	Dry	Y
PZ12A	Lower PCM	187	Q & A	Blocked / Dry	N	N
PZ12B	Ulan-Seam	172	Q & A*	Blocked	Blocked	Y
PZ12C	Triassic	75	Q & A*	Blocked	Bailer stuck in bore at 52mbgl	Y
PZ13A	Ulan Seam	73	Q & A	Inaccessible	Inaccessible	Inaccessible
PZ14A	Ulan Seam	328	Q & A	N	Inaccessible - Y	Inaccessible - Y
PZ14B	Triassic	182	Q & A	Y	Y	Y
PZ14C	Jurassic	56	Q & A	Blocked	Blocked	Y
PZ24A	Ulan Seam	236	Q & A	Y	N	Y
PZ24B	Triassic	74	Q & A	Blocked - Y	Y	Y
PZ25A	Lower PCM (Marrangaroo)	86	Q & A	Y	N	Inaccessible
PZ25B	Ulan Seam	78	Q & A	N	Y	Inaccessible

Bore	Screened stratigraphy	Hole depth (mbgl)	Water Quality monitoring	2013	2014	2015
PZ26A	Lower PCM (Marrangaroo	265	Q & A	Y	Inaccessible	Inaccessible
PZ26B	Ulan Seam	243	Q & A	Inaccessible	Inaccessible	Inaccessible
PZ26C	Triassic	130	Q & A	Inaccessible	Inaccessible	Inaccessible
PZ26D	Jurassic	22	Q & A	Inaccessible	Inaccessible	Inaccessible
PZ28A	Triassic	130	Q & A	Y	Y	Inaccessible - Y
PZ28B	Jurassic	44	Q & A	Y	Y	Inaccessible - Y
R752	Basalt	46	-	Y	Y	Y
R753A	Triassic	91	Q & A	N	N	N
R755A	Triassic	91	Q	Destroyed (Y - RZ755)	Y	Y
DDH266	3 VWP Units (Various	192	Q - water level only*	N/A	N/A	N/A
DDH270	3 VWP Units (Various	173	Q - water level only*	N/A	N/A	N/A
DDH271	3 VWP Units (Various	156	Q - water level only*	N/A	N/A	N/A
R894	4 VWP Units (Various	261	Q - water level only*	N/A	N/A	N/A
TAL1	5 VWP Units (Various	140	Q - water level only*	N/A	N/A	N/A
TAL2	4 VWP Units (Various	128*	Q - water level only*	N/A	N/A	N/A
UW1	4 VWP Units (Various	67	Q - water level only*	N/A	N/A	N/A
UW3	4 VWP Units (Various	130*	Q - water level only*	N/A	N/A	N/A
UW4	4 VWP Units (Various	122	Q - water level only*	N/A	N/A	N/A

Notes: Y = Yes, water quality sample collected and analysed

- = Not sampled

Q = quarterly field water quality and level monitoring required under the GWMP

A = annual water quality monitoring required under the GWMP

* = bore added to GWMP in 2015

Under the GWMP, the BMN will be monitored on a quarterly basis for pH, EC, acidity, alkalinity, CaCO₃ saturation index, calcium (Ca), chloride (Cl), hardness, iron (Fe), magnesium (Mg), manganese (Mn), potassium (K), sodium (Na), sodium absorption ratio (SAR), sulphate (SO₄) and zinc (Zn). Analysis over the review period is summarised in Table 3.3. It should be noted that the GWMP (2015) does not clearly stipulate if analysis of metals should be for dissolved or total concentrations.

All nine bores within the BMN were sampled and assessed during each sampling round. However, in several cases, the bores were recorded as dry or containing insufficient water to collect a water quality sample. It is noted that the BMN piezometers are constructed to depths of between 1 m to 11.5 m below surface. Several bores that were constructed to less than 3 m depth regularly recorded dry groundwater conditions. In addition, IMW03 is screened with a clayey sand sequence at the base of the hole, which may extend deeper than the holes total depth.

Table 3.3 BMN Water quality analysis conducted – by quarter

Bore	Bore depth (mbgl)	2013				2014				2015			
		1	2	3	4	1	2	3	4	1	2	3	4
IMW01	2.2 (2.5)	D	D	D	D	D	D	D	D	D	D	D	D
IMW02	4.0	Y	Y	Y	Y	Y	*	D	D	Y	*	D	D
IMW03	7.3	D	D	D	D	D	Y	D	D	D	D	D	D
IMW04	2.6	D	Y	Y	D	Y	Y	Y	D	D	D	D	Y
IMW05	11.4 (11.5)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	D	Y
IMW06	7.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IMW07	3.4 (3.5)	Y	Y	Y	Y	Y	D	D	D	Y	Y	Y	D
IMW08	1.0	D	D	D	D	D	D	D	D	D	D	D	D
IMW09	2.7	D	D	D	D	D	D	D	D	D	D	D	D

Notes: 1 = first quarter to the end of March

2 = second quarter, to the end of June

3 = third quarter, to the end of September

4 = fourth quarter, to the end of December

D = dry bore or insufficient sample

Y = sampled

* = water level over 0.5m above base of screen but not sampled

- = not yet reported

Y^o = laboratory EC recorded, no field EC

Bore depth = based on depth recorded in GWMP (2015), brackets denote bore depth as recorded within Coffey (2015) that differs to the GWMP

Under the 2011 and 2015 GWMP, the PMN will be monitored on a monthly to fortnightly basis for water level and water quality of pumped mine water. The 2011 GWMP does not specify particular bores or water quality analysis. The 2015 GWMP provides more detail on monitoring requirements, detailing that water quality analysis includes pH, EC, total alkalinity as CaCO₃, total suspended solids (TSS), sulphates (SO₄) as well as total and dissolved iron and manganese.

