

**INDEPENDENT
ENVIRONMENTAL
COMPLIANCE AUDIT**

**NARRABRI MINE –
PA 08_0144**

June 2014



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Prepared by
Umwelt (Australia) Pty Limited

on behalf of
Whitehaven Coal Limited

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Report No. **3279/R01/FINAL**
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1.0 Introduction

1.1 Narrabri Underground Mine

Whitehaven Coal Limited (Whitehaven) is the leading coal producer in the Gunnedah basin. Whitehaven has three active open cut mining operations, one open cut on care and maintenance, and the Narrabri Underground Mine which is the subject of this independent environmental compliance audit. The Narrabri operation is undertaken by Narrabri Coal Operations Pty Limited (NCOPL), a subsidiary of Whitehaven.

The Narrabri Coal Project – Stage 2 (Project Approval No 08_0144) was approved by the Minister for Planning on 26 July 2010 and included the development and operation of a longwall coal mine involving:

- underground longwall mining and associated surface activities;
- processing, stockpiling and loading of coal;
- emplacement of processing reject and storage of saline water;
- construction and use of a water pipeline from the Namoi River;
- transportation of the coal from the Mine Site to Port Newcastle via train;
- final rehabilitation of surface disturbance following completion of the project; and
- all ancillary and related activities.

The on-site component of the environmental audit was conducted on 15 and 16 October 2013. Some information requested by the audit team was not available on-site at the time of the audit and has subsequently been provided to the audit team for review. This report provides an outline of the audit methodology and results, and provides recommended actions for achieving full compliance with environmental approvals. **Appendices 2, 3, and 4** include detailed checklists of the status of compliance with the conditions of the Project Approval (PA08_0144), Environment Protection Licence (EPL) 12789, Mining Lease 1609 (ML1609) for the project respectively. The audit assessed the compliance status of the Narrabri Mine against the Project Approval and other relevant environmental approvals and licences, for operations occurring between March 2011 and September 2013.

The audit was led by Jenny Ehmsen; a RABQSA registered Lead Environmental Auditor (Certificate No. 15186). The audit team included:

- Tim Procter (Technical Specialist – Noise);
- Adam Wyatt (Technical Specialist – Surface Water);
- James Barbato (MSEC) (Technical Specialist – Subsidence); and
- David Salmon, Golder Associates (Technical Specialist – Groundwater).

As required by Condition 7 of Schedule 6 of the Project Approval, the audit team was approved by Department of Planning and Infrastructure (DP&I) to undertake the audit (letter of approval from DP&I dated 24 September 2013).

1.2 Audit Objectives

Two key objectives have been identified for the independent environmental audit for the Narrabri Mine as follows:

- to undertake an independent environmental audit of the Narrabri Mine as required by Condition 7 of Schedule 6 of the Conditions of Project Approval; and
- to assess the environmental performance of the Narrabri Mine and the ability of the Whitehaven environmental management systems and controls to provide for sustainable management of the operation.

1.3 Audit Scope

The Narrabri Mine was approved subject to a range of conditions as specified in the Project Approval.

Condition 2 of Schedule 2 of the Stage 2 Approval provides the Terms of Approval for the project which identifies that the project shall be carried out generally in accordance with the:

- Environmental Assessment (EA);
- Statement of Commitments;
- Conditions of the Approval; and
- Modification applications 1 and 2.

In order to assess the level of compliance with the terms of the approvals, Condition 7 of Schedule 6 of the Narrabri Stage 2 Approval requires that independent environmental audits be carried out.

Specifically, Condition 7 of Schedule 6 of the Narrabri Stage 2 Approval states:

Prior to 13 September 2010, and every 3 year thereafter, unless the Director-General directs otherwise, the proponent shall commission and pay the full cost of an Independent Environmental Audit of the project (stages 1 and 2). 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 relevant agencies;
- (c) assess the environmental performance of the project and assess whether it is complying with the relevant requirements of this approval and any relevant Mining Lease and EPL (including any strategy, plan or program under these approvals); and
- (d) review the adequacy of strategies, plans and/or programs required under these approvals; and, if appropriate,
- (e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.

Notes: This audit team should be led by a suitably qualified auditor, and include experts in the field of subsidence water and noise management (other than the 2010 audit which is not required to include a subsidence expert in the audit team).

The Stage 1 Project Approval was audited during the last audit in 2011, however it has now been surrendered in accordance with Condition 10 of Schedule 4 of the Stage 2 Project Approval. Therefore, this audit did not specifically address the conditions of the Stage 1 approval as any ongoing conditions have been incorporated into the Stage 2 approval.

1.4 Audit Criteria

As required by the Project Approvals, the audit criteria included:

- Project Approval (No's 08_0144);
- Environment Protection Licence (No's 12789); and
- Mining Lease (No's 1609).

Plans and programs prepared post approval for the Narrabri Mine, which were reviewed during the audit, included:

- Extraction Plan for Longwall Panels 101 to 105, including:
 - Coal Resource Recovery Plan
 - Subsidence Predictions
 - Subsidence Monitoring Program
 - Built Features Management Plan
 - Public Safety Management Plan
 - Water Management Plan
 - Biodiversity Management Plan
 - Land Management Plan
 - Heritage Management Plan.
- Noise Management Plan;
- Air Quality Monitoring Program;
- Water Management Plan, including:
 - Site Water Balance
 - Erosion and Sediment Control Plan
 - Surface Water Monitoring Plan
 - Raffinate Discharge and Transfer Control and Monitoring Program
 - Groundwater Monitoring Program
 - Surface and Groundwater Response Plan.
- Aboriginal Cultural Heritage Management Plan;
- Energy Savings Action Plan;
- Greenhouse Gas Minimisation Plan;

- Waste Management Plan;
- Landscape Management Plan, including:
 - Rehabilitation Management Plan
 - Mine Closure Plan.
- Biodiversity Offset Strategy;
- Environmental Management Strategy;
- Annual Environmental Management Report/Annual Review;
- EPL Annual Return;
- Coal Mine Particulate Matter Control Best Practice;
- Quality Assurance and Verification Report – Brine Storage Ponds; and
- Mining Operations Plan.

1.5 Structure of this Document

This report contains the following sections:

- **Section 1.0** – Introduction. An overview of the Narrabri Underground Mine and purpose and scope of the audit.
- **Section 2.0** – Audit Methodology. A detailed description of the audit process.
- **Section 3.0** – Audit Findings. An overview of the findings of the audit, including detailed descriptions of any non-compliance identified.
- **Section 4.0** – Environmental Performance. An overview of the environmental performance of the Narrabri operations, including the findings from the site inspection.
- **Section 5.0** – Conclusion.
- **Appendix 1** – Agency Interview Questions.
- **Appendices 2 to 4** – Checklists of relevant approval documentation including the Project Approval, EPL, and mining leases applying to the project. The checklists provide a detailed review of each compliance condition applying to the project.
- **Appendix 5** – Photographic Plates. Photographs of key site features referred to in this report.

2.0 Audit Methodology

The audit process involved the interview of personnel and relevant regulatory agencies, a review of documentation and samples of records provided by NCOPL and a site inspection of the Narrabri Mine to determine the level of environmental performance and compliance of the project. The audit process is described in more detail in **Sections 2.1 to 2.5**.

2.1 Preliminary Document Review

Prior to the audit, environmental documentation associated with the Narrabri Mine was reviewed by the auditor. This involved a review of the EA and Project Approval for the project and the management plans that have been prepared to guide the environmental management of the operations.

2.2 Agency Consultation

As part of the audit process, interviews were undertaken with relevant government agency staff with a regulatory role relating to the project. The views of these agencies in relation to the project were determined through phone interviews. These phone interviews consisted of an Umwelt representative asking a standard set of questions which are provided in **Appendix 1**. A summary of the phone interviews is provided in **Section 3.2**.

2.3 Site Interviews and Inspections

2.3.1 Opening Meeting

The opening meeting was held at the Narrabri Underground Mine conference room commencing at 8.00 am on 15 October 2013. The participants are outlined in **Table 2.1**.

Table 2.1 – Opening Meeting Attendees

Opening Meeting	Organisation	Title
Danny Young	Whitehaven	Group Environmental Manager
Steve Farrar	NCOPL	Environmental Officer
Owen Salisbury	NCOPL	Technical Services Manager
James Barbato	MSEC	Technical Specialist – Subsidence
Dave Salmon	Golder Associates	Technical Specialist – Groundwater
Adam Wyatt	Umwelt	Technical Specialist – Surface Water
Tim Procter	Umwelt	Technical Specialist – Noise
Jenny Ehmsen	Umwelt	Lead Environmental Auditor

The audit team was introduced and the scope of their responsibilities was conveyed to the auditees. The purpose, depth and scope of the audit were outlined. The methods to be used by the team to conduct the audit were explained. It was stated that the audit team would be interviewing personnel, reviewing site management plans, examining records and conducting a site inspection in order to address specific compliance requirements, particularly those related to the relevant approvals and licences for the Narrabri Mine.

Following the opening meeting, a preliminary site inspection was undertaken to familiarise the audit team with the site and operations.

2.3.2 Data Collection and Verification

Where possible, documents and data collected during the audit process were reviewed on site. A number of documents were provided to the audit team prior to the on-site component of the audit. Several documents that were not available during the on-site component of the audit were provided following the audit.

All information obtained during the audit process was verified by the audit team where possible. For example, statements made by site personnel were verified by viewing documentation and/or site inspections where possible. Where suitable verification could not be provided, this has been identified in the audit findings.

2.3.3 Site Inspections

A detailed site inspection of the key areas of the mine was undertaken as part of the audit. Danny Young and Steven Farrar accompanied the audit team during the site inspection. Areas inspected during the inspection included:

- surface facilities area (**Plate 1**);
- workshop, store and hardstand areas, including washdown areas and hazardous goods storage;
- box cut and portals;
- ventilation fan site (**Plate 2**);
- Coal Handling and Preparation Plant (CHPP);
- run of mine (ROM) and product coal stockpiling and loading areas (**Plate 3**);
- water management dams and reverse osmosis (RO) plant (**Plate 4**);
- mine subsidence areas for LW01 and LW02;
- goaf gas drainage plants; and
- rail loadout area.

2.3.4 Closing Meeting

Due to the technical specialists only being on site for one day, two closing meetings were held – one on Tuesday 15 October 2013 (technical specialists) and one on 16 October 2013 (final closing meeting). The list of participants is provided in **Table 2.2**.

Table 2.2 – Closing Meeting Attendees

Closing Meeting	Organisation	Title
Danny Young	Whitehaven	Group Environmental Manager
Steve Farrar	NCOPL	Environmental Officer
Owen Salisbury	NCOPL	Technical Services Manager
Steve Bow	NCOPL	General Manager
Gerard Linde	NCOPL	Mine Manager
James Barbato	MSEC	Technical Specialist – Subsidence
Dave Salmon	Golder Associates	Technical Specialist – Groundwater
Adam Wyatt	Umwelt	Technical Specialist – Surface Water
Tim Procter	Umwelt	Technical Specialist – Noise
Jenny Ehmsen	Umwelt	Lead Environmental Auditor

The objectives of this meeting were to discuss any outstanding matters, present preliminary findings and outline the process for finalising the audit report.

2.4 Reporting

Following completion of the site audit, the Project Approval, EPL and ML checklists were completed and audit notes were reviewed in order to compile a list of outstanding matters to be noted in the audit report. This report was prepared to provide an overview of the status of compliance by reference to the relevant compliance documentation and any other observations of the auditors during the site inspections and interviews. This report has been prepared on an exception basis, highlighting any areas where action or improvement is required.

2.5 Definitions

The reporting of results from the compliance audit was determined based on the following definitions.

Compliance

The intent and explicit requirements of the condition have been met. This includes meeting all requirements with respect to consultation (agency or otherwise), timing of actions or activities, the preparation of management plans or other specific requirements of the condition.

The failure to meet any or all of the specific requirements of the condition would result in a non compliance.

Non-Compliance

A non-compliance occurs when any of the specific requirements of the condition have not been met (i.e. if any sub-component of a requirement is not met (such as timing or consultation), the entire requirement is considered to be non-compliant).

Verification

The inability to provide formal written verification (letter, fax, email, meeting minutes, etc.) that a requirement has been met does not necessarily result in a non compliance. If the auditor is able to verify by other demonstrable means (visual inspection, personal communication, etc.) that a condition has been met then, in most cases, the operation should be considered to be in compliance for that condition.

Observation

The intent of the condition has been met, however it is considered that either:

- the issue has the potential to deteriorate to a non-compliance if not further addressed; or
- further improvement is recommended.

Not Triggered

A condition or requirement has an activation or timing requirement which had not been triggered or completed at the time of the audit and therefore a determination of compliance could not be made. It is recommended that future audits assess compliance of any conditions or requirements that were found to have not been triggered during this audit.

Timing of Environmental Performance

For the purpose of a compliance audit the timeframe for environmental performance against the EPL can be divided into two periods:

- the current period which is the time from the beginning of the most recent EPL reporting period to the time the audit is conducted; and
- the historical period, which is the time prior to the most recent EPL reporting period.

3.0 Audit Findings

The detailed findings of the audit are presented in this section. Detailed assessments of compliance with relevant compliance documents are provided in **Appendices 2 to 4**. The findings of this audit are based upon visual observations of the site and its vicinity, interviews with site personnel and our interpretation of the documentation provided by NCOPL.

Opinions presented herein apply to the site as it existed at the time of the audit and from information provided by site personnel. Any changes to this information of which Umwelt is not aware and has not had the opportunity to evaluate therefore cannot be considered in this report.

A summary of the phone interviews undertaken with agencies with regulatory roles relating to the project is provided in **Section 3.2**. A review of the status of actions from the 2011 compliance audit is provided in **Section 3.3**. Specific findings of the audit in relation to each approval, lease or licence are discussed in **Section 3.4**. The results of the site inspections undertaken for the project and any other issues identified during the audit are provided in **Section 4.0**.

A summary of the compliance assessment is provided in **Table 3.1**.

Table 3.1 – Summary of Statutory Compliance

Approval/Licence	Not Triggered	Compliance	Non-Compliance	Observation
Project Approval	18	172	8	27
Environmental Protection Licence No. 12789	27	60	4	8
Mining Lease 1609	8	21	2	5

Note: The numbers refer to the number of conditions and subconditions.

3.1 Status of Development at Narrabri Underground Mine

Since the previous audit in 2011, construction works for Stage 2 have been completed. The mine commenced longwall operations in June 2012 with Longwall Panel (LW) 101 which was completed in June 2013. NCOPL is now currently approximately half way along panel LW102.

Longwall panel width is 300 metres mining up to 4.2 metres of coal at a depth of 160 to 180 metres. Rehabilitation of subsidence areas above LW101 has generally been undertaken. The vent shaft and fan has been constructed and commissioned.

Production from the mine is currently at approximately 3.7 Mtpa of ROM coal with NCOPL setting a target production of 5.5 Mt for 2013. The CHPP was designed for a capacity of 1200 tonnes/hour, but is currently operating at approximately 1000 tonnes/hour.

NCOPL is achieving a 95% yield of product coal from the CHPP with moisture contents in the range of 10 to 12%. The CHPP does not produce tailings, only coarse reject, which is emplaced within the approved reject emplacement area.

The RO plant has been constructed and commissioned and is currently producing 1.5 megalitres (ML) of water per day. Brine from the RO plant is discharged to the brine ponds within the rail loop area.

3.2 Agency Consultation

Consultation was undertaken with relevant government agencies to identify any particular issues of concern relating to the Narrabri operations. The results of the consultation undertaken are tabled in **Table 3.2**.

Table 3.2 – Agency Consultation

Agency	Person Contacted	Date(s) Contacted	Response
DP&I	Steve O'Donoghue	11/10/2013	Aware of recent noise exceedances – how are these being managed? Dust is an issue with stockpiling operations – aware of EPA Pollution Response Plans (PRPs) for dust. Would like to see comparison of actual water usage against modelled predictions, also water management around rejects emplacement area. Advised revised Energy Savings Action Plan (ESAP) had been submitted but not yet approved. Raised issue of hydraulic fracturing of longwall panels prior to mining – how is this being managed? Requested audit to focus on biodiversity offsets – where are NCOPL at in terms of managing offsets – securing of offsets is still to be finalised.
Environment Protection Authority (EPA)	Kharl Turnbull	14/10/2013	Advised of previous water management issues –PINs issued for unlicensed discharges. EPA has issued official warning for noise non-compliances – dozers were key issue for noise exceedances and were to be modified. Advised that two dust PRPs had been imposed on EPL for the site – dust is an issue in relation to use of dozers on stockpiles. A recent waste audit identified issues at Narrabri tip with vent ducts from the mine being disposed of – are alternative waste disposal options being considered.
NSW Office of Water (NOW)	Martin O'Rourke	11/10/2013	Aware of negotiations between NOW and NCPOL in relation to extending the monitoring bore network – has this been implemented yet?
Department of Trade and Investment – DRE	Simon Lund	11/10/2013 – message left 7/11/2013	No particular issues raised. Yet to do annual AEMR inspection. Not aware of any direct complaints in relation to operations.

3.3 Previous Compliance Audit 2011

In February 2011, Umwelt undertook the first independent audit of the Narrabri Mine. At that time, the project was in a construction and development stage. The audit included both the Stage 1 and Stage 2 approvals, however given that longwall mining had not commenced and the mine was still in the development stage, many of the conditions of the Stage 2 approval had not been triggered.

The majority of the non-compliances identified for the site related to the Stage 1 approval which has now been surrendered. Many of the non-compliances related to the content of management plans which have now been updated to reflect the Stage 2 approval conditions, with the exception of the Biodiversity Offset Strategy which is still in draft form and yet to be finalised. Revision and approval of the management plans has closed out 18 of the 24 non-compliances identified for Stage 1.

The auditor noted that there has been a significant improvement in reporting of exceedances and incidents to the relevant government agencies, with most incidents now reported within the required timeframes. The non-compliance for this issue has also been closed out.

The remaining two non-compliance issues for Stage 1 related to exceedances of monitoring criteria. Whilst the actions undertaken by NCOPL in relation to these issues were reviewed during the audit and found to be appropriate, these conditions are ongoing and are included in the Stage 2 approval. As such, the audit reviewed environmental performance of the mine in these areas to assess the level of effectiveness of the actions in addressing the issues identified in the previous audit.

3.4 Compliance Issues

The Narrabri Mine was found to be operating generally in compliance with the terms of the relevant approvals and licences applying to it. However, a number of non-compliances were identified where action is required to ensure full compliance is met for some conditions/requirements. A number of verifications were also identified, where full compliance with a condition/requirement could not be determined as insufficient evidence was available at the time of the audit.

A full compliance assessment against the requirements of relevant approval documents and licences is provided in **Appendices 2 to 4**. A summary of the non-compliances for each approval document is provided below.

3.4.1 Project Approval 08_0144

Operations at the Narrabri Mine were generally being undertaken in a manner that is consistent with the requirements of the Project Approval (PA 08_0144). However, a number of non-compliances were identified where action is required to ensure full compliance.

A full compliance checklist against the requirements of the Project Approval was completed as part of the audit and is included as **Appendix 2**. A summary of the non-compliance issues are outlined below.

Schedule 2: Condition 1 – Non-compliance

The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.

Five incidents have occurred at the Narrabri Mine since November 2011. These are:

- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011;
- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and
- a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012.

These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:

- SB3 discharge on 25/11/2011 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner);
- SB2 discharge (coal impacted water) – two PINS (25/11/2011 and 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and
- VPW26 discharge on 10/02/2012 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner).

No PINS were issued for February 2012 discharge from SB3.

Of the five incidents above, two unplanned offsite discharges of water (from SB3 on 25/11/2011 and VPW26 on 10/2/2012) have occurred at the Narrabri Mine, resulting in the EPA issuing two PINs for the pollution of waters. NCOPL has implemented suitable actions to address the unlicensed discharges and minimise the potential for any future unplanned discharges.

Additionally, the issue of tree death along the sections of Greylands Road and Pine Creek Tributary 1 above LW101 is most likely related to unplanned subsidence impacts. NCOPL has initiated investigations into the cause of the tree death.

Schedule 2: Condition 2 (e) – Non-compliance

The Proponent shall carry out the project generally in accordance with the:

(e) conditions of this approval.

A number of non-compliances with the Project Approval were identified during the audit as noted in this report.

Schedule 2: Condition 7 – Non-compliance

The Proponent shall transport all coal from the site by rail.

Due to a train derailment on the Gunnedah rail line in November 2012, NCOPL undertook a trial of transporting coal from the Narrabri Mine to the Gunnedah CHPP by road. It is understood that the trial only lasted 1.5 days. DP&I issued a letter advising that the trucking of coal was in breach of the Project Approval. The trial was stopped and no further transport of coal by road has occurred. No further action is considered to be required.

Schedule 4: Condition 10 – Non-compliance

Except as may be expressly provided for by an EPL, the Proponent shall not discharge any waters from the disturbed areas of the site. However, raffinate from the water conditioning plant may be transferred to water users in accordance with an approved Water Management Plan (see below).

Five incidents have occurred at the Narrabri Mine since November 2011. These are:

- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011;
- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and
- a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012.

These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:

- SB3 discharge on 25/11/2011 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner);
- SB2 discharge (coal impacted water) – two PINS (25/11/2011 and 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and
- VPW26 discharge on 10/02/2012 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner).

No PINS were issued for February 2012 discharge from SB3.

Monitoring results reviewed during the audit identified that of the five incidents above there had been two unplanned offsite discharges of water (SB3 on 25/11/2011 and VPW26 on 10/2/2012). Neither of these discharges were authorised under the EPL for the site and EPA subsequently issued two PINs for unlicensed discharges.

The first PIN was received following discharges from storage basin SB3 in November 2011. The PIN was issued as a result of the discharges being from a point other than a licensed discharge point (Condition P1.3 of EPL 12789). It is understood that the discharges occurred during a period of heavy rain at a time when SB3 was collecting water from the Reject Emplacement Area which was not receiving rejects at the time.

NCOPL received a second PIN, under Condition O1.1 of EPL 12789, following a discharge of coal impacted water from vertical production well (VPW) 26 in February 2012. NCOPL commissioned a vegetation assessment of the impacted area and also revised the procedure for accessing well heads. Vegetation assessments of the impacted area have shown that no long-term impacts have occurred. No further action is considered to be required.

Schedule 4: Condition 30 (c) – Non-compliance

The Proponent shall revise the Energy Savings Action Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with energy management for the site (Stages 1 and 2) and subsequently implement this revised version of the Energy Savings Action Plan to the satisfaction of the Director-General. This plan must:

(c) be submitted to the Director-General for approval prior to 30 June 2011; and

The Energy Savings Action Plan was submitted to DP&I on 11 August 2011 beyond the timeframe specified in the condition. It was subsequently approved by DP&I on 6/12/11 (letter sighted). As the Plan has been submitted and approved, no further action is considered to be required.

Schedule 6: Condition 10 – Non-compliance

The Proponent shall:

- (a) make copies of the following publicly available on its website:**
- **the documents referred to in Condition 2 of Schedule 2;**
 - **all current statutory approvals for the project;**

Copies of the EA and the consolidated conditions of approval were noted to be available on the mine's website. However, it was noted that the documentation for MODs 1 and 2 were not available on the website.

Whilst the Project Approval, EPL, Mining Lease and EPBC Approval are available on the website, it was noted that the Subsidence Management Plan approvals are not available on the website. These approvals are considered to be statutory approvals and as such, copies should be made available on the Narrabri Mine website.

Recommendation

It is recommended that NCOPL make copies of the documentation for MODs 1 and 2, and the subsidence management approvals available on the Narrabri Mine website.

3.4.2 Environmental Protection Licence 12789

NCOPL holds an EPL for its Narrabri operations as it conducts an activity that requires a licence under the *Protection of the Environment Operations Act 1997* (POEO Act). The EPL outlines NCOPL's responsibilities and the environmental performance standards it is required to meet, being:

- operating conditions;
- monitoring and recording conditions; and
- reporting conditions.

NCOPL reports its performance against the above responsibilities and environmental performance status via the submission of its EPL Annual Return. The licence reviewed as part of this audit was dated 3 October 2013.

A full compliance checklist against the requirements of EPL 12789 was completed as part of the audit and is included as **Appendix 3**. A summary of the non-compliance issues are outlined below.

Condition L1.1 – Non-compliance

Except as may be expressly provided in any other condition of this license, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

Five incidents have occurred at the Narrabri Mine since November 2011. These are:

- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011;
- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and
- a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012.

These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:

- SB3 discharge on 25/11/2011 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner);
- SB2 discharge (coal impacted water) – two PINS (25/11/2011 and 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and
- VPW26 discharge on 10/02/2012 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner).

No PINS were issued for February 2012 discharge from SB3.

Of the five incidents above, monitoring results reviewed during the audit identified that two incidents were unplanned offsite discharges of water (SB3 and VPW26) during the period covered by the audit. Neither of these discharges were authorised under the EPL for the site and EPA subsequently issued two PINs for unlicensed discharges.

The first PIN was received following discharges from storage basin SB3 in November 2011. The PIN was issued as a result of the discharges being from a point other than a licensed discharge point (Condition P1.3 of EPL 12789). It is understood that the discharges occurred during a period of heavy rain at a time when SB3 was collecting water from the Reject Emplacement Area which was not receiving rejects at the time.

NCOPL received a second PIN, under Condition O1.1 of EPL 12789, following a discharge of coal impacted water from vertical production well (VPW) 26 in February 2012. NCOPL commissioned a vegetation assessment of the impacted area and also revised the procedure for accessing well heads. Vegetation assessments of the impacted area have shown that no long-term impacts have occurred. No further action is considered to be required.

Condition O1.1 – Non-Compliance

Licensed activities must be carried out in a competent manner. This includes:

- (a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and**
- (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.**

Five incidents have occurred at the Narrabri Mine since November 2011. These are:

- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011;
- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and
- a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012.

NCOPL received four PINS for Condition O1.1 in relation to the incidents listed above, which were:

- SB3 discharge on 25/11/2011 – one PIN for not maintaining equipment (pump taken from dam and placed in box cut);
- SB2 discharge (coal impacted water) – two PINS (25/11/2011 and 1/02/2012) as contravened condition O1.1 of licence due to undersized dams; and
- VPW26 discharge on 10/02/2012 – one PIN for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner).

Condition O3.1 – Non-Compliance

All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

Dust was observed to be visible from the site on the day of the audit. A review of the complaints register for the site shows that dust has been an ongoing issue for the operations. As a result of the dust issues being experienced and the complaints received, EPA placed requirements for a dust pollution reduction program in the EPL for the site. Dust issues are further discussed in **Section 4.1.2** of this report.

3.4.3 Mining Lease 1609

A full compliance checklist against the requirements of ML 1609 was completed as part of the audit and is included as **Appendix 4**. There were two non-compliances recorded against ML 1609.

Condition 2 – Non-compliance

The proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the development.

Five incidents have occurred at the Narrabri Mine since November 2011. These are:

- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011;
- a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011;
- a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and
- a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012.

These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:

- SB3 discharge on 25/11/2011 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner);
- SB2 discharge (coal impacted water) – two PINS (25/11/2011 and 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and
- VPW26 discharge on 10/02/2012 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner).

No PINS were issued for February 2012 discharge from SB3.

NCOPL has implemented suitable actions to address the unlicensed discharges and minimise the potential for any future unplanned discharges.

Additionally, the issue of tree death along the sections of Greylands Road and Pine Creek Tributary 1 above LW101 is considered to be most likely related to unplanned subsidence impacts. NCOPL has initiated investigations into the cause of the tree death.

Condition 18 – Non-compliance

Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.

As outlined above, five incidents occurred at Narrabri Mine since November 2011. Of these incidents, two unlicensed offsite water discharges from the mine site resulted in two PINs being issued by the EPA for pollution of waters during the period covered by the audit.

It was noted by the audit team that actions have been implemented to address the issues that resulted in the discharges and minimise the potential for any further unplanned discharges. No further actions are considered to be required, however ongoing monitoring of the water management system should be undertaken to minimise the potential of future discharges.

3.5 Environmental Management Plans

NCOPL has developed a range of environmental management plans to address the requirements of the Narrabri North Stage 2 Project Approval (08_0144). The management plans developed for the Narrabri Mine address specific impacts associated with the project, such as noise, air quality, subsidence management, water management etc, and reflect the requirements detailed in the Project Approval. The plans, programs, and reports required to be prepared include:

- Extraction Plan for LW101 to 105, including:
 - Coal Resource Recovery Plan
 - Subsidence Predictions
 - Subsidence Monitoring Program
 - Built Features Management Plan
 - Public Safety Management Plan
 - Water Management Plan
 - Biodiversity Management Plan
 - Land Management Plan
 - Heritage Management Plan.
- Noise Management Plan;
- Air Quality Monitoring Program;
- Water Management Plan, including:
 - Site Water Balance
 - Erosion and Sediment Control Plan
 - Surface Water Monitoring Plan
 - Raffinate Discharge and Transfer Control and Monitoring Program
 - Groundwater Monitoring Program
 - Surface and Groundwater Response Plan.
- Aboriginal Cultural Heritage Management Plan;
- Energy Savings Action Plan;
- Greenhouse Gas Minimisation Plan;
- Waste Management Plan;

- Landscape Management Plan, including:
 - Rehabilitation Management Plan
 - Mine Closure Plan.
- Biodiversity Offset Strategy;
- Environmental Management Strategy; and
- Annual Environmental Management Report/Annual Review.

Additionally, the following plans and reports were reviewed which were not specifically required by the conditions of the Project Approval but which were required under the conditions of the Mining Lease and EPL for the site and which were prepared by NCOPL to guide the environmental management of the operations and provide evidence of compliance.

- Mining Operations Plan;
- EPL Annual Return;
- Coal Mine Particulate Matter Control Best Practice; and
- Quality Assurance and Verification Report – Brine Storage Ponds.

Condition 7(c) of Schedule 6 of the Project Approval requires that the audit assess the environmental performance of the project against any plan or program made under the Project Approval or other approval. Condition 7(d) also requires that the audit review the adequacy of any plan or program made under an approval document.

The audit found that the management plans and programs that had been prepared for the project were generally adequate and prepared in accordance with the relevant compliance requirements. Controls and management strategies identified in the management plans that have been prepared were generally found to be well implemented.

Key issues in relation to the adequacy of the documents reviewed and their implementation on-site are discussed in the following sections.

3.5.1 Water Management Plan

The Water Management Plan (WMP) should be a central resource for all water management on the site. However, it is considered by the audit team that the scope of the WMP is limited and primarily compliance driven. A WMP should ideally be the main centralized document covering all aspects of water management. The current Water Management Plan (WMP) (URS, 2013) generally meets the requirements of the Project Approval in relation to surface water management. However, there are a series of improvements to the content of the WMP that would provide further clarity on the water management requirements for the site. These include:

- Whitehaven Coal and NCOPL policy, strategy, goals and targets for water;
- more detail on all legislative requirements;
- more information on geology related to groundwater, including geological cross sections, local and regional piezometric (water table elevation) plans;
- chapters or sections on the site water balance model (s);

- chapter or section on water reporting requirements and needs – i.e. essentially a description of the water information management system – this should capture water reporting requirements under all licences and approvals obtained for the site;
- waste characterisation – (geochemical assessment of mining materials); and
- groundwater management at closure and post closure.

It was noted that Condition 15 of the Project Approval requires that the Erosion and Sediment Control Plan (ESCP):

identify activities that could cause soil erosion and generate sediment.

Whilst the ESCP, which is included within the WMP, does identify sources of soil erosion within the surface infrastructure area, the WMP does not identify the potential erosion and scouring within watercourses as a result of subsidence. Changes to the longitudinal grades of watercourses as a result of subsidence has the potential to increase rates of erosion and scouring within watercourses, increasing the transport of sediment to downstream waterways. It was noted, however, that the potential for erosion and scouring of watercourses within the subsidence area was satisfactorily addressed in the Extraction Plan – Water Management Plan.

Approval Condition 19 requires that the linings of the evaporation ponds and saline water storage (i.e. raffinate) basins have a permeability of less than 1×10^{-14} m/s and 1×10^{-9} m/s respectively. Whilst plastic linings were sighted within the saline storage basins (basins A1, A2 and A3), no evidence was sighted during the 15 October 2013 site inspection to demonstrate that the linings of these basins satisfy the permeability requirements. At the time of the 15 October 2013 site inspection, the construction of the evaporations ponds had been completed with the lining of Pond C to be completed in 2013/2014.

Recommendation

It is recommended that any previously completed testing or other information that demonstrates the permeability of the linings used within the evaporation and raffinate storage basins by references within the WMP.

3.5.2 Biodiversity Offset Strategy

The Biodiversity Offset Strategy is currently in draft form and has not been approved by DP&I. Evidence was sighted to indicate that NCOPL obtained an extension of time to lodge the Plan with the Plan due to be finalised and submitted for approval by 31 December 2013.

NCOPL has acquired an offset site and has undertaken baseline monitoring of the area in 2012. Further monitoring was proposed to be undertaken in 2013. NCOPL has in principle agreement with National Parks and Wildlife Service (NPWS) in relation to the handover of 500 hectares of land as part of the biodiversity offset for the mine. The key outstanding issue for the site in relation to biodiversity offsetting relates to the mechanism for long term security of the offset area.

Whitehaven currently has a biobanking agreement in place for some of its offset requirements for its open cut operations, but this agreement did not extend to the Narrabri Mine. NCOPL is currently proposing the use of a restrictive covenant under Section 88B of the *Conveyancing Act 1919* as a measure to secure the offset area in the longer term. Whilst this mechanism has been accepted in principle by the federal Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) in meeting the offsetting requirements under the *Environment Protection and Biodiversity Conservation Act*

1999, it has not been accepted by either DP&I or Office of Environment and Heritage (OEH) at this time. DP&I has advised NCOPL of its development of a formal offset policy, including requirements for in perpetuity security which will assist in determining an appropriate security mechanism, however this has not yet been made available to NCOPL.

3.5.3 Noise Management Plan

The Narrabri Coal Mine Noise Management Plan (NMP), dated June 2011, provides information on:

- the noise impact assessment criteria for the mine;
- the measures which will be employed to mitigate the environmental effects of noise from the mine on surrounding neighbours;
- the proposed noise monitoring programs, incorporating real time and attended noise monitoring; and
- the mechanism whereby noise complaints will be dealt with quickly and effectively.

NCOPL identify that the purpose of the NMP is to implement the standards and procedures necessary for effective noise management at the mine and to assign responsibilities to personnel to undertake these tasks.

The NMP was approved by DP&I in December, 2011. When consulted by NCOPL, the Office of Environment and Heritage (Environment Protection and Regulation Group) did not review or comment on the NMP other than to endorse the development of the document as a means to ensuring NCOPL meets their statutory obligations and designated environmental objectives.

In Section 3 of the NMP, NCOPL proposes the implementation of a range of actions or strategies to ensure NCOPL minimise the potential for noise impacts at residential receivers. This includes:

- ensuring equipment used on the site exhibit sound power levels consistent with Appendix A of the noise assessment prepared by Spectrum Acoustics (2009);
- using only broadband frequency type reversing alarms;
- managing surface related activities under temperature inversion conditions until the performance of noise generation activities that could affect compliance are identified;
- modifying or standing down operational activities during adverse weather conditions;
- overall validation of the noise performance of the operation as a whole; and
- management of transport related activities that generate noise and the strict adherence to the approved hours of operation for transport activities.

The NMP identifies that community consultation was an important element throughout the planning and investigation stages of the mine. As a result, the Community Consultative Committee (CCC), established in early 2008 by NCOPL, continues to meet on a quarterly basis to discuss issues associated with the mine and any community concerns.

Section 4 of the NMP includes details on the Complaints Handling and Monitoring process. During the period covered by the audit, NCOPL investigated and/or implemented the

management and control measures identified in the NMP in accordance with the Complaints Handling and Monitoring process. This was demonstrated through documentation of the activities undertaken in the Narrabri Mine Complaints Register. During the 2011 period 1 of the 5 complaints included noise as an issue. During the 2012 period, 1 of the 4 complaints was about noise. During the 2013 period, 8 of the 26 complaints were about, or included noise as an issue.

In accordance with *Schedule 4 – Specific Environmental Conditions, Condition 5 Continuous Improvement* the NMP identifies how NCOPL will incorporate best practice techniques into the operation. This includes:

- identifying potential noise related impacts;
- avoiding certain adverse times and weather conditions;
- field verification of predicted noise levels early in the life of the project; and
- The use of real-time noise monitoring to assist in making operational adjustments to achieve noise criteria.

Notwithstanding this, *Schedule 4 – Specific Environmental Conditions, Condition 5 Continuous Improvement* also calls for the Proponent to: (b) investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance; and (c) report on these investigations and the implementation and effectiveness of these measure in the Annual Review. The 2012 and 2013 Annual Environmental Management Reports provide minimal information on the NCOPL activities in this area.

The NMP states that NCOPL employ periodic (attended) and real-time (continuous) monitoring of noise levels in accordance with *Schedule 4 – Specific Environmental Conditions, Condition 4 Noise Management Plan*. Attended monitoring is undertaken on a quarterly basis (nominally January, April, July and October) with additional monthly monitoring during the winter months (May – September) for the first two years of operation. The NMP establishes a protocol to address periods when the weather conditions at the time of the attended monitoring program are not conducive to validation monitoring. The NMP also notes that where noise complaints are made relating to operations at the mine site, additional targeted noise investigations may also be undertaken at those receivers in order to assess and/or validate the complaint.

The real time noise monitoring system, designed to assist with the implementation of reactive noise control measures, incorporates a Sentinex real time continuous noise unit and a weather monitoring unit. The system provides real time access to noise and weather data, and provides the capacity to set target noise goals and associated automated SMS messaging to operational personnel on site. By using a portable noise monitoring unit NCOPL expect to undertake monitoring at the locations nominated in Table 2 of the NMP.

The NMP provides a detailed procedure for the attended noise surveys, use of the real-time noise monitor and the analysis for temperature inversions during the attended noise surveys. This issue is discussed further in **Section 6.5**.