Over the review period East 7, East 9, East 10, East 15, East 18, East Pit, PZ30 – PZ34, MG21, MG22 -MG23 (from November 2013) and MG27 (from May 2015) were monitored on a monthly to fortnightly basis. A central database has been established, which records groundwater levels and the change in levels between readings. No water quality results for the PMN have been documented.

The GWMP does not stipulate a required sampling methodology for the above-mentioned water quality monitoring programme. It is considered best practice to sample in accordance with:

- Geoscience Australia (2009) “Groundwater Sampling and Analysis – A Field Guide” (record 2009/27);
- The Australian/New Zealand Standard Water quality – “Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples” (AS/NZS 5667.1:1998); and
- The Australian/New Zealand Standard Water quality – “Sampling, Part 11: Guidance on sampling of groundwaters” (AS/NZS 5667.11:1998).

According to the annual reviews, sampling of the BMN was completed by purging the shallow standpipes and allowing them to recover overnight before collecting the groundwater sample the following day. Sampling of the NMN was conducted by manually purging the bores with a disposable bailer. Between three to six bailed volumes (3 to 6 litres) were removed and the field parameters (temperature, pH and EC) monitored to ensure they stabilise prior to sampling. Further information was provided to specify that in-situ field parameters of temperature, pH and EC were tested by using a multi-parameter Sonde.

Recommendations:

It was observed that groundwater levels were recorded for some bores (i.e. IMW01) that correspond with the bore depth, indicating that the bore was dry. As a result, observations are being misrepresented as stable groundwater levels as opposed to dry bore conditions within annual reporting. It is recommended that the field sampling sheets be amended to ensure total depth of the bore is measured at the time of monitoring. This will help ensure dry bore conditions are identified at the time of sampling.

Review of the lithological logs and drill details for the BMN should be undertaken to assess the viability of the BMN. It is considered likely that several of the bores do not adequately target the local groundwater table, and may need to be removed from the monitoring program. This review should also include identification of additional bore locations that may better represent the local groundwater table around the target creeks (Mona Creek, Ulan Creek, Bobadeen Creek and Spring Gully Creek).

It is recommended that the PMN be tested for water quality as outlined within the GWMP. It is also recommended that the monitoring network be checked to ensure bores are correctly identified and monitored in accordance with the GWMP.

The current method employed for collecting water quality samples from the BMN is considered suitable. The method used for collecting water quality samples from the NMN is unclear and requires further review to ensure representative samples are collected.

3.4 Commitments for Groundwater, Section 6.4.1- d

Graphical plotting of basic water quality parameters and identification of trend lines and statistics including mean and standard deviation calculated quarterly. Comparison of trends with rainfall and any other identifiable processes that may influence such trends.

Assessment:

Review of the quarterly reports against requirements for graphical plotting of water quality parameters, statistical analysis and comparison to natural trends is summarised in Table 3.4 below.

Table 3.4 Quarterly analysis of groundwater quality results

Quarter	Annual period	Quarterly reporting period	Graphical plots	Statistical analysis	Comparison to natural trends
1	1/1/2013 – 31/12/2013	Jan 2013 – Mar 2013	Y (BMN – Appendix D)	Not updated	Y
2		Mar 2013 – Jun 2013	Y (BMN – Appendix D)	Not updated	Y
3		Jun 2013 – Sep 2013	Y (BMN – Appendix D)	Not updated	Y
4		Sep 2013 – Dec 2013	Y (BMN – Appendix D)	Not updated	Y

Quarter	Annual period	Quarterly reporting period	Graphical plots	Statistical analysis	Comparison to natural trends
1	1/1/2014 – 31/12/2014	Jan 2014 – Mar 2014	Y (BMN – Appendix D)	Not updated	Y
2		Mar 2014 – Jun 2014	Y (BMN – Appendix D)	Not updated	Y
3		Jun 2014 – Sep 2014	Y (BMN – Appendix D)	Not updated	Y
4		Sep 2014 – Dec 2014	Y (BMN – Appendix D)	Not updated	Y
1	1/1/2015 – 31/12/2015	Jan 2015 – Mar 2015	Y (BMN – Appendix D)	Not updated	Y
2		Mar 2015 – Jun 2015	Y (BMN – Appendix D)	Not updated	Y
3		Jun 2015 – Sep 2015 (not provided)	-	-	-
4		Sep 2015 – Dec 2015	Y (BMN)	Not updated	Y

Notes: Y = Yes, documented in quarterly report

N = Not documented in quarterly report

Y (BMN) = Only documented in the quarterly report for the Bobadeen Monitoring Network

PCM = Permian Coal Measures

Table 3.4 shows that graphical plots of water quality parameters have been consistently presented for the BMN in all quarterly reports over the review period. In addition, all reports include comparison of trends with rainfall and other identifiable process, such as irrigation. Statistics of water quality results for BMN have not been documented within the quarterly reviews.

Water quality results for NMN are not graphically presented within the quarterly reviews. Statistical analysis of water quality parameters for three of the main stratigraphic sequences (Purlewaugh Siltstone, Wollar Sandstone and Permian Coal Measures) have been reported on, based on results from the NMN. The statistical analysis includes the average, standard deviation and sample population. However; the statistics were not updated over the three year review period, and appear to correlate with results from December 2012.

Recommendations:

It is recommended that the assessment and statistical analysis be undertaken for all key sequences identified within the project approval. This will require future assessment of the alluvium, Permian coal seams and Permian interburden, as well as continued assessment of the Jurassic Purlewaugh Siltstone and Triassic Wollar Sandstone.

In addition, water quality results should be compared against trigger levels, and trends reported on within the Annual Review to ensure any potential impacts on groundwater quality are identified early.

3.5 Commitments for Groundwater, Section 6.4.1- e

The monitoring network and monitoring programme will be reviewed on an annual basis to determine ongoing suitability and any proposed changes will be discussed in the annual review of monitoring results.

Assessment:

In accordance with groundwater commitment 6.4.1-e, three annual groundwater reviews were conducted by a qualified hydrogeologist over the review period. The annual reviews include summary of the groundwater monitoring network and condition of the bores. As discussed in Section 3.1, the NMN comprises 35 monitoring bores at 17 locations and 66 VWP's at 17 locations. The network covers all key lithological sequences.

The annual reviews also detail mine progress over the year and provide a map showing the underground panels. Over the review period, the mine progress involved:

- 2013 – Mining within Underground No. 3 progressed northwards, with active mining in LW27;
- 2014 - Mining within Underground No. 3 progressed northwards, with active mining in LW28. Mining also commenced within Ulan West mine at the eastern-most panel, UW-LW1; and
- 2015 – Mining within Underground No. 3 progressed northwards, with active mining in LW28 and LW29. Mining also continued within Ulan West mine within panels UW-LW1 and UW-LW2.

In order to address monitoring commitment with progression of the mine into Ulan West, VWP's at six locations were installed over the review period (TAL1, TAL2, UW1, UW2, UW3 and UW4). The annual reviews indicate insufficient baseline data was available to determine mine impacts for VWP's TAL2, UW2, UW3 and UW4, as they were only installed in November 2014. The 2015 annual review notes that mine related impacts were not observed within the Triassic sediments and shallow Permian overburden (61mbgl) at newly installed VWP TAL1.

It is noted that UW1 and UW2 are located in close proximity to active mining at UW-LW1 and UW-LW2. As a result, mine related impacts would be expected to occur within the initial years of installation. These two VWP's are well placed to obtain information about the effects of connective cracking and groundwater recovery, but would not provide adequate baseline data to compare impacts. Assessment of groundwater levels within UW1 and UW2 would benefit from comparison to recovered water levels within nearby spent longwall panels. VWP's UW4, TAL2 and TAL1 are suitably placed to obtain baseline data and assess the impact of mine progression towards the west at Ulan West.

One of the two proposed VWP's was installed as part of commitments to monitor 'The Drip'. The VWP was installed in late 2015. Geological details have been provided, but there are no details on the location or construction of the VWP.

The annual review thoroughly describes the extent and status of the groundwater monitoring networks. Recommendations are included within the annual reviews, including:

- 2013 annual review – discusses installation of three new VWP's (TAL1, UW1 and UW4) and plans for three proposed VWP's. The report also provides recommendation to remove blockages within Mesozoic bores PZ09D, PZ11B, PZ12C and PZ14C, as per recommendations within the 2012 annual review.
- 2014 annual review - discusses installation of three new VWP's (TAL2, UW2 and UW3). The report again provides recommendation to remove blockages within Mesozoic bores PZ09D and PZ14C.
- 2015 annual review – no recommendations included.

Actions taken to address the recommendations are not documented within the annual reviews. However, it is noted that bores PZ11B and PZ12C continued to be monitored from March 2014 and bores PZ09D and PZ14C were monitored from 2015.

Recommendations:

There has been improvement in documenting the condition and details of the groundwater monitoring network within the annual groundwater reviews. It is recommended that this work be continued, along with discussion on actions taken / not taken to address previous recommendations to improve / maintain the monitoring network.

With installation of the new VWP near 'The Drip', it is recommended that a qualified hydrogeologist review the location and construction details to ensure it addresses commitments to monitor 'The Drip' within the GWMP.

3.6 Commitments for Monitoring Review and Management Strategy – 6.4.2

6.4.2 *The results of groundwater monitoring and a comparison of measured and predicted impacts will be reported in the annual review required by project approval conditions.*

Assessment:

Commitment 6.4.2 of the project approval has been met for the 2013 – 2015 reporting period. Annual groundwater reviews completed between January 2013 and December 2015 are detailed in Table 3.5. In each case, a discussion of annual groundwater level and quality results, as well as comparison of measured and predicted impacts are documented within the main annual environmental report. Water level and quality data, as well as hydrographs showing the predicted groundwater levels against measured groundwater levels are presented in the appendices.