In Section 6 of the NMP it is noted that the review process of the Plan is to be conducted every two years or following any event based trigger identified in the Audit and Review Standard that is relevant to the implementation of the Plan. The publishing date of the NMP is June 2011 and approval date from DP&I is December 2011.

Following the review of the NMP, the auditor concluded that the NMP satisfies the requirements of *Schedule 4 – Specific Environmental Conditions, Condition 4 Noise Management Plan*.

Whilst the NMP has been implemented by NCOPL, the auditor identified that there are opportunities for improvement in a couple of areas. These include:

- improving the transparency of the noise monitoring and reporting processes to assist in the community understanding of noise impacts. This issue is discussed further in **Section 4.1.3**;
- investigating alternatives to improve the identification of temperature inversions. This issue is discussed further in **Section 4.1.3**;
- investigate and report on ways to reduce the noise generated by the operation in accordance with the requirements of *Schedule 4 – Specific Environmental Conditions, Condition 5 Continuous Improvement*; and
- being specific as to the date of the review process for the NMP.

3.5.4 Energy Savings Action Plan

The Energy Savings Action Plan (ESAP) prepared for the Stage 1 project has been updated for the Stage 2 project as required by the conditions of the Project Approval. The Plan recommended that a Level 3 energy audit be undertaken to identify the next stage of energy efficiency actions following the start-up of near full-scale production (ESAP Management Action 10). Longwall mining commenced on site in June 2012 with the commencement of LW101. Mining is now currently half way through LW102. Given that mining operations are progressing to near full-scale, the Level 3 energy audit was conducted by Advitech who subsequently recently prepared a revised ESAP, based on the results of the energy audit undertaken. The revised Plan has been submitted to DP&I for approval but has yet to be approved.

3.5.5 Environmental Management Strategy

The Environmental Management Strategy (EMS) prepared for the Stage 1 operations (reviewed as part of the previous audit) has been substantially updated to reflect the operations, approvals and management requirements of the Stage 2 project. Whilst Section 3.1 of the EMS references the approvals etc that were in place at the time the EMS was prepared, it does not include the EPBC approval, the Subsidence Management Plan approvals or any changes to conditions as a result of MODs 1 and 2.

Condition 3 of Schedule 6 requires that within 3 months of a submission of an annual review or any modification to the conditions of this approval, the Proponent shall review and if necessary revise the strategies, plans and programs. Given that the 2012-2013 Annual Review has been submitted, it would be appropriate to review the EMS and amend it to include the subsidence management approvals and any other approvals that have been obtained. It would also be appropriate to update the list of legislation where changes have been made (e.g. *Work Health and Safety Act 2011*).

4.0 Environmental Performance

As described in **Section 2.4**, inspections of the project site and associated infrastructure were undertaken on 15 and 16 October 2013. Areas inspected during the site inspection included the site facilities area, store, workshop and hardstand, CHPP and stockpile areas, box cut and underground portals, waste emplacements, water management structures, and rail loadout facilities.

4.1 Key Environmental Issues

4.1.1 Subsidence

Ground Monitoring

The Subsidence Monitoring Program (AECOM, 2012a) is considered to adequately outline the locations, methods, timing and frequency, and reporting of monitoring results. In the auditor's opinion, the established ground monitoring lines and the monitoring frequency were appropriate for the site, based on the mining geometry, surface features and constraints, as well as for the validation of the prediction model and for the management of impacts.

The available ground monitoring data indicated that the maximum vertical subsidence due to LW101 was 2.6 metres, which represents around 62 % of the extracted seam thickness. Whilst the maximum observed subsidence was greater than the EA maximum predicted subsidence of 2.44 metres (DGS, 2009), the exceedance was less than 15 %, which is generally considered acceptable in the industry for the prediction of maximum vertical subsidence.

The maximum measured strains due to LW101 were greater than the maximum predicted strains in the EA. It is well understood that strain is the most difficult parameter to predict and, in the auditor's opinion, the predicted magnitudes of strain were sufficient for the assessments of impacts and the development of management strategies for the surface features.

The audit team considers that the subsidence predictions (DGS, 2009) were acceptable for the assessment of the potential surface impacts. This opinion was based on the available ground monitoring data and the surface disturbances observed during the site inspection.

Subsidence Impacts

The surface features located above or in the vicinity of LW101 and LW102 included Pine Creek Tributary 1, Greylands Road, aerial 11 kV powerlines, fences, farm dams and archaeological sites.

It was observed during the site inspection that surface ponding had developed above LW101 between Pine Creek Tributary 1 and Greylands Road (**Plate 5**). The ponded water is currently being removed by pumping until the final surface remediation measures are implemented.

The section of Greylands Road which is currently experiencing active subsidence due to LW102 was closed to the public. Significant surface cracking and heaving was observed along the road inside the longwall goaf edges consistent with the final tensile and compressive zones. Cracking and heaving was also observed at regular intervals perpendicular to the main axis of the longwall which is consistent with the development of subsidence behind the extraction face (i.e. travelling wave) (**Plates 6 and 7**).

The size and extent of the surface deformations observed above LW102 were in the order of those expected based on the shallow super-critical mining conditions. The surface area above LW101 was inspected, and it was observed that the surface deformations had been remediated by ploughing and recompacting the surface soils. Similarly, the unsealed road surface above LW101 had been remediated.

The cable rollers which had been installed along the aerial 11 kV powerlines were viewed during the site inspection.

It appears from the site inspection that the built features have been maintained in safe and serviceable conditions. The surface deformations above LW101 have been remediated.

Tree Health above LW01

It was observed during the site inspection that large trees along Greylands Road and along Pine Creek Tributary 1, within the area affected by subsidence from LW101, showed signs of dying or appeared dead (**Plates 8 and 9**). Discussions with the Narrabri Mine Environmental Officer identified that the trees appeared to die in the weeks following the progression of LW101. This was an unexpected event and Narrabri Mine has initiated investigations as to the cause of the trees dying to ascertain if it is related to the subsidence impacts that occurred.

Evidence was sighted that NCOPL had commissioned EcoLogical to undertake the investigations, with a Tree Impact Report (dated 4/9/2013) prepared to discuss the findings of the investigations. The EcoLogical report indicates that root ball disturbance was considered to be the main cause of the tree death, and further investigations of the tree root ball was to be undertaken. The root ball investigations had not been undertaken at the time of the audit.

Discussions between the audit team members on site, and further discussions with a specialist ecologist and a geomorphologist, indicated that groundwater impacts may be a further or alternative cause of the apparent tree deaths. It is recommended that further investigations by a groundwater specialist and/or geomorphologist be undertaken to further understand the current groundwater regime associated with the trees in the Greylands Road area and the potential for impacts as a result of any subsidence cracking which may occur.

Whilst some of the trees were observed to be now showing signs of regeneration, the health of the trees needs to be monitored over time to assess the impacts to vegetation above the longwalls. Any further unplanned tree death, similar to that which occurred over LW101, could result in a greater area of vegetation disturbance than that originally predicted in the EA and approved by the Project Approval.

4.1.2 Air Quality

Although the air quality compliance criteria have generally been met for the Narrabri operations at the designated EPA approved monitoring points, visible dust generated from operations on the stockpiles is of concern and has been the subject of several complaints from nearby residents. Dust was raised as an issue during the agency consultation undertaken for the audit and EPA has recently added two dust Pollution Reduction Programs (PRPs) to the EPL for the site to address the issue.

Condition U1 of the EPL requires NCOPL to investigate specified options for dust mitigation and report on their effectiveness by the due date. All of the due dates were beyond the timeframe for this audit, however evidence was sighted that NCOPL has progressed with investigations. Water sprays were observed to have been installed on the dozer trafficking areas on the ROM stockpile, and investigations are continuing with Komatsu to install

shrouding around the radiator fan and blade on the dozers. Narrabri staff advised that the Caterpillar dozers have a sloped radiator and a shrouded blade design which does not entrain fine dust to the extent of that on the Komatsu dozers. Therefore, the focus has been on investigating the fitting of shrouds or equivalent on the Komatsu dozers. As part of the response actions for dust issues on the stockpiles, NCOPL has also initiated a process where the Komatsu dozers are swapped for Caterpillar dozers when adverse weather conditions have the potential to result in visible dust emissions during stockpile operations.

Condition U2 of the EPL requires NCOPL to develop and implement an Air Quality Control Protocol (AQCP) to reduce coal dust emissions from coal stockpiles during adverse weather conditions. Evidence was sighted during the audit to indicate that the mine has commenced the development of the Protocol with a Trigger Action Response Plan (TARP) prepared to identify the triggers for initiating dust reduction measures. The key triggers for action are based on real-time weather data collected by the on-site weather station and include wind speed and direction. The final AQCP was not due to be finalised and submitted to EPA until 29 November 2013 which was beyond the timeframe for this audit. A review and assessment of implementation of the final Protocol should be undertaken at the next audit.

The Lead Auditor observed dust plumes being generated from the stockpile operations on the morning of 16 October 2013 whilst driving to the site along the Kamilaroi Highway. An inspection of the CHPP Control Room following arrival on site showed that Narrabri Mine had initiated procedures for TARP level 2 which involved activating the water sprays on the tripper and taking the coal feed off the tripper conveyor belts. Weather conditions at the time were clear but windy with wind speeds measured by the on-site weather station exceeding 8m/sec. Other examples of initiation of TARP procedures were also sighted during the audit, to indicate that the TARP procedure is generally well implemented.

4.1.3 Noise

The audit found that NCOPL is generally complying with the noise criteria outlined in the Project Approval and EPL. With respect to the ongoing monitoring and management of noise at NCOPL the audit identified a number of areas for improvement. The recommendations related primarily to improving the systems associated with:

- the collection of attended monitoring data and the format the data is presented in to assist the public in understanding noise issues;
- the methodology associated with the assessment of inversion conditions;
- the continued investigation, development and implementation of real-time response protocols for the real-time monitoring system; and
- investigating and/or implementing reasonable and feasible best practice where practical.

Noise Monitoring

Attended Noise Monitoring

To assess compliance with noise impact assessment criteria, NCOPL undertake attended noise monitoring in the surrounding community and operate a real-time noise monitoring unit to assess ongoing performance of the operation.

Table 2 and Figure 2 of the NMP provided information on the monitoring locations. The monitoring locations used at the time of the audit were generally consistent with the locations identified in Table 2 and Figure 2. It is understood that access is limited to at least one location and so the monitoring results are extrapolated from a representative location, and

monitoring at Belah Park, due to a change in ownership, is now carried out at the residence at Merriman. These locations are not currently shown in the NMP and are not currently referenced in the EPL.

Recommendation

It is recommended the NMP include a procedure that allows for the update of the monitoring locations independent of the biennial review process.

Attended noise monitoring is undertaken in the region surrounding NCOPL by an independent acoustic consultant. The attended monitoring is conducted during day, evening and night in accordance with the procedure in the NMP. While the NMP outlines the methodology for conducting the attended noise monitoring, it does not provide any information on the format of, and the information to be contained within, the noise monitoring report. The methodology for conducting the attended noise monitoring calls for collection of information including:

- recording the time and duration of noise events, noise sources, instantaneous noise levels and the frequency range of identified site noise sources;
- recording information on extraneous noise sources so that they can be filtered from the measured signal;
- weather conditions (generic, not specific in location of data);
- monitoring locations and times of measurement; and
- details regarding the plant configuration.

Other relevant information that would be collected, but is not specified in the NMP, includes:

- meteorological data (wind speed and wind direction 10 metres above ground level) from the NCOPL weather station plus local data on wind direction, wind speed, air temperature and relative humidity;
- measured noise levels (LA_{max}, LA₁, LA₁₀, LA₅₀, LA₉₀, LA_{min}, LA_{eq}) measured in A- and C-weighting over a 15 minute interval (Refer to EPL 12789 Clause M3.5 and M3.6); and
- field notes identifying mine related sources that may lead to sleep disturbance.

Recommendation

It is recommended that the NMP be revised to include specific details on the information to be collected during the attended noise monitoring program.

The noise monitoring reports provide simple tables of noise monitoring results. The information is concise but not necessarily informative. As the NMP calls for the collection of the time and duration of noise events, noise sources and instantaneous noise levels, the noise monitoring reports could be more informative.

Recommendation

It is recommended that the NMP be revised to include an outline of the preferred format for the noise monitoring reports and how the monitoring data is to be presented.

The objective of the attended noise monitoring report is to report on compliance (or not) of NCOPL with the noise impact assessment criteria. A secondary role of the attended noise monitoring report is to inform the reader about the performance of NCOPL against the noise impact assessment criteria.

It is noted that the methodology for conducting the attended noise monitoring and the format of the attended noise monitoring report are consistent with the objectives of the NMP. However, it is suggested that improvements to the format and presentation of the noise monitoring results could assist the public's understanding of the noise issues.

Recommendation

It is recommended that the attended noise monitoring reports present the information collected during the monitoring program in a format that can be used to inform the public about the performance of NCOPL against the noise impact assessment criteria.

The information in the noise monitoring reports indicates that two methods are used to assess the presence of inversion conditions. One is associated with the use of Gemini Tiny Tag temperature loggers attached to star pickets at a height of approximately 2 metres above the ground. The second is by extrapolating the temperature gradient measured between the 2 metre and 10 metre temperature gauges on the mine operated weather station. Neither of these methods is approved by the EPA when assessing measured noise levels against predicted noise levels where the predicted noise levels are based on lapse rate. The temperature loggers attached to star pickets at a height of approximately 2 metres would be affected by ground effects and the temperature gradient measured between the 2 metre and 10 metre temperature gauges on a 10 metre tower is only indicative of the lapse rate and the presence of inversion conditions.

Current EPA expectation is that if the predicted noise impacts in the EA NIA were based on lapse rate, then the assessment of the noise impacts against the criteria in the EPL would exclude weather conditions based on lapse rate. The current EPA position on this is that a 60 metre tower is required to measure the lapse rate. A review of the Noise and Vibration Impact Assessment for Stage 2 of the Narrabri Project shows that the predicted noise levels were based on lapse rate rather than stability class, therefore, the assessment of operational noise impacts should also be assessed based on lapse rates.

Having said this we acknowledge that the EPL currently requires NCOPL to measure stability class and that NCOPL are complying with this requirement. Also, the Noise Management Plan approved by DP&I outlines the method for measuring inversion conditions and NCOPL are complying with this method.

We recommend NCOPL consider addressing this apparent discrepancy between what is approved in the EPL and Noise Management Plan and the current position of the EPA in terms of methods for determining inversion conditions for the purposes of comparing noise monitoring results with noise impact predictions.

Recommendation

It is recommended that the assessment methodology for inversion conditions be reviewed and the expectations of the EPA clarified regarding the acceptable measurement methods.

It is noted that the weather station satisfies the requirements EPL 12789 Clause M4.1. However, the suitability of the weather station to measure lapse rate, as lapse rate is required to be reported, should be reviewed.

Real-time Noise Monitoring and Real-time Response Protocols

The NMP notes that attended noise surveys are the primary method for describing the acoustic environment and determining the sites compliance against the relevant noise criteria. However the *Schedule 4 – Specific Environmental Conditions, Condition 4 (c) Monitoring* calls for 'a Noise Monitoring Program incorporating: real-time noise and temperature inversion monitoring; and attended noise monitoring to monitor the performance of the project'. It was noted that NCOPL proposed the real-time noise monitoring system to be used to initiate reactive noise control measures. However, the real-time noise monitoring unit is mobile and is moved from monitoring site to monitoring site on an as-needs basis to assess concerns regarding actual or perceived noise levels. For real-time noise monitoring systems to achieve both of these functions, it is preferable that there is at least one real time unit fixed in a permanent location against which performance can be benchmarked. Another potential use for the real-time noise monitoring system is to assess compliance, with the attended noise monitoring program used to support the findings of the real-time noise monitoring system.

The NMP proposes that real-time operational response measures can be triggered upon determination that the noise source is mine site related. It is not clear if, during the period covered by the audit, that NCOPL have fully developed and implement real-time response protocols to assist in the management of the noise impacts from NCOPL. This includes the implementation of noise alarms on the continuous noise monitors and engaging suitable trained personnel to investigate noise complaints and alarms.

Recommendation

It is recommended that NCOPL provided more information to the public through the CCC or other appropriate forum on the implementation of the real-time response measures and report on the 'clear public benefit' of the application in accordance with Schedule 4 – Specific Environmental Conditions, Condition 5 Continuous Improvement.

It is also recommended that NCOPL continue to investigate, develop and implement real-time response protocols to the satisfaction of DP&I. This could include performance monitoring of NCOPL against the noise impact assessment criteria.

Noise Impact Assessment Criteria

Schedule 4 – Specific Environmental Conditions, Condition 1 Noise Impact Assessment Criteria requires the LAeq,15minute noise generated by the project 'to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary'. This is consistent with the requirements of the EPL 12789. That is NCOPL is required to determine compliance (or not) at all privately-owned residences.

Given that NCOPL has an approved NMP it could be considered that DP&I has agreed that the noise monitoring program is suitable to determine compliance with noise criteria in the Project Approval. In regard to the EPL, no such agreement is in place with the EPA and EPA did not provide comment on the NMP and therefore is not strictly in compliance with the EPL. In some cases the noise monitoring reports state that a 4 to 8 dB correction factor should be applied to extrapolate monitoring results from one location to a second location. NCOPL needs to either undertake monitoring at all noise receivers identified in the EPL (as Condition M3.6), or clearly define the extrapolation rules between monitoring locations.

Recommendation

It is recommended that more information is provided on the relationships between actual monitoring locations and the extrapolation of the monitoring results from the first location to a second location and that this methodology is approved by the EPA or vary the EPL to reflect the actual monitoring locations used.

Continuous Improvement

Schedule 4 – Specific Environmental Conditions, Condition 5 Continuous Improvement states the Proponent shall:

- implement all reasonable and feasible best practice noise mitigation measures;
- investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance; and
- report on these investigations and the implementation and effectiveness of these measures in the Annual Review.

Although NCOPL has only been operating for a short period of time, NCOPL should be investigating and demonstrating a willingness to implement reasonable and feasible best practice where practical. With respect to the management of noise, this has not been demonstrated in the Annual Review.

Recommendation

It is recommended that NCOPL report on the benefit of any noise mitigation measures that are investigated and/or implemented in the Annual Review and that this information is provided to the local community via the CCC or other appropriate forum.

Based on the reporting to date, is considered by the audit team that NCOPL has generally not been actively investigating reasonable and feasible best practice noise mitigation measures and therefore is not complying with *Schedule 4 – Specific Environmental Conditions, Condition 5 Continuous Improvement*.

Compliance Review and Evaluation

The NMP briefly outlines the protocols used by NCOPL for receiving and handling complaints, and assessing compliance with the 35 dB(A) LAeq,15minute impact assessment criteria, the 45 dB(A) LA1,1minute sleep disturbance criteria and the 40 dB(A) LAeq,15minute land acquisition criteria.