Table 3.5 Annual groundwater reviews

Reporting period	Completed	Reference	Groundwater monitoring results presented	Comparison of measured and predicted impacts presented
1/1/2013 – 31/12/2013	20/2/2014	Coffey 2014) ¹⁴	Section 5 (NMN), Section 6 (BMN) and conclusions in Section 7	Groundwater levels – Section 8 and Appendix F Predicted inflows - Section 9.1
1/1/2014 – 31/12/2014	3/3/2015	(Coffey 2015) ¹²	Section 5 (NMN), Section 6 (BMN) and conclusions in Section 7	Groundwater levels – Section 8 and Appendix F Predicted inflows - Section 9.1
1/1/2015 – 31/12/2015	24/3/2016	(Coffey 2016) ¹⁰	Section 5 (NMN), Section 6 (BMN) and conclusions in Section 7	Groundwater levels – Section 8 and Appendix F Predicted inflows - Section 9.1 Predicted impact on private bores – Table 1. Appendix G

Recommendations:

Commitment 6.4.2 of the project approval has been met for the 2013 – 2015 reporting period.

3.7 Commitments for Monitoring Review and Management Strategy – 6.4.3

6.4.3 *Impacts on the privately owned licensed bores identified in Section 5.3 as being potentially affected, will be assessed by monitoring and in the event that any utilised privately owned bore is significantly adversely affected, an alternative water supply will be provided by UCML until such time as the bore is re-established or replaced, or appropriate compensation established, in accordance with project approval requirements.*

Assessment:

The GWMP (2013) identified that bore GW034454 was within the predicted 5m drawdown extent, while bores GW047195, GW079745, GW47495 were in the 10m drawdown extent. Of these bores, only bore GW047495 was in a usable condition, and there is confusion in the text describing the bores with drawdown impacts. In the 2013 annual review it is documented that bore GW047495 could not be located during the annual bore survey.

The GWMP (2015) does not identify privately owned bores that may be impacted by mining. It instead states that trigger levels will be adopted based on model predictions for groundwater level decline, with private bore usage factored in when assessing the cause of drawdown.

Within the 2015 annual groundwater review, Appendix G of Attachment D includes a table detailing identified landholder bores and the predicted drawdown range. The table indicates that nine private bores are predicted to have groundwater level drawdowns of over 2m, which are summarised in Table 3.6 below. UCML monitors groundwater levels and water quality on an annual basis at identified landholder bores, where access is granted. Table 3.6 shows the recorded water levels at each bore with predicted drawdown.

Table 3.6 Private bore register and predicted drawdown (Source: Coffey 2016)¹⁰

UCML ID	Bore number or name	Land owner	Bore depth (mbgl)	Lithology	Predicted drawdown (m)	Bore use	Bore status	Measured water level (mboc)		
								2013	2014	2015
PB2	Petzel	Petzel	37.51	Unknown	40-50	Unknown	Unknown	33.93	34.44	32.67
PB8	Mitchell	Geoff Mitchell	~67	Unknown	60-120	Unknown	Unknown	34.67	34.72	34.7
UB3	Jannesse (potentially GW066553)	UCML	>30	Triassic Sandstone	2-5	Domestic	Potentially collapsed	12.2	12.45	6
PB9	GW064580	Mervyn Cundy	70.1	Mesozoic Sandstone	2-5	Stock and domestic	In use	In use	In use	In use
PB11	120Cliff	Jay or John McMaster	>23m	Unknown	5-10	Stock and domestic	In use	-	-	-
PB14	521Cliff (Archer1)	Wallace & Lionel Archer	24	Triassic Sandstone	2-5	Stock and domestic	In use, new pump installed in 2013	9.6	9.84	6.6
PB21	GW066553?	Nigel McGrath	22.19	Mesozoic Sandstone and Coal measures	5-10	Stock and domestic	Unknown	11.18	11.37	-

UCML ID	Bore number or name	Land owner	Bore depth (mbgl)	Lithology	Predicted drawdown (m)	Bore use	Bore status	Measured water level (mboc)		
								2013	2014	2015
PB30	MM01	Formerly McDonald – property sold 2015	70	Unknown	2-5	Stock and domestic	In use	In use	In use	In use
PB32	Kalastien	Kalastien	Unknown	Unknown	2-5	Unknown	Unknown	-	-	-

It is important to note that most of the landholder bores documented within Table 3.6 have limited construction and lithological details documented. In order to predict potential groundwater impacts, the aquifer intercepted by the private bore must be known. This is made difficult with only limited details available for some of the registered bores, and with several bores not having any drillers records available.

No groundwater related complaints were reported over the review period within the Community Complaints Register. However, within the annual groundwater review private bore survey records, it is documented that one landholder (June and Merv Costello) stated that their bore was dry due to the mine in 2012 and 2014. It is understood that UCML undertook works to repair the bore in December 2010; however the bore has not been monitored since due to landholder access restrictions. According to government records, there are no registered bores on the property and the property was sold in late 2015. UCML are currently in discussion with the new landholder (Kalaizis) to conduct an assessment of the bore, which is apparently in use by the new landholder.