Noise Complaints

Section 4 of the NMP includes details on the Complaints Handling and Monitoring process. During the period covered by the audit, NCOPL investigated and/or implemented the management and control measures identified in the NMP in accordance with the Complaints Handling and Monitoring process. This was demonstrated through documentation of the activities undertaken in the Narrabri Mine Complaints Register. During the 2011 period, one of the five complaints included noise as an issue. During the 2012 period, one of the four complaints was about noise. During the 2013 period, eight of the 26 complaints were about, or included, noise as an issue.

Over the audit period, the NCOPL Annual Review reported each complaint received from the community and NCOPL's response to the complaint. A review of NCOPL responses indicates that NCOPL has successfully implemented a protocol that establishes the nature of the issue, clearly defines the source of the complaint and implements remedial actions when required. The nature of the complaints and action taken are summarised in **Table 4.1**.

Table 4.1 – Summary of Noise Complaints

Period	Complaint Number	Nature of Complaint	Action Taken
2011	2	Number of issues raised including noise from commissioning activities	Mobile noise monitor moved to complainant's residence.
2012	1	Noise sources include: hammering, reverse alarms, vehicular/ machinery horns, general noise from CHPP and product tripper.	Close attention to monitored noise levels at portable noise monitor over the following week.
2013	6	General complaint in relation to noise and dust	Response provided to the EPA advising of current noise monitoring undertaken at the site including locations.
	13	Noise in the morning relating to dozer reversing beeps and tracks	Noise propagation due to inversion; monitoring to be undertaken during August and September
	17	Noise at local property which is not occupied constantly.	Property to be included in the next round of monitoring
	18	Constant humming noise and dozer tracks	Noise model being revisited and monitoring due during month at the complainant's residence.
	19	Constant drone from mine can heard inside the house	Related to strong temperature inversions. Noise monitoring due this month which should identify any impacts
	21	Noise and dust being generated	Noise model being revisited to validate the predicted levels.
	23	Noise relating to dozer tracks and engine hum	Noise model being validated and copy of the monitoring report for September provided
	25	Dozer noise on Saturday morning and afternoon / evening.	Latest noise monitoring report provided to complainant

In general, noise complaints were considered to have been adequately addressed for the audit period. However, the review of the site noise model, identified as an action in the Narrabri Mine Complaints Register, had not been completed at the time of the audit and, as such, the results of this review were not available during the audit.

Recommendation

It is recommended NCOPL provide updates on the progress of the review of the site noise model within the Annual Report and to the CCC.

Compliance with the LAeq,15minute and the LA1,1minute Noise Criteria

With respect to the noise monitoring results, the audit found that NCOPL is generally complying with the noise criteria outlined in the Project Approval and EPL (except for few minor exceedances discussed below). **Table 4.2** identifies where monitoring has taken place over the 2012 and 2013 period and where noise levels have been recorded above the noise criteria in the Project Approval and EPL.

Table 4.2 – Implementation Monitoring Program and Recorded Operational Noise Levels above Criteria

Period	2012 Period							2013 Period					
	May 2011	June 2011	July 2011	August 2011	September 2011	December 2012	March 2012	June 2012	July 2012	August 2012	September 2012	December 2012	March 2013
N1 – Bow Hill (R17)	✓	✓	✓	✓	✓	✓	✓	✓	✓	38 ₅	✓	✓	✓
N3 – Naroo (R24)	✓	✓	✓	✓	38 ₁	✓	✓	40 ₄	✓	✓	✓	36 ₆	✓
N4 – Greylands (R13)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
N5 – Oakleigh	-	-	-	-	-	-	✓	✓	-	✓	✓	✓ ⁷	✓
N6 – Newhaven	-	-	-	-	-	-	✓	✓	-	Est. ₈	✓	✓	Est. ₉
N7 – Merriman ²	-	-	-	-	-	-	✓	✓	-	✓	✓	✓	✓
Westhaven (R21)	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-	-
Kurrajong (R22)	Est. ₃	-	-	Est. ₃	Est. ₃	-	-	-					
Claremont (R19)	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-	-

- Note 1: Reported as "Shift change traffic criteria under 0.9m/s WSW and +1.3°/100m (See details below).
- 2: In August 2013 Belah Park ownership was reported to be the same as Merriman and monitoring was carried out at the residence at Merriman.
- 3: Measurements were taken near the boundary fence with R19 "Claremont", which is approximately half way between the box cut and the "Kurrajong" residence. The noise report states "a correction factor between 4 and 8 dB should be subtracted from these results to estimate the noise level at "Kurrajong". The Kurrajong property was purchased by NCOPL in April 2010 and monitoring is no longer undertaken at this site.
- 4: Associated with noise enhancing +8°/100m inversion.
- 5: Associated with noise enhancing conditions of greater than +4°/100m inversion.
- 6: Associated with noise enhancing conditions of greater than 3m/s wind speed.
- 7: Recorded LA1, 1 minute above criteria but associated with noise enhancing conditions of greater than 3m/s wind speed.
- 8: The owner denied access to Newhaven so the monitoring was carried out at the southern boundary to the property. The noise report states "a correction factor of between 4 and 8 dB should be subtracted from these results to estimate the noise level at the boundary.
- 9: Reported as "Noise from gas drainage wells (33), mine noise (32)" and compliant with criteria under 0.9m/s WSW and +1.3°/100m (See details below)

Table 4.2 indicates the noise levels due to NCOPL were recorded above the LAeq, 15 minute criteria of 35 dB(A) on five occasions. Three of these occasions were associated with weather conditions excluded by the Project Approval and EPL. The other two occasions are as follows:

- In the September 2011, the noise monitoring report stated that ‘the noise emissions from NCOPL did not exceed the criterion of 35 dB(A) LAeq, 15 minute at any location’. However, there is a reported noise level at N3 – Naroo during the day time (15 minutes commencing 7:09 am) on 28 September 2011 of 38 dB(A) LAeq, 15 minute due to shift change traffic. There is no information as to the location of the traffic. If the traffic is located on the private access road to the mine then the noise generated by the traffic would be considered as a part of the operational noise. If the traffic is on a public road it would be assessed against different criteria.
- In the March 2013, the noise monitoring report stated that “the mine noise did not exceed the operational noise criterion at any monitoring location during any of the monitoring periods”. However, an exceedance was recorded at N6 – Newhaven during the night time period on 8 March 2013. The footnote on the summary table reported the recorded noise to be a combination of noise from gas drainage wells at 33 dB(A) and mine noise at 32 dB(A). As both are mine related the total recorded noise level should have been assessed against the 35 dB(A) LAeq, 15 minute criteria.

Recommendation

It is recommended that the noise monitoring result for September 2011 and March 2013 be reviewed and assessed against the 35 dB(A) LAeq, 15 minute criteria.

The information in the noise monitoring reports indicate that under the operating and meteorological conditions at the times, the maximum LA1,1 minute noise emission from NCOPL did not exceed the sleep disturbance criterion. On one occasion the noise levels due to NCOPL were recorded above the LA1,1 minute criteria but this was associated with weather conditions excluded by the Project Approval and EPL. While no further action is required regarding the monitoring of the LA1,1 minute noise emission from NCOPL, it is noted that the actual monitoring results are not transparent, or easily reviewed by a third party.

Recommendation

It is recommended that NCOPL develop and/or review the reporting protocols for various noise monitoring programs to ensure the information provided by the independent noise consultant(s) is transparent, easy to interpret and suitable for non-technical readers.

4.1.4 Surface Water

Surface water management across the site is generally in accordance with the relevant Project Approval and EPL 12789 conditions.

NCOPL has received two PINs for discharging sediment laden water from the site. The first PIN was received following discharges from storage basin SB3 in November 2011. The PIN was issued as a result of the discharges being from a point other than a licensed discharge point (Condition P1.3 of EPL 12789). It is understood that the discharges occurred during a period of heavy rain at a time when SB3 was collecting water from the Reject Emplacement Area which was not receiving rejects at the time. Whilst a Permit to Work – Surface Disturbance Work was prepared prior to the construction of SB3, the Permit to Work does not include explicit requirements for erosion and sediment controls. The construction of SB3, associated catch drains, and clean water diversion drains has since been completed.

NCOPL received a second PIN, under Condition O1.1 of EPL 12789, following a discharge of coal impacted water from vertical production well (VPW) 26 in February 2012. NCOPL commissioned a vegetation assessment of the impacted area and also revised the procedure for accessing well heads. Vegetation assessments of the impacted area have shown that no long-term impacts have occurred. No further action is considered to be required.

The surface water assessment stated that the spillways for the sediment basins and storage basins will be sufficient to carry the discharges resulting from the 100 year Average Recurrence Interval (ARI) critical duration storm event. Neither the surface water assessment nor other documentation sighted includes any indication of the potential flow velocities within the spillways during discharge events. Discharges resulting from the 100 year ARI critical duration storm event may result in erosion and scouring of the spillway. Surface protection linings, such as rock armouring may therefore be required to ensure that the spillway remains stable during discharges resulting from 100 year ARI critical duration storm event. None of the spillways sited during the 15 October 2013 site inspection included surface protection such as rock armouring.

Recommendation

It is recommended that the design of the spillways for the sediment basins and water storage basins be reviewed to ensure that they will remain stable for, at a minimum, the discharges resulting from the 50 year ARI critical duration design storm event, as required by Volume 2e of the Blue Book (Mine and Quarries; DECC (NSW), 2008). If necessary surface protection linings, such as rock armouring, may be required to ensure that the spillways remain stable during large rainfall events.

It is recommended that the Permit to Work – Surface Disturbance Work form be amended to include details of the minimum required erosion and sediment controls and references to the appropriate sections of Volumes 1 and 2 of the Blue Book (Landcom, 2004 and DECC, 2008).

4.1.5 Groundwater

4.1.5.1 The calibration of the groundwater model

The first coal was produced in June 2010 but extraction in the first longwall panel did not commence until June 2012. At the time of the audit site visit, the mine was approximately half through the planned production of the second longwall panel.

Groundwater monitoring commenced in 2007. The first groundwater model was produced by GHD (2007) using MODFLOW software and the model description and initial results produced for the Environmental Impact Statement. In 2011, Aquaterra updated the model and produced a report providing a review and update with new data (recalibration) of the model. This occurred within the 2 year period stipulated in the conditions. The model contains eleven active layers representing the major hydrogeological units within the mining area. Model boundaries were based on stratigraphic and topographic controls for each of the eleven layers. The modelled area covers some 1950 square kilometres.

Model recalibration requires the input of additional groundwater monitoring data. Communications between the mine and NOW regarding the groundwater monitoring program concluded that additional data from new monitoring bores is not extensive enough to warrant a recalibration of the groundwater model at this time.

However, the impact of the longwall is reflected in the pressure heads in monitoring bores close to the goaf or within the goaf. Monitoring sites P18 and P19, and the decommissioned P20 site (bore collapsed and installed vibrating wire piezometers have been lost as the goaf

collapsed), display drops in water level and pressure attributable to mining activities. However, these sites are close to or within the goaf. Although the groundwater inflows are still low and considered by the mining staff as a nuisance, the water balance spreadsheet indicates that between 0.5 and 1.0 ML/Day is pumped to the box cut sump.

Recommendations

- *The trends reflected on the groundwater pressure head graphs should be reviewed as data is received and plotted, to track the depressurisation zone development and extent.*
- *The construction of piezometric maps – contours of the groundwater to see the development of the zone of depressurisation is suggested.*
- *A reasonable period of data – at least one hydrological season (at least 12 months) – could be used as a guide to when the next recalibration of the groundwater model occurs.*

4.1.5.2 Forward impact predictions of brine re-injection to the mine's goaf at the conclusion of mining operations

The Project Approval schedule requires forward projections of brine reinjection into the mine goaf at the conclusion of mining operations and with each model recalibration. Although the impacts of reinjection on the groundwater table rebound post mining could potentially be simulated with the existing model– when there is adequate data for the recalibration - there is no indication of how water quality will be impacted or changed. Furthermore, it is not clear whether the model has been adequately set up to include brine reinjection at the termination of mining operations. No documentation was seen in respect of how the model would account for various flow phenomena including density driven flow and what hydro-chemical components are in the model to assess interaction between the brine and the surrounding lithological materials and mixing of the brine with the groundwater.

The Aquaterra (2009) hydrological assessment contains information on subsidence modelling which indicates that upward cracking due to subsidence is unlikely to occur above the Napperby Formation of the Gunnedah Basin Permian – Triassic sediments and terminating at the base of the Garrawilla Volcanics. Changes in permeability, transmissivity and storage will occur in the units below the Garrawilla Volcanics if fracturing occurs due to subsidence.

Particle tracking simulation used in the first model represents an attempt to simulate the movement of water. The particle tracking assessment indicates the upward migration of brine reinjected into the goaf would not be expected to occur into the Garrawilla Volcanics and overlying lithologies. However, this assessment is probably too simplistic to adequately represent forward projections of brine reinjection into the mine goaf planned for commencement at the end of the life of mine.

Goaf re-injection will only occur later in the life of mine and at a time that has not been defined in the documents reviewed. During the operation of the mine brine will be contained at surface in storage dams.

Modelling has indicated that there would be little or no impact on the Namoi River Alluvium.

Recommendations

The geochemistry of the rock material in the goaf up to the base of the Garrawilla Volcanics, including the 4.5 m coal left in the roof, would require geochemical assessment to assess the brine/groundwater mixing characteristics and impact of any reactions with the surrounding rock and coal material.

It is suggested that Narrabri Mine staff discuss and reach agreement with NOW on model protocols to allow assessment of the density and potential hydrochemical reactions to satisfy schedule 4 condition 9.

Trigger levels could be established for the final goaf water comprising reinjected brine and groundwater.

4.1.5.3 Summary

NCOPL has in place the fundamentals of a good groundwater management system. A risk assessment process has been used to identify key areas for monitoring and management. The application of Reverse Osmosis (RO) for improving and recycling groundwater for mine purposes is considered to be an area of leading practice. However, the implementation of a water management system for data and other information will assist in maintaining corporate information and memory.

As discussed in **Section 4.1.1**, the impact of groundwater drawdown above the goaf may have impacted tree growth and life. Die off of trees was seen above and close to the goaf. It is understood that NCOPL are currently investigating the cause of this incident.

The commitments to and requirements for groundwater modelling and model recalibration and updating of the mine water balance should be aligned.

Brine reinjection modelling requires the use of hydrochemical models such as PhreeqC to ascertain how the injected water and the water accumulating in the goaf will mix and also how the re-injected water may react with the surrounding strata. This is required to model the final groundwater quality that will be discharged to the goaf.

4.1.6 Effluent Irrigation Area

It was observed during the audit site inspection that there appears to be evidence of ponding/waterlogging within the effluent irrigation area. The environmental performance objectives set out in the EPA Effluent Guidelines identify that an effluent irrigation system should maintain or improve the capacity of the land to grow plants, and should result in no deterioration of land quality through soil structure degradation, salinisation, waterlogging, chemical contamination or soil erosion. Given that the area currently utilised is static and not rotated from area to area, there is potential for a degradation of land quality with persistent use. It is suggested that Narrabri Mine should consider a monitoring program (e.g. annual soil condition monitoring) and rotate the effluent irrigation to other areas if monitoring determines any issues with soil health.

4.1.7 Goaf Gas Drainage

The original EA prepared for the Stage 2 project included goaf gas drainage boreholes at approximately 200 metre spacings. During the operation of LW101, it was necessary to decrease the spacing between goaf gas boreholes to 50 metres. Whilst the goaf gas drainage plants at 50 metre spacings are smaller in size, and have a smaller disturbance footprint, than those envisaged for the 200 metre spacing, there is potential for the increased number of gas drainage boreholes to exceed the overall disturbance footprint currently approved.

It is understood that NCOPL is investigating alternate gas drainage plant spacings, however monitoring of the overall disturbance footprint is needed to ensure that the mine does not exceed the footprint currently approved. Should gas drainage spacings of less than 200 metres be required for future longwall panels, this may not be considered to be generally in accordance with the project as described in the EA, and NCOPL should seek advice as to whether or not a modification to the Project Approval is required.

4.2 Compliance Management, Reporting and Review

Evidence was sighted during the audit to indicate that NCOPL is generally aware of its compliance obligations. Requirements from Project Approval conditions and commitments identified in the Statement of Commitments have generally been translated into the various management plans and monitoring programs for the site operations.

In terms of assessing their environmental performance, the site Environmental Officer for the Narrabri Mine conducts monthly site inspections using a standard checklist and reviews the monthly environmental monitoring data. Using this data, the Whitehaven Group Environmental Manager prepares monthly reports that are provided to senior management to review the environmental performance of the operations.

Where exceedances have been reported, evidence was sighted to indicate that notification of the exceedances to DP&I and EPA has been undertaken. The audit team noted a significant improvement in the notification and management of incidents from the previous audit such that most incidents are notified and reported within the timeframes required by the conditions of approval.

It was noted that the subsidence management approval issued by DRE for LW101 to LW105 includes Condition 16 vi (b) which requires the Leaseholder to report within 24 hours of becoming aware of the occurrence of any exceedance of predicted impacts on groundwater resources and/or the natural environment that may have been caused (whether partly or wholly) by subsidence. The issue of tree death along Greylands Road and Pine Creek Tributary 1 would be considered a greater than predicted impact on the natural environment and as such should have been reported to DRE. No evidence was sighted during the audit to indicate that this occurrence had been reported to DRE when initially identified as an issue but the impacts have been reported as part of the 2012/2013 Annual Environmental Management Report/Annual Review submitted in early July 2013. During consultation with DRE as part of the audit, the nominated DRE officer was unaware of the incident.

Evidence was also sighted that NCOPL conducts a compliance assessment each year as part of the AEMR with the results of this assessment being included as an Appendix to the AEMR. It is considered that this process will facilitate the identification of non-compliance issues on an annual basis and should result in improved performance during future independent audits.

5.0 Conclusion

NCOPL has implemented comprehensive environmental management and monitoring systems at its Narrabri Mine. The NCOPL management team and, in particular, the site Environmental Officer have shown considerable commitment to environmental performance at the site. This is reflected through the overall positive responses received from government agencies interviewed for the audit and the general compliance with environmental performance found as part of this audit.

The audit found a number of non-compliances with the relevant approvals and licences that apply to the project which generally related to the following issues:

- unpredicted tree death above longwall panel LW101;
- exceedance of specific environmental performance criteria relating to water discharges (including two unlicensed discharges);
- not all approval documents required by the Project Approval conditions are available on the NCOPL website; and
- secondary requirements for documents or actions required under the Project Approval, such as gaining formal approval from DP&I or submitting management plans within a required timeframe.

Several of the non-compliances identified during the audit, particularly those related to secondary requirements for documents or actions under the Project Approval, are considered unlikely to affect NCOPL's ability to effectively manage environmental issues in accordance with the relevant approvals and licences that apply to the project. For the non-compliances identified that were associated with exceedances of performance criteria, NCOPL was found to be addressing the issues that have arisen in a satisfactory manner and reporting exceedances to relevant government agencies as required under the Project Approval and EPL.

There were several areas where the audit team identified opportunities for improvement of the environmental management controls or monitoring systems currently in place. The areas for improvement generally related to:

- improvements to the water management plan;
- improvements to the noise monitoring system, including improving the quality and clarity of information provided in the noise monitoring reports; and
- the consideration of soil health monitoring in the effluent irrigation area, or the consideration of rotating the areas currently used for effluent irrigation.

6.0 References

- AECOM 2011. Narrabri Mine Coal Resource Recovery Plan Longwall Panels 101 to 105.
- AECOM 2011a. Narrabri Mine Extraction Plan Longwall Panels 101 to 105.
- AECOM 2012a. Narrabri Mine Subsidence Monitoring Program Longwall Panels 101 to 105.
- AECOM 2012b. Narrabri Mine Built Features Management Plan Longwall Panels 101 to 105.
- AECOM 2012c. Narrabri Mine Public Safety Management Plan Longwall Panels 101 to 105.
- AECOM 2012d. Narrabri Mine Heritage Management Plan Longwall Panels 101 to 105.
- Aquaterra Consulting Pty Ltd 2009. Narrabri Coal Mine Stage 2 Longwall Project Hydrogeological Assessment.
- Department of Environment and Climate Change 2008. Managing Urban Stormwater. Soils and Construction Volume 2E Mines and Quarries.
- Ditton Geotechnical Services Pty Ltd 2009. Narrabri Coal Mine Stage 2 Longwall Project – Mine Subsidence Predictions and Impact Assessment.
- Eco Logical 2012a. Narrabri Mine Landscape Management Plan.
- Eco Logical 2012b. Narrabri Mine Rehabilitation Management Plan.
- Eco Logical 2012c. Narrabri Mine LW101 – 105 Biodiversity Management Plan.
- GSS Environmental 2011. Narrabri Coal Mine – Revised Conceptual Mine Closure Plan for Stage 2 Longwall Operations.
- Landcom 2004. Managing Urban Stormwater: Soils and Construction ‘The Blue Book’.
- Spectrum Acoustics 2009. Narrabri Coal Mine Stage 2 Longwall Project – Noise and Vibration Impact Assessment.
- URS 2013. Narrabri Mine Water Management Plan.



APPENDIX 1

Agency Interview Questions

**Narrabri Independent Environmental Audit – October 2013
Agency Questions**

Agency:		Time:	
Representative(s):		Location:	
Date:			

1. What is your agency's role in relation to the Narrabri mining operations?
2. What is your specific role within the agency, particularly relating to your involvement with the Narrabri mining operations?
3. What aspects of your agency's statutory role relate to the Narrabri mining operations?
4. In relation to the Narrabri mining operations compliance with statutory requirements administered by your agency:
4.1. Are you satisfied with the Narrabri mining operations reporting of compliance status (including monitoring results)?
4.2. Are you aware of any past or current compliance issues (including fines, notices etc.)? If so please provide details.
4.3. What actions were taken to resolve these compliance issues (e.g. programs developed, activities modified etc.) and were you satisfied with these actions?
4.4. Are you aware of any currently outstanding compliance issues or actions?
5. Are you aware of any outstanding community complaint issues in relation to the Narrabri mining operations?
6. Are you satisfied with the way in which community complaints have been managed by the Narrabri mining operations?
7. Do you have any other specific environmental or community issues in relation to the Narrabri mining operations that need to be addressed?



APPENDIX 2

Compliance Assessment PA 08_0144

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
2	1	The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.	NC	<p>Five incidents have occurred at the Narrabri Mine since November 2011. These are:</p> <ul style="list-style-type: none"> • two discharges from SB3, located at the REA, during heavy rain in Nov 2011 and Feb 2012; • two discharges from SB2, located at the coal processing and stockpile areas, during heavy rain in Nov 2011 and Feb 2012; • a discharge of coal impacted water from VPW 26, used for pre-drainage of water and gas from the underground coal workings in Feb 2012. <p>These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:</p> <ul style="list-style-type: none"> • SB3 discharge on 25/11/2011 – two PINs, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner); • SB2 discharge (coal impacted water) – two PINs (25/11/2011 & 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and • VPW26 discharge on 10/02/2012 – two PINs, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner). <p>No PINs were issued for February 2012 discharge from SB3.</p> <p>Additionally, the issue of tree death along the sections of Greylands Road and Pine Creek Tributary 1 above LW101 is most likely related to unplanned subsidence impacts. NCOPL has initiated investigations into the cause of the tree death.</p>	NCOPL has implemented suitable actions to address the unlicensed discharges and minimise the potential for any future unplanned discharges.
	2	The Proponent shall carry out the project generally in accordance with the:			
		(a) EA;	O	The site inspection and discussions with site staff identified some changes to operations to that described in the EA.	Goaf gas drainage plants were proposed to be located at 200 metre spacings. During the mining of LW01, it was necessary to increase the number of gas drainage plants which were now observed to be spaced at 50 metre intervals. It is understood that NCOPL is investigating alternate spacings, however, if 50 metre spacings will be required for future longwall panels, this is unlikely to be considered as generally in accordance with the EA. Discussions with site staff also identified that the plant on site appears to be noisier than that originally envisaged in the EA.
		(b) statement of commitments (see Appendix 3); and	C	It was observed that operations are generally in accordance with the statement of commitments.	
		(c) the modification application 08_0144 MOD 1 and accompanying letter prepared by Narrabri Coal Operations Pty Ltd;	C	Minor modification in relation to the Extraction Plan	
		(d) the modification application 08_0144 MOD 2 and accompanying letter prepared by Narrabri Coal Operations Pty Ltd;	C	See condition 7A below.	
		(e) conditions of this approval.	NC	Non-compliances with conditions identified.	
		Note: the general layout of the project is shown in Figures 1 to 3 of Appendix 2.	Noted	It was observed that the project had generally been constructed in accordance with the general layouts shown in Figures 1 to 3 of Appendix 2.	
	3	If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.	C	There were some minor inconsistencies between the Statement of Commitments and the conditions of this approval. It was noted that the conditions of approval have prevailed in these cases.	
	4	The Proponent shall comply with any reasonable and feasible requirements of the Director-General arising from the Department's assessment of:			
		(a) any reports, plans, programs, strategies or correspondence that are submitted in accordance with the conditions of this approval; and	C	Evidence was sighted during the audit to indicate that NCOPL had revised management plans to address issues raised by DP&I on plans submitted for approval.	
		(b) the implementation of any actions or measures outlined in these reports, plans, programs, strategies or correspondence.	C	NCOPL advised that to date, DP&I has not provided any specific requirements in relation to implementation of actions or measures.	
	5	The Proponent may undertake mining operations on the site for 21 years from the date of this approval.	C	Approval is current - set to expire in 2031.	
		Note: Under this Approval, the Proponent is required to rehabilitate the site and to perform additional undertakings to the satisfaction of the Director-General. Consequently this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated to a satisfactory standard.			

Project Approval No: 08_0144 - Stage 2 Operations



Approval dated 26 July 2010

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
	6	The Proponent shall not extract more than 8.0 million tonnes of ROM coal from the site per calendar year.	C	Production statistics provided in AEMR show that production is well below the 8 million tonne limit with only 2,587,459 tonnes produced in the 12 months to 31 March 2013.	
	7	The Proponent shall transport all coal from the site by rail.	NC	Due to a train derailment on the Gunnedah rail line in November 2012, NCOPL undertook a trial of transporting coal from Narrabri to the Gunnedah CHPP by road. It is understood that the trial only lasted 1.5 days. DP&I issued a letter advising that the trucking of coal was in breach of the Project Approval. The trial was stopped and no further transport of coal by road has occurred.	No further action is considered to be required.
	7A	The proponent may undertake a one off transport of coal by road of an approximate 600 tonne bulk sample of coal in accordance with the procedures, vehicle traffic route and transport operating hours as specified in the modification application 08_0144 MOD2 and accompanying letter dated 12 December 2011 from Whitehaven Coal Mining Limited.	C	Evidence was sighted that the one off trucking of coal occurred during the period 23 January 2012 - 14 February 2012 with 620.12 tonnes being removed as part of the bulk sample.	
	8	The Proponent shall not transport any coal reject from the site.	C	A rejects emplacement area has been constructed on site. There was no evidence sighted during the audit to indicate that any reject is trucked off site.	
	9	Within 6 months of this approval, the Proponent shall enter into planning agreements with Narrabri Shire Council (NSC), Gunnedah Shire Council (GSC) and the Minister in accordance with: (a) Division 6 of Part 4 of the EP&A Act; and (b) the terms of the Proponent's offers accepted at NSC's meeting of 16 February 2010, and GSC's meeting of 16 February 2010, which includes the matters set out in Appendix 4.	C	Evidence was sighted during the last audit to indicate that planning agreements with NSC and GSC were in place. Further evidence by way of letters from NSC and GSC has been sighted to indicate that Council has agreed to the Stage 2 contributions.	
		If there is any dispute between the Proponent and either NSC or GSC during the formal drafting of the planning agreements, then any of the parties involved may refer the matter to the Director-General for resolution.	NT	No disputes to date	
	10	Within 12 months of the date of this approval, the Proponent shall surrender its previous project approval for the Narrabri Coal Mine to the satisfaction of the Director-General, in accordance with section 75YA of the EP&A Act. Prior to the surrender of the Stage 1 approval, if there is any inconsistency between the Stage 1 and Stage 2 approvals, the conditions of the Stage 2 approval shall prevail to the extent of any inconsistency.	C	Sighted letter from Whitehaven to DP&I dated 25 July 2011 surrendering the previous consent (05_0102) and subsequent letter from DP&I dated 2 August 2011 accepting surrender.	
	11	With the approval of the Director-General, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis. <i>Note: The conditions of this approval require certain strategies, plans, and programs to be prepared for the project. They also require these documents to be reviewed and audited on a regular basis to ensure they remain effective. However, in some instances, it will not be necessary or practicable to prepare these documents for the whole project at any one time, particularly as these documents are intended to be dynamic and improved over time. Consequently, the documents may be prepared and implemented on a progressive basis, subject to the conditions of this approval. In doing this however, the Proponent will need to demonstrate that it has suitable documents in place to manage the existing operations of the project.</i>	C Noted	Extraction Plans are being prepared and submitted progressively as mining progresses.	
	12	Stage 1 strategies, plans or programs continue to have effect until replaced by an equivalent approved strategy, plan or program prepared and approved under this approval.	O	Stage 1 management plans were in effect at the last audit and NCOPL advised that they remained in effect until the Stage 2 plans were approved by DP&I. It was noted that a Biodiversity Offset Strategy was not required under the conditions of the Stage 1 project approval, hence there is currently no Biodiversity Offset Strategy in place as the Stage 2 plan is currently still in draft form.	
	13	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. <i>Notes: Under Part4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the project.</i>	C	Sighted construction certificate dated 23/9/2010 in relation to the Stage 2 mine surface facilities.	

Project Approval No: 08_0144 - Stage 2 Operations

Approval dated 26 July 2010



Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments								
	14	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.	NT	No demolition works have been required.									
	15	The Proponent shall ensure that all plant and equipment used on site is: (a) maintained in a proper and efficient condition; and	C	The NCOPL Workshop Supervisor demonstrated the use of the maintenance management system currently in use for the maintenance of plant and equipment. Service requirements for each plant are identified and programmed into the maintenance system. Work orders are automatically generated as each service milestone becomes due. Daily plant inspections are carried out by plant operators with Defect Work Orders raised for any defects identified. During the audit, the auditor observed that work orders and defects were closed out when completed.									
		(b) operated in a proper and efficient manner. <i>Note: These conditions should be read in conjunction with section 5 of the revised Statement of Commitments.</i>	C Noted	NCOPL has established a comprehensive training and competency assessment system which was observed to be well implemented for all staff. A skills matrix has been established and a Training and Competency Management Plan prepared for the current year (dated June 2013).									
3	1	The Proponent shall ensure that mine subsidence does not cause any exceedances of the performance measures in Table 1. <small>Table 1: Subsidence Impact Performance Measures</small> <table border="1"><thead><tr><th colspan="2">Water Resources</th></tr></thead><tbody><tr><td>Great Artesian Basin</td><td>The Proponent shall ensure that, within 5 years of the date of this approval, any loss of water flow into the Great Artesian Basin aquifers (equal to the maximum predicted impact, or the measured impact of the project, whichever is the greater), is managed, licensed or offset (including the possibility of injection of raffinate) to the satisfaction of NSW.</td></tr></tbody></table> <table border="1"><thead><tr><th colspan="2">Biodiversity</th></tr></thead><tbody><tr><td>Flora and Fauna</td><td>The Proponent shall ensure that clearing and disturbance of vegetation above the mining area is minimised, to the satisfaction of the Director-General.</td></tr></tbody></table> <small>Note: The Proponent may be required to define other performance measures and performance indicators in management plans required under this approval (see eg condition 3 below).</small>	Water Resources		Great Artesian Basin	The Proponent shall ensure that, within 5 years of the date of this approval, any loss of water flow into the Great Artesian Basin aquifers (equal to the maximum predicted impact, or the measured impact of the project, whichever is the greater), is managed, licensed or offset (including the possibility of injection of raffinate) to the satisfaction of NSW.	Biodiversity		Flora and Fauna	The Proponent shall ensure that clearing and disturbance of vegetation above the mining area is minimised, to the satisfaction of the Director-General.	O	• Water Management Plan (URS 2013) It was observed that a number of large trees appeared to have died off along Greylands Road and Pine Creek Tributary 1 following the mining of longwall panel LW01. NCOPL are currently investigating this issue to ascertain if it was related to subsidence - if so, this would not be considered to be minimising the disturbance of vegetation above the mining area, as these impacts were not predicted to occur.	It was advised during the site visit that NCOPL plan to offset any loss of water flow into the Great Artesian Basin aquifers. However, it was noted that the timeframe for doing so was within 5 years after the date of the approval (i.e. before July 2015). This should be verified at the next audit. It was noted that NCOPL has a licence to extract 248ML from the Great Artesian Basin, however modelling predicts that losses are only likely to be in the order of 10ML/year.
Water Resources													
Great Artesian Basin	The Proponent shall ensure that, within 5 years of the date of this approval, any loss of water flow into the Great Artesian Basin aquifers (equal to the maximum predicted impact, or the measured impact of the project, whichever is the greater), is managed, licensed or offset (including the possibility of injection of raffinate) to the satisfaction of NSW.												
Biodiversity													
Flora and Fauna	The Proponent shall ensure that clearing and disturbance of vegetation above the mining area is minimised, to the satisfaction of the Director-General.												
	2	The Proponent shall not carry out first workings in the project area that are not consistent with the approved mine plan without the written approval of the Director-General.	C	• Extraction Plan (AECOM 2011a)	Extraction Plan was approved by the DP&I on 13th April 2012.								

Schedule	Condition No.	Requirement	Compliance Status C/CN/O/NT	Evidence/Findings	Comments								
	3	<p>The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 2, to the satisfaction of the Director-General of I&I NSW.</p> <table border="1" data-bbox="519 430 1098 556"> <caption>Table 2: Subsidence Impact Performance Measures</caption> <thead> <tr> <th colspan="2">Built Features</th> </tr> </thead> <tbody> <tr> <td>All built features</td> <td>Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated.</td> </tr> <tr> <th colspan="2">Public Safety</th> </tr> <tr> <td>Public Safety</td> <td>No additional risk</td> </tr> </tbody> </table> <p><i>Notes:</i></p> <ol style="list-style-type: none"> The Proponent will be required to define more detailed performance indicators for each of these performance measures in Built Features Management Plans or Public Safety Management Plan (see condition 4 below). Requirements regarding safety or serviceability do not prevent preventative or mitigatory actions being taken prior to or during mining in order to achieve or maintain these outcomes. Compensation required under this condition includes any compensation payable under the Mine Subsidence Compensation Act 1961 and/or the Mining Act 1992. 	Built Features		All built features	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated.	Public Safety		Public Safety	No additional risk	C	<ul style="list-style-type: none"> Site inspection undertaken on the 15th October 2013. Built Features Management Plan (AECOM 2012b). Public Safety Management Plan (AECOM 2012c). 	<ul style="list-style-type: none"> The section of Greylands Road which was experiencing active subsidence due to LW102 was closed to the public. Surface deformations above LW101 have been repaired by ploughing and recompacting. Cable rollers installed along the aerial 11 kV powerlines. It is understood that there have been no reported impacts on public safety due to surface subsidence.
Built Features													
All built features	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated.												
Public Safety													
Public Safety	No additional risk												
	4	<p>The Proponent shall prepare and implement Extraction Plans for all second workings in the project area to the satisfaction of the Director-General. Each Extraction Plan must:</p> <p>(a) be prepared by a team of suitably qualified and experienced experts whose appointment has been endorsed by the Director-General and in consultation with DII;</p> <p>(b) be approved by the Director-General before the Proponent carries out second workings covered by the Plan;</p> <p>(c) include detailed plans of the proposed first and second workings and any associated surface development;</p> <p>(d) include detailed performance indicators for each of the performance measures in Tables 1 and 2;</p> <p>(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;</p> <p>(f) describe the measures that would be implemented to ensure compliance with the performance measures in Tables 1 and 2, and manage or remediate any impacts and/or environmental consequences;</p> <p>(g) include the following to the satisfaction of I&I NSW:</p> <ul style="list-style-type: none"> a Coal Resource Recovery Plan that demonstrates effective recovery of the available resource; a Subsidence Monitoring Program to: <ul style="list-style-type: none"> - 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 plan and any ensuing environmental consequences; 	C	<ul style="list-style-type: none"> Extraction Plan (AECOM 2011a) 									
			C	<ul style="list-style-type: none"> Extraction Plan (AECOM 2011a) 	<ul style="list-style-type: none"> Extraction Plan approved by DoPI on the 13th April 2012. 								
			C	<ul style="list-style-type: none"> Extraction Plan (AECOM 2011a) 									
			C	<ul style="list-style-type: none"> Built Features Management Plan (AECOM 2012b). Public Safety Management Plan (AECOM 2012c). 	Performance indicators and measures for the built features provided in the Built Features and Public Safety Management Plans.								
			C	<ul style="list-style-type: none"> Subsidence Report (DgS 2012). 	Subsidence predictions for LW101 to LW105 provided in the subsidence report submitted with the extraction plan.								
			C	<ul style="list-style-type: none"> Built Features Management Plan (AECOM 2012b). Public Safety Management Plan (AECOM 2012c). 	Control measures for the built features provided in the Built Features and Public Safety Management Plans.								
			C	<ul style="list-style-type: none"> Coal Resource Recovery Plan (AECOM 2011) 									
			C	<ul style="list-style-type: none"> Subsidence Monitoring Program (AECOM 2012a) 	<ul style="list-style-type: none"> Subsidence Monitoring Program adequately outlined the locations, methods, timing and frequency and reporting of monitoring results. The established ground monitoring lines and the monitoring frequency were appropriate for the site, based on the mining geometry, surface features and constraints, as well as for the validation of the prediction model and the management of impacts. 								