The Kalaizis property is located approximately 2km east of active mine panels (LW27 to LW29) at Underground No. 3. The property is within the predicted extent of drawdown for the Permian coal measures (MER, 2013). A monitoring bore was installed (DDH57) between the site and the Kalaizis property in 1997, which was removed from the monitoring network in 2001 due to equipment failure. No replacement bores or VWP's have been installed within this area since, despite progression of Underground No. 3 towards the north.

Recommendations:

It is understood that UCML has been working with DPI Water to develop an approach to adequately identify the location and construction of private landholder bores. It is unknown what the agreed approach entails; however, it is recommended that the bore details be checked in the field to verify the aquifer intercepted by the bore. This information should then be used to update predicted drawdowns for each of the private landholder bores.

It is also recommended that the Kalaizis bore be surveyed and included within the private landholder monitoring program. In addition, it is recommended that a VWP be installed at the location of DDH57 in order to assess the extent of predicted drawdown impacts north-east of Underground No. 3.

Reporting has been improved since 2013, and now includes water level and quality results for the private landholder bores. It is recommended this reporting be maintained for future annual reviews. In addition, there should be direct comparison and discussion on predicted drawdown for each private bore.

It is also recommended that water quality samples be analysed annually for the full suite of analytes, which includes pH, EC, temperature, TDS, alkalinity bicarbonate, alkalinity carbonate, dissolved (filtered) metals for Al, Sb, As, Ba, Bo, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se, Ag and Zn, major ions (Ca, Cl, K, Na, Mg and SO₄), strontium, nitrates, nitrites, nitrogen ammonia, fluorine, lithium and silica.

3.8 Commitments for Monitoring Review and Management Strategy – 6.4.4

6.4.4 *The groundwater monitoring results will be analysed (graphically and statistically) as new results become available i.e. quarterly or six monthly. In addition, a monitoring review and verification process will be established as part of the Water Management Plan process, to verify regional groundwater losses as necessary to refine groundwater mitigation strategies.*

Assessment:

The groundwater monitoring results are analysed on a quarterly basis by a qualified hydrogeologist (Coffey Geotechnics). Groundwater level results have been graphically presented within each quarterly review.

A monitoring review and verification process was established to verify groundwater losses as necessary to refine groundwater mitigation strategies. Within each annual review, the following was documented and assessed:

- groundwater monitoring results;
- any variances from groundwater model predictions;
- any notifications or complaints received from private landowners relating to groundwater issues; and
- any actions required to be taken to mitigate groundwater impacts on privately owned bores.

Recommendations:

While groundwater levels and quarterly changes are documented within the quarterly reports, it is recommended that statistical analysis of groundwater levels also be included (i.e. mean and standard deviation). This will assist with identifying changes in groundwater levels compared to historic groundwater levels.

It is recommended that hydrographs be visually checked to ensure changes in groundwater level for each monitoring point are clearly visible. This includes checking line markers and axis range.

3.9 Commitments for Monitoring Review and Management Strategy – 6.4.5

6.4.5 *Identification of any changes or long term trends in groundwater outside the predicted impacts will result in an investigation to determine if the trend is a result of the Project operations and if so, identify management strategies to be implemented to address the identified issues as per UCML's Internal TARP process (T – trigger; A – Action; R – response; P – Plan).*

Assessment:

The SWGRP details the TARP process for EPL non-compliance (surface water discharge), unauthorised discharge of mine water, impacts on privately owned groundwater bores and variations from groundwater model predictions. The SWGRP was due for review in 2014, and a finalised version of the SWGRP was issued in March 2016 by UCLM⁶. Due to the date of issue, the updated SWGRP is outside of the review period and is not used to assess compliance. However, it is noted that the updated SWGRP shows improvement, with a clear TARP process for privately owned bores and model predictions, as well as inclusion of water quality triggers. Water quality trigger levels are not included within the 2011 SWGRP or GWMP.

As discussed under Section 3.7, no groundwater related complaints were reported over the review period within the register. However, within the annual groundwater review private bore survey records it is documented that one landholder (June and Merv Costello) stated that their bores were dry due to the mine in 2012 and 2014. In accordance with the SWGRP, this constitutes a complaint from the landowner regarding their groundwater bore and should have been documented within the complaints register. It is understood that effort was made to contact the landholder and check the condition of their bore. However, as the complaint was not formally logged within the register there is no clear documentation of the process followed to address the complaint over the review period. As discussed under Section 3.7, UCML are currently in discussion with the new landholder (Kalaizis) to conduct an assessment of the bore, which is apparently in use by the new landholder.

The annual groundwater reviews compare groundwater levels at site monitoring bores and recorded pit inflows, which indicate that model predictions are conservative. As a result, no changes in long term trends in groundwater outside the predicted impacts have been identified.

Recommendations:

It is recommended that all field staff undertaking the private landholder survey be adequately trained on how to record landholder complaints within the register (or providing adequate details for UMCL staff to do so). Staff should also have an understanding of SWGRP TARP to ensure complaints are adequately identified and managed.

3.10 Commitments for Monitoring Review and Management Strategy – 6.4.6

6.4.6 Review of depressurisation of coal measures and comparison of responses with aquifer model predictions will be completed every two years. Expert review will be undertaken by a suitably qualified hydrogeologist, and reported in accordance with the process set out in the Water Management Plan.