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
		<ul style="list-style-type: none"> a Built Features Management Plan to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which <ul style="list-style-type: none"> - addresses in appropriate detail all items of public infrastructure and all classes of other built features; and - has been prepared following appropriate consultation with the owner/s of potentially affected feature/s; a Public Safety Management Plan to ensure public safety in the mining area; and appropriate revisions to the Landscape Management Plan required under condition 3 of Schedule 5; and 	C	<ul style="list-style-type: none"> Built Features Management Plan (AECOM 2012b) 	<ul style="list-style-type: none"> Built Features Management Plan addresses each of the built features Consultation with some asset owners is referred to in the document, with details of consultation prior to and during active subsidence for each feature.
		<ul style="list-style-type: none"> a Public Safety Management Plan to ensure public safety in the mining area; and appropriate revisions to the Landscape Management Plan required under condition 3 of Schedule 5; and 	C	<ul style="list-style-type: none"> Built Features Management Plan (AECOM 2012c) 	<ul style="list-style-type: none"> It is understood that there have been no reported impacts on public safety due to surface subsidence.
		<ul style="list-style-type: none"> appropriate revisions to the Landscape Management Plan required under condition 3 of Schedule 5; and 	C	<ul style="list-style-type: none"> Landscape Management Plan (Eco Logical 2012a) Rehabilitation Management Plan (Eco Logical 2012b) Mine Closure Plan (GSS Environmental 2011) 	<ul style="list-style-type: none"> The revised Landscape Management Plan included a Rehabilitation Management Plan and Mine Closure Plan, as required by Condition 3(d) of Schedule 5, as Appendices 4 and 5. It is not clear from the available documentation whether a revised Landscape Management Plan was issued prior to the 30th June 2011 as required by Condition 3(a) of Schedule 5.
		(h) include a: <ul style="list-style-type: none"> Water Management Plan, which has been prepared in consultation with DECCW and NOW, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on surface water resources, groundwater resources and flooding, and which includes: <ul style="list-style-type: none"> - surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality; - a program to monitor and report groundwater inflows to underground workings; and - a program to manage and monitor impacts on groundwater bores on privately-owned land; Biodiversity Management Plan, which has been prepared in consultation with DECCW and I&I NSW, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on flora and fauna; Land Management Plan, which has been prepared in consultation with any affected public authorities, to manage the potential impacts and/or environmental consequences of the proposed second workings on land in general; Heritage Management Plan, which has been prepared in consultation with DECCW and relevant stakeholders for Aboriginal heritage, to manage the potential environmental consequences of the proposed second workings on heritage sites or values; and 	C	<ul style="list-style-type: none"> Water Management Plan (URS 2013) 	
		<ul style="list-style-type: none"> Biodiversity Management Plan, which has been prepared in consultation with DECCW and I&I NSW, which provides for the management of the potential impacts and/or environmental consequences of the proposed second workings on flora and fauna; 	C	<ul style="list-style-type: none"> Biodiversity Management Plan (Eco Logical 2012c). 	
		<ul style="list-style-type: none"> Land Management Plan, which has been prepared in consultation with any affected public authorities, to manage the potential impacts and/or environmental consequences of the proposed second workings on land in general; 	C	<ul style="list-style-type: none"> Land Management Plan (AECOM 2012d). 	<ul style="list-style-type: none"> Consultation with affected public authorities detailed in Chapter 3 of the Land Management Plan.
		<ul style="list-style-type: none"> Heritage Management Plan, which has been prepared in consultation with DECCW and relevant stakeholders for Aboriginal heritage, to manage the potential environmental consequences of the proposed second workings on heritage sites or values; and 	C	<ul style="list-style-type: none"> Heritage Management Plan (AECOM 2012d) 	<ul style="list-style-type: none"> Records of consultation with relevant stakeholders provided in Appendix C of the Heritage Management Plan. Assessed impacts and management strategies detailed in Table 1 of the Heritage Management Plan.
		(i) include a program to collect sufficient baseline data for future Extraction Plans.	C	<ul style="list-style-type: none"> Subsidence Monitoring Program (AECOM 2012a) 	<ul style="list-style-type: none"> The established ground monitoring lines and the monitoring frequency appear to be appropriate for the site, based on the mining geometry, surface features and constraints, as well as for the validation of the prediction model and the management of impacts.
		Notes: Management plans prepared under condition 4(h) should address all potential impacts of proposed underground coal extraction on the relevant features. Other similar management plans required under this approval (eg under conditions 13 and 23 of schedule 4 or condition 3 of schedule 5) are not required to duplicate these plans or to otherwise address the impacts associated with underground coal extraction.	Noted		

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments											
	5	The Proponent shall ensure that the management plans required under condition 4(h) above include: (a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this approval;	C	• Built Features Management Plan (AECOM 2012b). • Public Safety Management Plan (AECOM 2012c).	• The assessed impacts for the built features are summaries in the Built Features Management Plan.											
		(b) a detailed description of the measures that would be implemented to remediate predicted impacts; and	C	• Built Features Management Plan (AECOM 2012b). • Public Safety Management Plan (AECOM 2012c).	• The monitoring and management strategies for the built features and detailed in the Built Features Management Plan.											
		(c) a contingency plan that expressly provides for adaptive management.	C	• Built Features Management Plan (AECOM 2012b).												
	6	The Proponent may carry out first workings within the underground mining area, other than in accordance with an approved extraction plan, provided that I&I NSW is satisfied that the first workings are designed to remain stable and non-subsiding in the long-term, except insofar as they may be impacted by approved second workings.	NT													
		<i>Note: The intent of this condition is not to require an additional approval for first workings, but to ensure that first workings are built to geotechnical and engineering standards sufficient to ensure long-term stability, with negligible resulting direct subsidence impacts.</i>	Noted													
	7	The Proponent shall pay all reasonable cost incurred by the Department to engage independent experts to review the adequacy of any aspect of the Extraction Plan.	C		• It is understood that NCOPL is paying the cost of the current independent environmental audit.											
4	1	The Proponent shall ensure that the noise generated by the project does not exceed the levels set out in Table 1 at any privately-owned residence. <small>Table 1: Impact assessment criteria dB(A)</small>	C	As reported in the independent Noise Reports	Noise monitoring result for September 2011 and March 2013 be reviewed and assessed against the 35 dB(A) LAeq, 15 minute criteria.											
		<table border="1"> <thead> <tr> <th rowspan="2">Location</th> <th>Day</th> <th>Evening</th> <th colspan="2">Night</th> </tr> <tr> <th>LAeq(15 minute)</th> <th>LAeq(15 minute)</th> <th>LAeq(15 minute)</th> <th>LA(1 minute)</th> </tr> </thead> <tbody> <tr> <td>All privately-owned residences</td> <td>35</td> <td>35</td> <td>35</td> <td>45</td> </tr> </tbody> </table> <p><small>Notes:</small></p> <ul style="list-style-type: none"> To determine compliance with the LAeq(15 minute) limit, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable. These noise limits apply to applicable receivers under all meteorological conditions except for any one of the following: <ul style="list-style-type: none"> wind speeds greater than 3 metres/second at 10 metres above ground level; or temperature inversions of 1.5 - 4°C/100 metres and a source-to-receiver wind speed greater than 2 metres/second at 10 metres above ground level; or temperature inversions of greater than 4°C/100 metres. The meteorological data to be used for determining meteorological conditions are the data recorded by the meteorological weather station to be determined in consultation with the DECCW. To determine compliance with the LA(1 minute) noise limits, noise from the project is to be measured at 1 metre from the dwelling facade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). These limits do not apply if the Proponent has an agreement with the relevant owner/s of those residences to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement. 				Location	Day	Evening	Night		LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)	LA(1 minute)	All privately-owned residences	35
Location	Day	Evening	Night													
	LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)	LA(1 minute)												
All privately-owned residences	35	35	35	45												
	2	If the noise generated by the project exceeds the criteria in Table 2 at any residence on privately-owned land, or on more than 25% of any privately-owned land, then the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 5-7 of schedule 7. <small>Table 2: Noise acquisition criteria dB(A)</small>	C	No issues reported in the independent Noise Reports												
		<table border="1"> <thead> <tr> <th rowspan="2">Location</th> <th>Day</th> <th>Evening</th> <th>Night</th> </tr> <tr> <th>LAeq(15 minute)</th> <th>LAeq(15 minute)</th> <th>LAeq(15 minute)</th> </tr> </thead> <tbody> <tr> <td>All privately-owned residences</td> <td>40</td> <td>40</td> <td>40</td> </tr> </tbody> </table> <p><small>Note: Noise generated by the project is to be measured in accordance with the notes presented below Table 1. For this condition to apply, the exceedances of the criteria must be systemic.</small></p>	Location	Day	Evening	Night	LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)	All privately-owned residences	40	40	40			
Location	Day	Evening		Night												
	LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)													
All privately-owned residences	40	40	40													

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments								
	3	<p>If the noise generated by the project is equal to or exceeds the criteria in Table 3 at any residence on privately-owned land, then the Proponent shall, upon receiving a written request from the landowner, implement reasonable and feasible noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.</p> <p><i>Table 3: Additional noise mitigation criteria</i></p> <table border="1"> <thead> <tr> <th>Location</th> <th>Day L_{avg}(15 minutes)</th> <th>Evening L_{avg}(15 minutes)</th> <th>Night L_{avg}(15 minutes)</th> </tr> </thead> <tbody> <tr> <td>All privately-owned residences</td> <td>38</td> <td>38</td> <td>38</td> </tr> </tbody> </table> <p><i>Note: Noise generated by the project is to be measured in accordance with the notes presented below Table 1. For this condition to apply, the exceedances of the criteria must be systemic.</i></p>	Location	Day L _{avg} (15 minutes)	Evening L _{avg} (15 minutes)	Night L _{avg} (15 minutes)	All privately-owned residences	38	38	38	C	No issues reported in the independent Noise Reports	
Location	Day L _{avg} (15 minutes)	Evening L _{avg} (15 minutes)	Night L _{avg} (15 minutes)										
All privately-owned residences	38	38	38										
	4	<p>The Proponent shall revise the Noise Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with noise management (Stages 1 and 2) and subsequently implement this revised version of the Noise Management Plan to the satisfaction of the Director-General. This Plan shall:</p> <p>(a) be prepared in consultation with DECCW by a suitably qualified expert whose appointment has been approved by the Director-General;</p> <p>(b) be submitted to the Director-General for approval by 30 June 2011;</p> <p>(c) include a Noise Monitoring Program incorporating: real-time noise and temperature inversion monitoring; and attended noise monitoring to monitor the performance of the project;</p> <p>(d) include reactive noise control measures to manage noise impacts for sensitive receivers; and</p> <p>(e) include a protocol to establish whether the project is complying with the noise impact assessment criteria in Table 1.</p>	C	Sighted									
		(a) be prepared in consultation with DECCW by a suitably qualified expert whose appointment has been approved by the Director-General;	C	When consulted by NCM, the Office of Environment and Heritage (Environment Protection and Regulation Group) did not review or comment on the NMP other than to endorse the development of the document as a means to ensuring NCM meets their statutory obligations and designated environmental objectives. It was noted that the NMP had been prepared by a suitably qualified expert whose appointment had been approved by DP&I.									
		(b) be submitted to the Director-General for approval by 30 June 2011;	C	Plan submitted for approval in June 2011 and by DP&I by letter dated 6/12/2011.									
		(c) include a Noise Monitoring Program incorporating: real-time noise and temperature inversion monitoring; and attended noise monitoring to monitor the performance of the project;	C	Sighted									
		(d) include reactive noise control measures to manage noise impacts for sensitive receivers; and	O	It was noted that the NMP includes the use reactive noise control measures. The current real-time noise monitoring unit is mobile and is moved from monitoring site to monitoring site on an as-needs basis to assess concerns regarding actual or perceived noise levels. To support reactive noise control, the real-time noise monitoring system needs to have consistency in the monitoring through the use of at least one fixed unit.									
		(e) include a protocol to establish whether the project is complying with the noise impact assessment criteria in Table 1.	C	As reported in the Noise Management Plan and implement in the noise monitoring program									
	5	<p>The Proponent shall:</p> <p>(a) implement all reasonable and feasible best practice noise mitigation measures;</p> <p>(b) investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance.</p> <p>(c) report on these investigations and the implementation and effectiveness of these measures in the Annual Review; to the satisfaction of the Director-General.</p>	C	Documented in the Noise Management Plan but minimal information in the Annual Reviews									
		(b) investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance.	O	Minimal information in the Annual Reviews	Potentially non-compliant but longwall mining operations have only commenced in the last two years								
		(c) report on these investigations and the implementation and effectiveness of these measures in the Annual Review; to the satisfaction of the Director-General.	O	Minimal information in the Annual Reviews	Potentially non-compliant but longwall mining operations have only commenced in the last two years								

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments																							
	6	<p>The Proponent shall ensure that dust emissions generated by the project do not cause additional exceedances of the criteria listed in Tables 4 to 6 at any residence on privately owned land, or on more than 25 percent of any privately-owned land.</p> <p><i>Table 4: Long term impact assessment criteria for particulate matter</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criterion</th> </tr> </thead> <tbody> <tr> <td>Total suspended particulate (TSP) matter</td> <td>Annual</td> <td>90 µg/m³</td> </tr> <tr> <td>Particulate matter < 10 µm (PM₁₀)</td> <td>Annual</td> <td>30 µg/m³</td> </tr> </tbody> </table> <p><i>Table 5: Short term impact assessment criteria for particulate matter</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criterion</th> </tr> </thead> <tbody> <tr> <td>Particulate matter < 10 µm (PM₁₀)</td> <td>24 hour</td> <td>50 µg/m³</td> </tr> </tbody> </table> <p><i>Table 6: Long term impact assessment criteria for deposited dust</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Maximum increase in deposited dust level</th> <th>Maximum total deposited dust level</th> </tr> </thead> <tbody> <tr> <td>Deposited dust</td> <td>Annual</td> <td>2 g/m²/month</td> <td>4 g/m²/month</td> </tr> </tbody> </table> <p><small>Note: Deposited dust is 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 Particulates - Deposited Matter - Gravimetric Method.</small></p>	Pollutant	Averaging period	Criterion	Total suspended particulate (TSP) matter	Annual	90 µg/m ³	Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month	O	<p>No exceedances in PM10. Individual exceedances of 4g/m2 but annual averages for gauges below 4.</p> <p>Due to a monitor malfunction, PM10 results were not recorded for the period 20 May to 13 June 2012. A review of monitoring data also identified other incidents where a run cycle has not been completed, either due to monitor malfunction or power outage.</p>	<p>Dust has been raised as an issue by EPA and Pollution Reduction Programs have been included in the EPL for the site to address the dust issue. On the day of the audit, visible dust was observed coming from the site whilst driving along the highway.</p> <p>It is suggested that NCOPL review the maintenance and power requirements for monitors with the objective of maximising data capture.</p>
Pollutant	Averaging period	Criterion																										
Total suspended particulate (TSP) matter	Annual	90 µg/m ³																										
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Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level																									
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month																									
	7	<p>The Proponent shall revise the Air Quality Monitoring Program for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with air quality (Stages 1 and 2) and subsequently implement this revised version of the Air Quality Monitoring Program to the satisfaction of the Director-General. This program must:</p>	C	<p>Current version - Air Quality Monitoring Program Edition 1 Revision 1 dated November 2011.</p>																								
		(a) be submitted to the Director-General for approval prior to 30 June 2011;	C	<p>Plan submitted June 2011 - sighted letter of approval from DP&I dated 6/12/13</p>																								
		(b) be prepared in consultation with DECCW; and	C	<p>Sighted email from OE (formerly DECCW) advising of receipt of the management plan but stating that the Department does approve or endorse management plans, and does not get directly involved in the development of management plans.</p>																								
		(c) use a combination of high volume samplers and dust deposition gauges to monitor the performance of the project.	C	<p>The current monitoring program states that a combination of eight dust deposition gauges and two HVAS (Section 4.1.2). Monitoring data reviewed during the audit confirmed that monitoring is undertaken using the dust gauges and HVAS.</p>																								
	8	<p>During the project, the Proponent shall ensure there is a suitable meteorological station on site that complies with the requirements in <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> (DECC, 2007), or its latest version.</p>	C	<p>Met station observed on site</p>																								
	9	<p>Within 2 years of the commencement of longwall coal extraction, and every 5 years thereafter, the Proponent shall undertake a transient calibration of the groundwater model presented in the EA, in consultation with NOW, and to the satisfaction of the Director-General. This re-calibration of the groundwater model must include forward impact predictions of brine re-injection to the mine's goaf at the conclusion of mining operations.</p>	NT	<p>Longwall operations commenced in June 2012, therefore recalibration of the model is due by June 2014. However, it was noted that the Water Management Plan committed to recalibrating the model one year after commencement of longwall operations. Evidence was sighted that consultation between Narrabri and the New South Wales Office of Water (NOW) resulted in postponement of the recalibration to allow for the collection of additional data from new monitoring wells.</p> <p>Recalibration of the model originally produced by GHD in 2007 and updated by Aquaterra in 2009 has not occurred. Previous discussions recorded in a letter to Martin O'Rourke Regional Hydrogeologist NSW Water and Energy, Tamworth 2340 dated 14 March 2012 recognised that the change in the monitoring program and the update and increase in the number of new monitoring sites will have limited data for updating a model recalibration. Therefore recalibration will not occur until at least one hydrological cycle is completed on new bores.</p>	<p>The Water Management Plan 2013 indicates that recalibration is planned to occur at 1 year, 3 years and 5 years after the longwall commences and then 1 to 2 years prior to the cessation of mining. The recalibration requirement by condition 9 is within 2 years and every 5 years and the requirements for updating the site water balance which requires input from the most up to date groundwater models is annually. This schedule should be rationalised so that they all coincide.</p> <p>Forward projection of the brine reinjection into the goaf at the end of life of mine. Some particle tracking work in Modflow performed. If the brine was to be placed now then an assessment of the hydrochemistry, geochemistry of the rock material in the goaf including the 4.5 m coal left in the roof would require assessment to determine the water mixing characteristics.</p>																							