Assessment:

There are no clear guidelines on a reporting process for the model recalibration within the Water Management Plan or GWMP. However, the 2011 GWMP stipulates that with recalibration of the numerical groundwater model:

- will be conducted on a two yearly basis by a qualified groundwater consultant;
- the model will be calibrated to groundwater levels and groundwater extraction volumes;
- groundwater levels in privately owned bores will be checked against predicted trends, and where there is a divergence of greater than 10% from the model predictions due to mine impacts and not bore usage, further action will be required in accordance with the SWGWRP;
- verification of predicted baseflow loss from the Goulburn River and Talbragar River systems by comparing to measured depressurisation and flow gauging; and
- revision of trigger levels for privately owned bores based on the recalibrated model.

The numerical groundwater model has been recalibrated with recent water level data on three occasions:

- In 2010 by MER (MER, 2010);
- In 2013 by MER, and reported within Coffey (2013); and
- In 2015 by MER (MER, 2015) as part of the environmental assessment for Modification 3.

Over the review period the model was recalibrated every two years, with the review conducted by a suitably qualified hydrogeologist (Mackie Environmental Research).

The 2013 model re-calibration found that modelled groundwater levels for the NMN had a good fit or were conservatively over predicting mine depressurisation (Coffey, 2013). Mine water balance also indicated that inflows to the underground over 2013 (9.3ML/day) were below predicted inflows of 13ML/day. The annual groundwater reviews present measured water levels at each of the private landholder bores; however, no discussion or analysis of the change in groundwater levels with time has been documented.

Model predictions of groundwater level drawdown and impact on bore usage is greatly influenced by the lithology intersected, screened interval and pump depth. Several of the private landholder bores have unknown lithology and bore / pump details, therefore it is difficult to ascertain how the drawdown was extrapolated from the numerical groundwater model.

Recommendations:

As no reporting process is set out in the Water Management Plan, it is recommended that the two-yearly review (biennial) of depressurisation of coal measures and comparison of responses with aquifer model predictions be completed in accordance with previous reporting conducted by MER. This includes:

- calibrated hydrographs (modelled versus observed groundwater levels);
- revised predicted drawdown extent;
- comparison of predicted groundwater inflows against estimates from the mine water balance; and
- a table detailing predicted drawdown in private bores against observed drawdown due to the project, identifying drawdown due to private bore usage. Installation of flow meters and water level loggers would assist this further.

4 Summary and recommendations

Ongoing groundwater monitoring is largely conducted as prescribed within the GWMP. Review of the water level and quality results has been conducted on a quarterly and annual basis by a qualified hydrogeologist (Coffey Geotechnics) for the last three years. In addition, recalibration of the groundwater model, and review of model predictions against current monitoring data was conducted by a qualified hydrogeologist (MER) on a biennial basis (2013 and 2015) as required under the project approval.

Recommendations to improve the groundwater monitoring programme include:

- For the quarterly groundwater reporting, it is recommended that the reports include:
 - Routinely update statistical analysis of water quality for the alluvium, Permian coal seams (i.e. Ulan Seam) and the Permian interburden, along with continued assessment of the Jurassic Purlewaugh siltstone and Triassic Wollar Sandstone.
 - Statistical analysis (i.e. mean and standard deviation) of the groundwater levels.
- Annual reviews could be improved by including:
 - Recommendations for installation of additional piezometers with mine development and damage to existing piezometers. In addition, document on the status of previous recommendations regarding the monitoring network.
 - Clearly document groundwater sampling procedures undertaken over the reporting year and verify that best practice has been followed with sampling.
- Establish trigger levels for water quality, and tabulate and assess water quality results against the trigger levels to ensure any potential impacts on groundwater quality are identified;

- Update the groundwater monitoring network, including:
 - Review need for additional bores (including VWPs) in the NMN to encompass progression of the mine towards the north and west.
 - Review of lithological logs and drill details for the BMN, to ensure the bores are adequately constructed to target the extent of the unconfined aquifer.
 - Installation of an additional multi-level piezometer at site DDH57 to monitor regional groundwater level changes between the mine and private landholders.
- Improve data collection to:
 - Ensure the full suite of analytes documented in the GWMP continues to be tested for in the annual sampling of the NMN bores, as well as for the landholder bores.
 - Annual calibration of the flow meters be undertaken and documented, with the calibration results reported on in the annual review.
 - Coal water content and ventilation humidity be recorded at least annually, in order to support site water balance calculations.
- Maintain ongoing communication and collaboration with Moolarben Coal Operations regarding monitoring of 'The Drip' to ensure a strategic monitoring network and programme is established. Communications and data sharing should also be clearly documented;
- Review training and procedures in the SGWRP to ensure relevant staff are familiar with required actions under the TARP process;
- Amend the WMP to include a standard reporting process for the biennial review of depressurisation of coal measures and comparison of responses with aquifer model predictions, including:
 - Calibrated hydrographs (modelled versus observed groundwater levels).
 - Revised predicted drawdown extent.
 - Comparison of predicted groundwater inflows against estimates from the mine water balance.

Appendix A

Compliance Summary Sheet

Section	Sub-section	Requirement	Status	Risk rating	Comments
Soil and Water					
Water Licenses	28.0	The Proponent shall obtain all necessary water licences for the project under the <i>Water Act 1912</i> or the <i>Water Management Act 2000</i> .			Addressed by Surface Water Specialist
Baseflow Offsets	29.0	The Proponent shall offset the loss of any baseflow to the Goulburn and Talbragar Rivers caused by the project to the satisfaction of the Director-General. The offset should be affected by the retirement of water entitlements within the catchments of the Goulburn and Talbragar Rivers unless the Proponent can provide alternative means of offsetting baseflow to the satisfaction of the Director-General, in which case the Proponent may offset any losses by those alternative means.			Addressed by Surface Water Specialist

Section	Sub-section	Requirement	Status	Risk rating	Comments
		<i>Note: As at the date of this approval, baseflow losses for the Goulburn River and Talbragar River are modelled as 0.05 ML/day and 0.13 ML/day respectively. Improved or additional hydrological data may lead to amendments to these modelled losses.</i>			
Compensatory Water Supply	30.0	The Proponent shall provide a compensatory water supply to any owner of privately-owned land whose supply is adversely impacted (other than an impact that is negligible) as a result of the project, in consultation with NOW, and to the satisfaction of the Director-General.	Not Triggered		No formal requests from the public have been made in this regard.
		The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply must be provided (at least on an interim basis) within 24 hours of the loss being identified.			
		If the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.			

Section	Sub-section	Requirement	Status	Risk rating	Comments
		If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Director-General.			
Surface Water Discharges	31.0	The Proponent shall ensure that all surface water discharges from the site comply with the discharge limits (both volume and quality) set for the project in any EPL.			Addressed by Surface Water Specialist
Remediation of the Goulbourn River Diversion	32.0	The Proponent shall remediate the Goulburn River Diversion to the satisfaction of the Director-General, in general accordance with the proposed strategy in the EA.			Addressed by Surface Water Specialist
Water Supply to “The Drip”	33.0	The Proponent shall ensure that the project has no impact on the water supply to the “Drip”.	Compliant		Based on the monitoring program in place over the audit period, no impacts on ‘The Drip’ were identified. However, proposed VWP’s required to assess pore pressure changes were not installed over the review period, which were required to gain a full understanding of potential groundwater impacts. One VWP was installed in late 2015, which will provide this information into the future.
Water Management Plan	34.0	The Proponent shall prepare and implement a Water Management Plan for the project to the satisfaction of the Director-General. This plan must:			Addressed by Surface Water Specialist and Hansen Bailey in main audit report

Section	Sub-section	Requirement	Status	Risk rating	Comments
		(a) be prepared in consultation with EPA, NOW, DRE and Council by suitably qualified and experienced persons whose appointment has been approved by the Director-General;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(b) be submitted to the Director-General for approval within 3 months of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010); and			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(c) include: a Site Water Balance;			
		the Goulburn River Diversion Remediation Plan;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		an Erosion and Sediment Control Plan;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		a Surface Water Monitoring Program;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		a Groundwater Monitoring Program; and			Section 4.1 of the WMP Groundwater Monitoring Program dated 21/07/2011 and approved 29/09/2011. Section 5.2 of the WMP Groundwater Monitoring Program effective from 11/11/2015.

Section	Sub-section	Requirement	Status	Risk rating	Comments
		a Surface and Ground Water Response Plan.			Section 3.11 of the WMP Surface and Ground Water Response Plan dated 21/07/2011 and approved 29/09/2011 Section 4.15 of the WMP Groundwater Monitoring Program effective from 11/11/2015.
		<i>Note: The effectiveness of the Water Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).</i>			Section 5 of WMP states the plan will be reviewed as required throughout the life of the Project or as otherwise directed by the Director-General of the DP&I. The plan has recently been reviewed and is with DP&I for approval of the changes made.
	35.0	The Site Water Balance must:			
		(a) include details of: sources and security of water supply;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		water use on site;			
		water management on site;			
		off-site water transfers; and			
		(b) describe what measures would be implemented to minimise potable water use on site.			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
	36.0	Goulburn River Diversion Remediation Plan must include:			

Section	Sub-section	Requirement	Status	Risk rating	Comments
		(a) geomorphic and geotechnical assessment of the existing diversion;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(b) assessment of flood hydraulics of the existing diversion;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(c) staging and timing of remediation works;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(d) detailed design of bed and bank remediation works;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(e) revegetation and rehabilitation methods;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(f) a program to monitor surface water flows, quality, stream health and channel stability; and			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(g) an implementation program.			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
	37.0	The Erosion and Sediment Control Plan must:			
		(a) be consistent with the requirements of the <i>Managing Urban Stormwater: Soils and Construction Manual</i> (Landcom 2004, or its latest version);			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(b) identify activities that could cause soil erosion and generate sediment;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report

Section	Sub-section	Requirement	Status	Risk rating	Comments
		(c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(d) describe the location, function, and capacity of erosion and sediment control structures; and			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(e) describe what measures would be implemented to maintain the structures over time.			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
	38.0	The Surface Water Monitoring Program must include:			
		(a) detailed baseline data on surface water flows and quality in creeks and other waterbodies that could be affected by the project (including the Goulburn River, Talbragar River, Spring Gully, Ulan Creek, Bobadeen Creek, Curra Creek, Mona Creek and Cockbutta Creek);			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(b) a program to augment the baseline data over the life of the project;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		(c) surface water quality and stream health assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts; and			Addressed by Surface Water Specialist and Hansen Bailey in main audit report