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
	10	Except as may be expressly provided for by an EPL, the Proponent shall not discharge any waters from the disturbed areas of the site. However, raffinate from the water conditioning plant may be transferred to water users in accordance with an approved Water Management Plan (see below).	NC	<p>Five incidents have occurred at the Narrabri Mine since November 2011. These are:</p> <ul style="list-style-type: none"> • two discharges from SB3, located at the REA, during heavy rain in Nov 2011 and Feb 2012; • two discharges from SB2, located at the coal processing and stockpile areas, during heavy rain in Nov 2011 and Feb 2012; • a discharge of coal impacted water from VPW 26, used for pre-drainage of water and gas from the underground coal workings in Feb 2012. <p>These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:</p> <ul style="list-style-type: none"> • SB3 discharge on 25/11/2011 – two PINs, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner); • SB2 discharge (coal impacted water) – two PINs (25/11/2011 & 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and • VPW26 discharge on 10/02/2012 – two PINs, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner). <p>No PINs were issued for February 2012 discharge from SB3.</p>	<p>Following the discharge of coal impacted water from vertical production well (VPW) 26 in February 2012, NCOPL commissioned a vegetation assessment of the impacted area and also revised the procedure for accessing well heads. Vegetation assessments of the impacted area have shown that no long-term impacts have occurred. No further action is considered to be required.</p> <p>It was noted by the audit team that actions have been implemented to address the issues that resulted in the discharges and minimise the potential for any further unplanned discharges.</p>
	11	Any raffinate from the water conditioning plant discharged to the Namoi River must be discharged in accordance with the conditions of an EPL and meet the following criteria:	NT	No raffinate discharges to date.	
		(a) 50 percentile of all samples (volume based) are below 250mg/l of Total Dissolved Solids;	NT		
		(b) 100 percentile of all samples (volume based) are below 350mg/l of Total Dissolved Solids; and	NT		
		(c) pH values of all sampled water to be between 6.5 and 8.5.	NT		
	12	Within 3 years of the date of this approval, or otherwise agreed by the Director-General, the Proponent must commission the water conditioning plant identified in the EA, to the satisfaction of the Director-General.	C	Water Conditioning (reverse osmosis) Plant inspected - plant was operational at the time of the audit.	
	13	Prior to 30 June 2011, the Proponent shall revise the Water Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with water management (Stages 1 and 2) and subsequently implement this revised version of the Water Management Plan to the satisfaction of the Director-General. This revised plan must be produced in consultation with DECCW and NOW by suitably qualified expert/s whose appointments have been approved by the Director-General and include a:	C	The water management plan (WMP) has been revised and the latest version was issued on March 2013. It was produced by URS, on behalf of Narrabri Coal Mine and approved through DECCW and NOW and signed off by the Director General.	
		(a) Site Water Balance;	C		
		(b) Erosion and Sediment Control Plan;	C		
		(c) Surface Water Monitoring Plan;	C		
		(d) Raffinate Discharge and Transfer Control and Monitoring Plan;	C		
		(e) Groundwater Monitoring Program; and	C		
		(f) Surface and Groundwater Response Plan, setting out the procedures for:	C	The WMP contains a water management response plan committing to the development of protocols for incidents and complaints, non-compliances exceedances of impact criteria and performance criteria, investigation and mitigation management.	
		- investigating, and if necessary mitigating, any exceedances of the surface or groundwater assessment criteria (see conditions 16(b) and 18(c) ; and			
		- responding to any unforeseen impacts of the project.			
	14	The Site Water Balance must:		Description of site water balance included within the current WMP	A groundwater circuit has been included in the site wide water balance.
		(a) include details of:			A mine site water balance has been developed using GoldSim



Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
		sources and security of water supply;	C	Section 5.2 of the WMP. The mine will be able to supply most of its water demand from the groundwater intercepted in mining and inflows enhanced by the collapse of overlying strata in the area of the goaf.	software. This was completed at the end of 2012. However, the model has not been used for day to day or month to month use. Instead the mine has generated and operates a spreadsheet based site water balance used to produce monthly and annual figures. A copy of the spreadsheet model was provided to the audit team. The spreadsheet water balance can perform the function required for regular weekly or monthly updating of water management aspects on the site. It is recommended that the mine site staff become au fait with the GoldSim water balance model and try to use it for day to day site water management. If capacity constraints makes this suggestion impractical there are other options to maximize the use of the GoldSim model such as: Updating the GoldSim model annually using external specialists. This update should ensure input from the groundwater model data and the suggested PhreeqC hydrochemical model outputs. Whitehaven could consider the appointment of a company-wide water manager responsible for running GoldSim models for all the company operations.
		underground water make;	C	Section 7.3.2 of the WMP. Underground water make is presently discharged into the 11 ML capacity	

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
		(c) be reviewed and recalculated each year in the light of the most recent water monitoring data.	C	Section 5.1 of the WMP	Schedule 4 Condition 9 deals with recalibration of the groundwater model which requires update 2 years and 5 years after the first panel of the longwall is commenced. The WMP commits to recalibration and water balance update at 12 months, 3 years and 5 years after the longwall commenced. Condition 14 requires an annual review and recalculation of the site water balance. The recalibration of the groundwater model and the update of the water balance model should occur together and should be aligned. It is suggested that the scheduling of groundwater and site water balance modelling updates should occur simultaneously and not at different times.
	15	The Erosion and Sediment Control Plan must:	C	Erosion and sediment control is addressed in both the Water Management Plan (pit top surface facilities area) and in the Extraction Plan - Water Management Plan (subsidence areas).	
		(a) be consistent with the requirements of <i>Managing Urban Stormwater: Soils and Construction</i> manual (Landcom, 2004), or its latest version;	C	Section 4.1 of the WMP	
		(b) identify activities that could cause soil erosion and generate sediment;	C	Section 4.2 of the WMP	
		(c) describe measures to minimise soil erosion and the potential for transport of sediment to downstream waters;	C	Sections 4.3, 4.2 and 4.1 of the WMP	
		(d) describe the location, function, and capacity of erosion and sediment control structures; and	C	Section 3.4 of the WMP	
		(e) describe what measures would be implemented to monitor and maintain the structures over time.	C	Section 4 of the WMP	
	16	The Surface Water Monitoring Plan must include:	C	Section 6.2 of the WMP	
		(a) detailed baseline data on surface water flows and quality in creeks and other water bodies that could be affected by the project;	C	Section 6.2 of the WMP	
		(b) surface water impact assessment criteria;	C	Section 6.5 of the WMP	
		(c) a program to monitor the impact of the project on surface water flows and quality;	C	Section 6.3 of the WMP	
		(d) procedures for reporting the results of this monitoring.	C	Section 6.6 of the WMP	
	17	The Raffinate Discharge Control and Monitoring Plan must:	NT		No intent to discharge raffinate at this stage.
		(a) be approved by the Director-General prior to any raffinate discharge to the Namoi River;	NT		The impacts on groundwater would be from potential seepage from the storage dams into the groundwater. Groundwater monitoring sites have been set up to act as an early warning system for this purpose. Bore monitoring results indicate no impacts from seepage from the dams.
		(b) include measures for the continuous monitoring and recording of volumes of water discharged to the Namoi River;	NT		
		(c) contain an ambient water quality monitoring program upstream and downstream of the discharge point; and	NT		
		(d) contain a water quality monitoring program for discharged waters.	NT		The future disposal of RO brine and permeate into the goaf has not yet been investigated.

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18		The Groundwater Monitoring Program must include:	C	The WMP documents the most up to date groundwater monitoring plan, which was originally designed by GHD in 2007. Additional information on groundwater monitoring is given in the 2012 Water Extraction Plan.	The groundwater monitoring network comprises 27 standing piezometers, eleven vibrating wire piezometers (VWP) and eleven registered production wells. The standpipe piezometers are installed in all major lithologies except the Hoskissons seam which is measured by VWPS. Five VWPs measure levels in multi lithologies. The eleven production bores are used to measure groundwater in the Alluvium formations. The mine has agreed with NOW to install an additional 9 monitoring sites; three standing piezometers and six VWPS. Monitoring includes the volumes and qualities of water abstracted from the underground workings and brought to surface.
		(a) further development of the regional and local groundwater model;	C	Development of the groundwater management system with expansion of the groundwater network has been described in the WMP. This expansion of the monitoring network will allow the collection of data that will assist in the development of the groundwater model. The groundwater monitoring network should be reviewed annually and based on the effectiveness of the existing monitoring program. This should occur together with the review indicated in Schedule 4 Condition 14.	
		(b) detailed baseline data to benchmark the natural variation in groundwater levels, yield and quality (including at any privately owned bores in the vicinity of the site);	C	The groundwater program presently involves 49 monitoring bores and many of these have been in place and monitored since 2007. Most of these bores have not been impacted by mining activities and can provide water levels and water quality that represent baseline conditions and have been in place long enough to show seasonal and annual trends in groundwater level and quality. Bores have been placed in different lithologies to assess the groundwater characteristics in them. Monitoring schedules are in place and are adhered to.	
		(c) groundwater impact assessment criteria;	C	Both the WMP and the Water Extraction Plan record groundwater impact assessment criteria. Water quantity impact criteria have been developed for mine groundwater inflow and the impact on potential licensed water users in the vicinity of the mine. Mine water quality criteria have also been developed.	
		(d) a program monitor the impact of the project on groundwater levels, yield and quality;	C	The groundwater monitoring program has been established to achieve this condition.	
		(e) a program to monitor any impacts of the project on the Namoi River Alluvium;	C	Geological cross sections indicate that it is unlikely that a direct connection of the Namoi River Alluvium to the mine activities occurs. However, groundwater monitoring bores have been established to provide data to identify if such a linkage occurs.	
		(f) a program to monitor, (by the use of shallow piezometers/lysimeters), detect, and quantify any leakage from the site's evaporation/storage ponds, brine storage area or coal reject emplacement area; and	C	A series of 6 shallow bores have been established to monitor impacts of brine and storage ponds. No impacts on the groundwater have been detected.	
		(g) procedures for reporting the results of this monitoring.	O	The WMP and water extraction plan do not indicate procedures for reporting monitoring results.	A report of water levels and quality is produced annually: the AEMR Annual Review. This records the groundwater levels and quality of groundwater. Laboratory analyses are check by Cation Anion Balance. No result was seen in the data sheets of a balance greater than 5% indicating all results are within acceptable levels. Procedures should be established and a separate section included in the WMP that covers the type and purpose of reports (regulatory or mine management or sustainable development reports), the report schedule (weekly, monthly, quarterly, annually) the methods of displaying the data and production of information (types of graphs and the data that should be discussed).
19		The Proponent shall ensure that the integrity of the low permeability layers lining the evaporation/storage ponds is maintained and achieves a permeability of less than 1×10^{-1} m/s whenever these ponds are in use for the storage of saline waters and less than 1×10^{-1} m/s when being used to store raffinate or captured surface waters.	O	Section 7.4 of the WMP	An "As Constructed" report was prepared for the ponds upon commissioning, however there does not appear to be any confirmation of permeability of membranes / lining and how these permeabilities are to be maintained during the life of the ponds. WMP specifies monitoring boreholes within the area surrounding the rail loop for increases in salinity. If elevated salinity levels are detected, further investigations are recommended to identify the source and mitigation measures undertaken as necessary.
20		The Proponent shall ensure that the integrity of the low permeability layers lining the brine storage ponds is maintained and achieves a permeability of less than 1×10^{-1} m/s whenever these storage ponds are in use.	O	Section 7.4 of the WMP	An "As Constructed" report was prepared for the ponds upon commissioning, however there does not appear to be any confirmation of permeability of membranes / lining and how these permeabilities are to be maintained during the life of the ponds. WMP specifies monitoring boreholes within the area surrounding the rail loop for increases in salinity. If elevated salinity levels are detected, further investigations are recommended to identify the source and mitigation measures undertaken as necessary.

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	21	Within 2 years of commissioning the water conditioning plant, and every 5 years thereafter, unless otherwise directed by the Director-General, the Proponent shall engage suitably qualified experts approved by the Director-General to review brine management and beneficial use options for raffinate, brine and minewater produced by the project. The Proponent shall implement all reasonable and feasible recommendations of these reviews, to the satisfaction of the Director-General.	NT	The time frame of 2 years from commissioning the water conditioning (reverse osmosis) plant not yet exceeded.	
	22	The Proponent shall not destroy damage or deface any known Aboriginal objects (as defined in the <i>National Parks and Wildlife Act 1974</i>) without the written approval of the Director-General.	C	Narrabri staff advised that no objects had been destroyed to date. To manage this, evidence was sighted that the mine has initiated a ground disturbance permitting process.	
	23	The Proponent shall revise the Aboriginal Cultural Heritage Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with Aboriginal cultural heritage management for the site (Stages 1 and 2) and subsequently implement this revised version of the Aboriginal Cultural Heritage Management Plan to the satisfaction of the Director-General. This plan must:	C	Current version - Aboriginal Cultural Heritage Management plan Edition 1 Revision 1 dated November 2011.	
		(a) be submitted to the Director-General by 30 June 2011;	C	Submitted in June 2011, revised following DP&I comments, resubmitted and approved by DPI by letter dated 6 December 2011 (sighted)	
		(b) be prepared in consultation with the DECCW, the Narrabri Local Aboriginal Land Council and the Narrabri Goomerai Aboriginal Corporation;	C	Evidence sighted that consultation was undertaken with DECCW, Narrabri LALC and Narrabri Goomerai Aboriginal Corporation (included in Appendix 1 of the Plan).	
		(c) include a protocol for the ongoing consultation and involvement of Aboriginal communities in the conservation and management of Aboriginal heritage on site;	C	Documented in Section 4.1 of the Plan. Sighted Soil Stripping - Aboriginal Site Monitoring records (eg dated 23/8/13 for Goaf 28, 31 and 33)	
		(d) describe the measures that would be implemented to protect Aboriginal sites on the mine site, (in particular all known Aboriginal sites on lands overlying Longwalls 1-3 and sites 10b, 38, 39 and 106-112, or any new Aboriginal objects or skeletal remains that are identified during the project.	C	Documented in various subsections of Section 3 of the Plan.	
	24	Prior to undertaking any activities involving surface disturbance or vegetation removal for the lands overlying Longwalls 8-26, the Proponent shall undertake a detailed Aboriginal cultural heritage survey in consultation with the local Aboriginal community and DECCW, and to the satisfaction of the Director-General. The Director-General may approve this survey being undertaken in several stages, as mining progresses.	C	The cultural heritage survey has been completed and a draft report prepared by Advitech (dated May 2013). The Cultural Heritage Management is currently being updated prior to be sent to the aboriginal groups for review and comment.	
	25	The Proponent shall maintain the Mine Access Road Intersection with Kurrajong Creek Road and the Kamilaroi Highway in consultation with NSC and to the satisfaction of RTA.	O	The intersection was observed to be in good condition at the time of the audit site inspection, however, no evidence was sighted to indicate how the intersection is to be maintained.	

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
	26	Prior to using Greylands and Scratch Roads to construct mine-related infrastructure, the Proponent shall enter into an agreement with NSC to: (a) construct watercourse crossings (either culverts or concrete causeways) on those sections of these roads that it uses in a manner that does not restrict fish passage, in consultation with I&I NSW (Fisheries) and to the satisfaction of NSC; and (b) fund the maintenance of those sections of these roads that it uses to an all-weather unsealed road standard.	O C	Narrabri Mine is currently in negotiations with Narrabri Shire Council to close and purchase Greylands Road where it traverses the mining lease. Sighted copy of letter from NSC dated 3/9/13 re closure of SR186-Greylands Road. Mine staff advised that the mine currently looks after maintenance on Greylands Road. The road was observed to be in reasonable condition at the time of the audit.	Once the road has been closed and purchased by the mine, this condition will no longer be applicable.
	27	The Proponent shall contribute, on an equitable basis with other coal project rail users, to the costs of an independent Traffic Management Study analysing the impacts of increased rail traffic on road safety and congestion due to increased closure of rail level crossings within Gunnedah, prepared to the satisfaction of GSC. <i>Note: This study should examine funding mechanisms to implement any recommendations to improve road safety and reduce traffic congestion associated with rail level crossings and be completed by 30 June 2011.</i>	C	Evidence was sighted that contribution has been paid to Council and a copy of the final study has been received.	
	28	The Proponent shall minimise visual impacts of the project to the satisfaction of the Director-General.	C	A visual bund has been constructed and vegetated to reduce the views across the mine site from public roads.	
	29	The Proponent shall ensure that: (a) no outdoor lights shine above the horizontal; and (b) all external lighting associated with the project complies with <i>Australian Standard AS4282 (INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting</i> .	C C	Lights observed within the car park and around the site facilities area were noted to be designed to minimise the spill of light above the horizontal. Lights observed within the car park and around the site facilities area were noted to be designed to minimise the spill of light above the horizontal.	
	30	The Proponent shall revise the Energy Savings Action Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with energy management for the site (Stages 1 and 2) and subsequently implement this revised version of the Energy Savings Action Plan to the satisfaction of the Director-General. This plan must: (a) be prepared in consultation with DECCW; (b) be prepared in accordance with the <i>Guidelines for Energy Savings Action Plans</i> (DEUS, 2005), or its latest version; (c) be submitted to the Director-General for approval prior to 30 June 2011; and (d) include a program to monitor the effectiveness of measures to reduce energy use on site.	C C NC C	Current version - Energy Savings Action Plan - Last Revised 5 August 2011 Sighted email from OEH (formerly DECCW) advising of receipt of the management plan but stating that the Department does approve or endorse management plans, and does not get directly involved in the development of management plans. Review of the Plan and comparison with the ESAP guidelines indicates that the Plan has been prepared in accordance with the guidelines. Plan was submitted 11 August 2011 beyond the timeframe specified in the condition. It was subsequently approved by DP&I on 6/12/11 (letter sighted). As part of the energy management actions identified in Section 3.3 of the Plan, actions for monitoring and reporting have been established, including the establishment of a Site Energy Management Committee to routinely review and report on energy management initiatives.	Advitech has recently prepared a revised ESAP, based on the results of the Level 3 Energy Audit undertaken, which has been submitted to DP&I but not yet approved.
	31	The Proponent shall implement all reasonable and feasible measures to minimise the greenhouse gas emissions from the underground mining operations to the satisfaction of the Director-General.	C	The Level 3 Energy Audit undertaken for the site identified that there were not a lot of reasonable and feasible measures which could be used to minimise greenhouse gas emissions. The gas is currently free vented with approximately 80% of the gas being CO2.	