Section	Sub-section	Requirement	Status	Risk rating	Comments
		(d) a program to monitor: • surface water flows, quality, and impacts on water users;			Addressed by Surface Water Specialist and Hansen Bailey in main audit report
		• stream health; and			
		• channel stability, in the Goulburn River, Talbragar River, Spring Gully, Ulan Creek, Bobadeen Creek, Curra Creek, Mona Creek and Cockbutta Creek.			
	39.0	The Groundwater Monitoring Program must include:			
		(a) detailed baseline data of groundwater levels, yield and quality in the region, and particularly any groundwater bores, springs and seeps (including spring and seep fed dams) that may be affected by mining operations on site;	Compliant		GWMP Section 3.1.4 states baseline data for the groundwater monitoring program consists of various datasets for historic groundwater quality / levels and groundwater springs and seeps. GWMP (2015) Section 3.0 states baseline data for the groundwater monitoring program consists of various datasets for historic groundwater quality / levels and groundwater springs and seeps.
		(b) a program to augment the baseline data over the life of the project;	Compliant		GWMP (2011 and 2015) Section 3.1.4 states that ongoing monitoring will be used to augment the existing baseline data and to confirm the groundwater model developed for the EA.

Section	Sub-section	Requirement	Status	Risk rating	Comments
		(c) groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;	Compliant		GWMP (2011 and 2015) Section 3.2 describes groundwater assessment criteria, including water quality and water level trigger levels for privately owned and UCML bores.
		(d) a program to monitor and / or validate			
		groundwater inflows to the open cut and underground mining operations;	Compliant		GWMP (2011 and 2015) Section 4.1 outlines UCML's groundwater monitoring program, which monitors groundwater inflows to open cut pit and underground mine workings
		- the impacts of the project on: - the alluvial, Triassic, coal seam and interburden aquifers; - base flows to the Goulburn and Talbragar Rivers and associated creeks; - any groundwater bores, springs and seeps on privately-owned land; - the "Drip"; and - riparian vegetation along the Goulburn and Talbragar Rivers and associated creeks; and	Administrative non-compliance to 2011 GWMP and 2013 addendum. Compliant with 2015 GWMP		GWMP (2011 and 2013 addendum) Section 4.1. While Section 4.1 states that the GWMP monitors impacts on 'The Drip', no piezometers were installed and monitored over the Audit period. The 2015 GWMP has been updated to state that piezometers are proposed at two locations near 'The Drip'. It is understood that one multi-level VWP was installed in late 2015.

Section	Sub-section	Requirement	Status	Risk rating	Comments
		the seepage / leachate from any tailings dams, water storages or backfilled voids on site; and	Compliant		GWMP (2011 and 2015) Section 4.1
		(e) a program to calibrate and validate the groundwater model for the project, and calibrate it to site specific conditions.	Compliant		GWMP (2011 and 2015) Section 4.2.1 describes the groundwater model validation/calibration method
		<i>Note: The program to monitor and / or validate the impacts of the project on the "Drip" will need to be prepared and implemented in collaboration with the owners of the Moolarben coal mine.</i>	Administrative non-compliance to 2011 GWMP and 2013 addendum. Compliant with 2015 GWMP		As above, 'The Drip' monitoring program has been revised and it is understood one multi-level VWP was installed in late 2015. It is understood that the plan was prepared in collaboration with Moolarben however there is no longer mention of collaboration with Moolarben Coal Mine in GWMP (2015) Section 4.1.6. It is recommended that details be included on collaboration with Moolarben Coal Mine in the GWMP, as required.
	40.0	The Surface and Ground Water Response Plan must describe what measures and / or procedures would be implemented to:			
		(a) respond to any exceedances of the surface water, stream health, and groundwater assessment criteria;	Compliant		SWGWR Section 3.1.6 outlines the actions and responses required to deal with exceedance of any trigger levels listed in the SWMP.
		(b) offset the loss of any base flow to the Goulburn and / or Talbragar Rivers and / or associated creeks caused by the project;			

Section	Sub-section	Requirement	Status	Risk rating	Comments
		(c) compensate landowners of privately-owned land whose water supply is adversely affected by the project; and	Not Triggered		
		(d) mitigate and / or offset any adverse impacts on riparian vegetation.			

APPENDIX G
Plates from Site Inspection



Plate 1
USO hard stand area & refuelling bay



Plate 2
Hydrocarbon storage in USO workshop



Plate 3
Truck Fill Dam



Plate 4
Leaking fuel pump at Ulan No 3



Plate 5
Hard stand area well maintained and watered



Plate 6
Rehabilitation 1



Plate 7
Rehabilitation 2



Plate 8
Goulburn River Diversion Remediation Works 1



Plate 9
Goulburn River Diversion Remediation Works 2



Plate 10
Goulburn River Diversion Pilot Works – Erosion from Kangaroo Tracks



Plate 11
Bobadeen Homestead



Plate 12
Bobadeen Homestead



**Plate 13
Old Ulan**