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Schedule	Condition No.	Requirement	Compliance Status C/N/C/O/NT	Evidence/Findings	Comments
32		Prior to carrying out longwall coal mining operations, the Proponent shall submit a Greenhouse Gas Minimisation Plan for the approval of the Director-General. This plan must:	C	Current version: Narrabri Mine Greenhouse Gas Minimisation Plan Stage 2 Longwall Project - Report No. 610.11062-R1, prepared by SLR Consulting, dated 7 June 2012.	
		(a) be prepared in consultation with DECCW;	C	Sighted email from OEH (formerly DECCW) advising of receipt of the management plan but stating that the Department does not approve or endorse management plans, and does not get directly involved in the development of management plans.	
		(b) identify options for minimising greenhouse gas emissions from underground mining operations, with a particular focus on capturing and/or using these emissions;	C	Options for minimising GHG emissions are discussed in Section 4 of the Plan.	
		(c) investigate the feasibility of implementing each option;	C	Costs and benefits of CMM abatement and utilisation are discussed in Section 5 of the Plan, primarily focusing on Ventilation Air Methane Oxidation.	
		(d) propose the measures that would be implemented in the short to medium term on site; and	O	Energy savings opportunities for reducing electricity usage on site have been described in Section 4.2 of the Plan. Whilst a research program has been described for the CMM emissions, there does not appear to be any measures proposed to minimise emissions from CMM in the short to medium term.	
		(e) include a research program to inform the continuous improvement of the greenhouse gas minimisation measures on site.	C	Research program described in Section 6 of Plan.	
33		The Proponent shall revise the Waste Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with waste management for the site (Stages 1 and 2) and subsequently implement this revised version of the Waste Management Plan to the satisfaction of the Director-General. This plan must be:	C	Current version: Waste Management Plan Edition 1 Revision 1 dated October 2011.	
		(a) be submitted to the Director-General for approval prior to 30 June 2011;	C	Plan was submitted to DP&I on 27 June 2011, within the timeframe required. Plan was subsequently approved by DP&I on 6 December 2011.	
		(b) identify the various waste streams of the project;	C	The different waste streams to be generated from the project are described in Section 3 of the Plan - this includes both production wastes and non-production wastes.	
		(c) describe what measures would be implemented to reuse, recycle, or minimise the waste generated by the project;	C	Waste management measures are described in various subsections in Section 4 of the Plan.	Waste management measures described by the plan were generally observed to be implemented around the site.
		(d) ensure irrigation of treated wastewater is undertaken in accordance with <i>Environmental Guidelines: Use of Effluent by Irrigation</i> (DEC, 2004), or its latest version; and	O	Described in Section 4.6 and Table 1 of Plan.	It was observed during the audit site inspection that there appears to be evidence of ponding/waterlogging within the effluent irrigation area. The environmental performance objectives set out in the EPA Effluent Guidelines identify that an effluent irrigation system should maintain or improve the capacity of the land to grow plants, and should result in no deterioration of land quality through soil structure degradation, salinisation, waterlogging, chemical contamination or soil erosion. Given that the area currently utilised is static and not rotated from area to area, there is potential for a degradation of land quality with persistent use. It is suggested that Narrabri Mine should consider a monitoring program (eg annual soil condition monitoring) and rotate the effluent irrigation to other areas if monitoring determines any issues with soil health.
		(e) include a program to monitor the effectiveness of these measures.	C	Described in Section 5 of the Plan. Includes documenting and reporting on waste management information in each Annual Review.	A review of the 20-12-2013 AEMR found that waste management is reported (Section 2.6). Whilst the volumes for the current reporting period are reported, it would be helpful to see how those results compare to previous years (eg a graph showing waste types and generation levels). This would assist in identifying where waste volumes are increasing, requiring further waste management measures to be implemented.
	Note: These conditions should be read in conjunction with sections 4, 8 and 12 of the revised Statement of Commitments and condition 3(c) of schedule 3.		Noted		

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments												
5	1	<p>The Proponent shall rehabilitate the site to the satisfaction of the Director-General and DII in accordance with the rehabilitation objectives in Table 1.</p> <table border="1"> <caption>Table 1: Rehabilitation Objectives</caption> <thead> <tr> <th>Domain</th> <th>Rehabilitation objective</th> </tr> </thead> <tbody> <tr> <td>Surface Facilities Area</td> <td>Set through condition 4 below</td> </tr> <tr> <td>Other land affected by the project</td> <td>Restore ecosystem function, including maintaining or establishing self-sustaining native ecosystems: <ul style="list-style-type: none"> comprised of local native plant species; with a landform consistent with the surrounding environment Repair/restore to pre-mining condition or equivalent </td> </tr> <tr> <td>Built features</td> <td>Repair/restore to pre-mining condition or equivalent</td> </tr> <tr> <td>Community</td> <td>Minimise the adverse socio-economic effects associated with mine closure including the reduction in local and regional employment</td> </tr> <tr> <td></td> <td>Ensure public safety</td> </tr> </tbody> </table> <p><i>Note: The Proponent may be required to define other rehabilitation objectives in management plans or strategy required under this schedule.</i></p>	Domain	Rehabilitation objective	Surface Facilities Area	Set through condition 4 below	Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining native ecosystems: <ul style="list-style-type: none"> comprised of local native plant species; with a landform consistent with the surrounding environment Repair/restore to pre-mining condition or equivalent	Built features	Repair/restore to pre-mining condition or equivalent	Community	Minimise the adverse socio-economic effects associated with mine closure including the reduction in local and regional employment		Ensure public safety	O	The area around the vent fan site was inspected as part of the audit. It was noted that rehabilitation works had commenced in this area now that works have been completed. The audit site inspection also included the areas above longwall 1, where ripping of the paddocks has occurred and rehabilitation of Greylands Road has been undertaken.	It was observed during the site inspection that there was an area over LW1 where almost all large trees had died off. The mine had engaged consultants to investigate the cause of such tree death (sighted report by EcoLogical dated 4/9/13).
	Domain	Rehabilitation objective															
	Surface Facilities Area	Set through condition 4 below															
	Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining native ecosystems: <ul style="list-style-type: none"> comprised of local native plant species; with a landform consistent with the surrounding environment Repair/restore to pre-mining condition or equivalent															
	Built features	Repair/restore to pre-mining condition or equivalent															
	Community	Minimise the adverse socio-economic effects associated with mine closure including the reduction in local and regional employment															
		Ensure public safety															
	2	To the extent that mining operations permit, the Proponent shall carry out rehabilitation progressively, that is, as soon as reasonably practicable following the disturbance.	C	Areas of surface disturbance over LW1 had been ripped and seeded (LW1 finished in June 2013).													
	3	The Proponent shall revise the Landscape Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with landscape management for the site (Stages 1 and 2) and subsequently implement this revised version of the Landscape Management Plan to the satisfaction of the Director-General and I&I NSW. This plan must:	C	Current version: Narrabri Mine Landscape Management Plan, dated 24 February 2012 (Version 3), prepared by EcoLogical.													
	(a) be submitted to the Director-General for approval by 30 June 2011;	C	Plan was submitted to DP&I on 27 June 2011 within the timeframe required by the condition. It was subsequently approved by DP&I on 6 December 2011 (letter sighted).														
(b) be prepared by suitably qualified expert/s whose appointment/s have been endorsed by the Director-General;	C	Sighted letter dated 6 May 2011 approving appointment of qualified expert (Paul Frazier of EcoLogical) to prepare Plan.															
(c) be prepared in consultation with NOW, DECCW and JNSC and	C	Evidence of consultation is provided in Appendix 3 of the Plan. Comments were provided by NOW which were addressed in the revised version of the plan approved.															
(d) include a:																	
Rehabilitation Management Plan; and	C	Appendix 4 of Landscape Management Plan															
Mine Closure Plan.	C	Appendix 5 of Landscape Management Plan															
4	The Rehabilitation Management Plan must include:																
(a) the rehabilitation objectives for the site;	C	Rehabilitation objectives are described in Section 3 of the Plan. Objectives are considered to be appropriate for the nature and scale of the project.															
(b) a strategic description of how the rehabilitation of the site would be integrated with surrounding land use;	C																
(c) a general description of the short and long term measures that would be implemented to rehabilitate the site;	C	Short and long term measures are discussed in each subsection of Section 6 of the Plan.															
(d) a detailed description of the measures that would be implemented to remediate predicted subsidence impacts under individual Extraction Plans;	C	Discussed in detail in Section 5 of the Plan. Supplementary Rehab Plan prepared as part of Extraction Plan (Appendix H) for longwalls 101 to 105.															
(e) a detailed description of the measures that would be implemented to minimise environmental impacts of mining operations and to rehabilitate the site, including measures to be implemented for:																	
- managing remnant vegetation and habitat on site;	C	Described in Section 6.1 of Plan															
- minimising impacts on fauna;	C	Described in Section 6.2 of Plan															
- minimising visual impacts;	C	Described in Section 6.3 of Plan															
- conserving and reusing topsoil;	C	Described in Section 6.4 of Plan															
- controlling weeds, feral pests, and access;	C	Described in Section 6.5 of Plan															
- managing bushfires; and	C	Described in Section 6.6 of Plan															
- managing any potential conflicts between the rehabilitation works and Aboriginal cultural heritage.	C	Described in Section 6.7 of Plan															
(f) detailed performance and completion criteria for the rehabilitation of the site;	C	Conceptual completion criteria are described in Section 7 of Plan															

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
		(g) a detailed description of how the performance of the rehabilitation works would be monitored over time to achieve the stated objectives and against the relevant performance and completion criteria; and	C	Described in Section 8 of Plan - includes photopoint monitoring on and annual basis, weekly and monthly checks for bushfire control.	Evidence was sighted to indicate that the photo point monitoring protocols are implemented (sighted Ecological Monitoring Report for 2012).
		(h) details of who is responsible for monitoring, reviewing and implementing the plan.	C	Described in Section 9 of Plan	
		<i>Note: In accordance with condition 11 of schedule 2, the preparation and implementation of Rehabilitation Management Plans is likely to be staged, with each plan covering a defined area (or domain) for rehabilitation. In addition, while mining operations are being carried out, some of the proposed remediation or rehabilitation measures may be included in the detailed management plans that form part of the Extraction Plan. If this is the case, however, then the Proponent will be required to ensure that there is good cross-referencing between the various management plans.</i>	Noted		
	5	The Mine Closure Plan must:			
		(a) define the objectives and criteria for mine closure;	C	Described in Section 2 of the Plan. Objectives are considered to be appropriate for the nature and scale of the project.	
		(b) investigate options for the future use of the site;	C	Conceptual final land use options described in Section 1.4 of Plan.	
		(c) provide a detailed methodology for decommissioning the site's evaporation/storage ponds and the treatment of any accumulated salt within or around those ponds;	C	Described in Sections 5.1.4 and 5.1.5 of Plan.	
		(d) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local and regional employment levels;	C	Discussed in Section 4.4 of Plan - conceptual only at this stage, provides principles for preparation of Social Impact Assessment at five years out from closure.	
		(e) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the project; and	C	Generally described in Section 5.2 to 5.6 of Plan.	
		(f) describe how the performance of these measures would be monitored over time.	C	Generally described in Section 7 of Plan	
	6	The Proponent shall provide a suitable biodiversity offset strategy to compensate for the impacts of Stages 1 and 2 of the project. This offset strategy must:	O	The Biodiversity Offset Strategy had not been submitted for approval at the time of the audit and was in draft form. It is understood that the draft Plan has now (post audit) been submitted for approval. The strategy has been worded so that the long-term security issue is not yet resolved, however NCOPL has requested DP&I/SEWPac approve the strategy with this pending.	Whitehaven currently has a biobanking agreement in place for some of its offset requirements for its open cut operations, but this agreement did not extend to the Narrabri Mine. NCOPL is currently proposing the use of a restrictive covenant under Section 88B of the Conveyancing Act as a measure to secure the offset area in the longer term. Whilst this mechanism has been accepted in principle by the federal Department of SEWPAC in meeting the offsetting requirements under the Environment Protection and Biodiversity Conservation Act 1999, it has not been accepted by either DP&I or OEH at this time. DoPI have advised NCOPL of its development of a formal offset policy, including requirements for in perpetuity security which will assist in determining an appropriate security mechanism, however this has not yet been made available to NCOPL.
		(a) be prepared in consultation with DECCW;	O	This consultation is currently ongoing.	
		(b) be submitted to the Director-General for approval by 31 December 2010, or as otherwise agreed by the Director-General;	C	Evidence was sighted to indicate that NCOPL has sought and obtained extensions to this timeframe such that the plan is now due to be submitted by 31 December 2013.	
		(c) provide a detailed assessment of offset proposal/s involving the property/ies (agreed to by DECCW) adjoining Mt Kaputar National Park to confirm the ability of either of these property/ies to meet "like for like or better" and "maintain or improve" conservation outcomes;	C		
		(d) include and assess proposals to offset impacts to the Inland Grey Box EEC, <i>Berya opponens</i> , and foraging habitat for the Superb Parrot;	C		
		(e) include proposals on offsetting both direct and indirect impacts (i.e.. edge effects) of the project; and	C		
		(f) determine the best overall combination of lands to provide a suitable offset.	C		

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	7	<p>The Proponent shall make suitable arrangements to provide appropriate long-term security for the offset areas by 31 December 2011, or other date agreed by the Director-General, to the satisfaction of the Director-General.</p> <p><i>Note: This schedule should be read in conjunction with sections 15, 16 and 17 of the revised Statement of Commitments.</i></p>	O	<p>NCOPL has proposed the use of a restrictive covenant under Section 88B of the Conveyancing Act. Whilst this has been accepted in principle by the Commonwealth as a measure for long term security of the offset area, it has not been accepted by either OEH or DP&I and is currently subject to further negotiation. Evidence was sighted to indicate that NCOPL has sought and obtained extensions to this timeframe such that the arrangements are now due to be in place by 31 December 2013.</p>	<p>It was noted that a larger area of land for use as an offset may potentially be required if NCOPL are required to proceed with a Biobanking Agreement.</p>

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
6	1	The Proponent shall revise the Environmental Management Strategy for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with environmental management for the site (Stages 1 and 2) and subsequently implement this revised version of the Environmental Management Strategy to the satisfaction of the Director-General. This strategy must :	C	Current version: Environmental Management Strategy for the Narrabri Mine Edition 1 Revision 1 dated November 2011.	
		(a) be submitted to the Director-General for approval prior to 30 June 2011;	C	Submitted in June 2011 and approved by DP&I on 6 December 2011 (letter sighted).	
		(b) provide the strategic context for environmental management of the project;	C	References the Whitehaven Health, Safety and Environmental Management System and the EAs prepared for Stages 1 and 2.	
		(c) identify the statutory requirements that apply to the project;	O	Whilst Section 3.1 of EMS references the approvals etc that were in place at the time the EMS was prepared, it does not include the EPBC approval, the Subsidence Management Plan approvals or any changes to conditions as a result of MODs 1 and 2.	Condition 3 of Schedule 6 requires that within 3 months of a submission of an annual review or any modification to the conditions of this approval, the Proponent shall review and if necessary revise the strategies, plans and programs. Given that the 2012-2013 Annual Review has been submitted, it would be appropriate to review the EMS and amend it to include the subsidence management approvals and any other approvals that have been obtained. It would also be appropriate to update the list of legislation where changes have been made (eg Work Health and Safety Act 2011)
		(d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project	C	Roles and responsibilities are documented in Section 4.1 of EMS.	
		(e) describe the procedures that would be implemented to: - keep the local community and relevant agencies informed about the operation and environmental performance of the project;	C	Communication and information dissemination mechanisms are described in Section 4.7 of EMS.	
		- receive, handle, respond to, and record complaints;	C	Complaints management process described in Section 4.7.2 of EMS	
		- resolve any disputes that may arise during the course of the project;	C	Dispute resolution process described in Section 4.7.4 of EMS.	
		- respond to any non-compliance; and	C	Corrective actions described in Section 4.4.4 of EMS, whilst Section 4.8 identifies procedures for responding to non-compliances.	
		- respond to emergencies; and	C	Section 4.9 of EMS outlines processes for responding to emergencies - refers to existing mine Emergency Management System which covers environmental emergencies.	
(f) include a clear plan depicting all the monitoring currently being carried out in the project area.	C	Figure 2 in EMS identifies current environmental monitoring locations.			
	2	The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	C	The management plans reviewed during the audit were noted to generally comply with the relevant guidelines in place at the time of their preparation, with all plans generally including the information required under this condition.	
		(a) detailed baseline data;			
		(b) a description of: the relevant statutory requirements (including any relevant approval, licence or lease conditions); any relevant limits or performance measures/criteria; the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;			
		(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;			
		(d) a program to monitor and report on the: impacts and environmental performance of the project; effectiveness of any management measures (see (c) above);			
		(e) a contingency plan to manage any unpredicted impacts and their consequences;			
		(f) a program to investigate and implement ways to improve the environmental performance of the project over time;			
		(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			
		(h) a protocol for periodic review of the plan.	O	Whilst mine staff advised that management plans were reviewed as described in the Plans, the revision status of the plans is only updated if amendments are made. There is no system in place to document a review of the plan if the review concludes that no amendments are required. This makes it difficult to verify if periodic reviews are implemented as required.	

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	3	Within 3 months of the submission of an: (a) audit under condition 7 of schedule 6;	C	Management plans were reviewed and updated following the last audit to update the plans to include the Stage 2 approval.	
		(b) incident report under condition 4 of schedule 6; and (c) annual review under condition 5 of schedule 6, (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.	O	Whilst mine staff advised that management plans were reviewed as required, the revision status of the plans is only updated if amendments are made. There is no system in place to document a review of the plan if the review concludes that no amendments are required. This makes it difficult to verify if this condition has been adequately implemented.	
		<i>Note: This is to ensure that 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>	Noted		
	4	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.	C	Evidence was sighted that incidents are generally notified to relevant agencies within the timeframes specified. For example, incident involving discharge from SB3 - occurred at 10am on 25/11/11, reported to EPA via pollution line at 12.47pm on 25/11/11, with letter report submitted 30/11/11. An update report was also issued on 8/12/11 which included water quality results. Similarly, the report for noise monitoring conducted by Global Acoustics on 21/5/2013 was received by the mine on 29/5/2013 - evidence was sighted to demonstrate that DP&I, EPA and the landowner were notified that day with the written report on the incident submitted 5 June 2013. A followup report was sent 9/9/13 to EPA, DP&I and the land owner including the monitoring results which demonstrated that noise levels were within criteria for September.	The auditor noted a significant improvement in the reporting of incidents and exceedances of monitoring criteria from the last audit. In most instances, reporting is undertaken within required timeframes.
	5	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Director-General.	C	Monthly environmental monitoring reports available on website.	
	6	Within 12 months of this approval, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:	C	Annual Reviews for 2011-2012 and 2012-2013 were reviewed during the audit.	
		(a) describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year;	C	Section 2 of the 2012-2013 AEMR contains a summary of operations.	
		(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:	C	A comprehensive review of monitoring data is provided in the various subsections of Section 3 of the 2012-2013 AEMR.	
		- the relevant statutory requirements, limits or performance measures/criteria;	C	For example, air quality criteria documented in Section 3.1.1, noise criteria in Section 3.10.1.	
		- the monitoring results of previous years; and	C	For example, dust monitoring results and trends discussed in Section 3.1.3, noise monitoring data and trends discussed in Section 3.10.3.	
		- the relevant predictions in the EA and Extraction Plan;	C	For example, air quality predictions discussed in Section 3.1.4 and noise prediction discussed in Section 3.10.4.	
		(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;	C	Noise and blasting exceedances were recorded for the 2012-2013 reporting period. These have been identified in the relevant subsections of Section 3 which includes a discussion of investigations undertaken and actions implemented.	
		(d) identify any trends in the monitoring data over the life of the project;	C	A full dataset of monitoring results for the life of the project to date is included in the Appendices to the AEMR.	
(e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and	C	These have been identified in the relevant subsections of Section 3 which includes a discussion of investigations undertaken and actions implemented.			
(f) describe what measure will be implemented over the next year to improve the environmental performance of the project.	C	Objectives, targets and goals for the next reporting period are described in Section 6.3 of the AEMR.			
	7	Prior to 13 September 2010, 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 (Stages 1 and 2). This audit must:	C	The first audit of the Narrabri operations was commissioned in September 2010. The current audit was due to be commissioned by 13 September - the mine sought approval from DP&I for the audit team on 10/9/2013.	
		(a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;	C	For the first audit undertaken in February 2011, sighted letter to DP&I seeking approval for the audit team dated 2/9/2010, with the team subsequently approved by DP&I by letter dated 3/11/2010. For this audit, sighted letter from Whitehaven dated 10 September 2013 seeking approval of the audit team and letter of approval from DP&I dated 24 September 2013.	
		(b) include consultation with the relevant agencies;	C	The previous audit included agency consultation which was discussed in Section 3.2 of the Audit Report. The current audit has also included telephone consultation with relevant government agencies.	

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		(c) assess the environmental performance of the project and assess whether it is complying with the relevant requirements of this approval and any relevant mining lease or EPL (including any strategy, plan or program required under these approvals);	C	The previous audit included a discussion on the environmental performance of the operations in Section 4.	
		(d) review the adequacy of strategies, plans or programs required under these approvals; and, if appropriate,	C	A discussion on the adequacy and level of implementation of the management plans prepared for the operations was included in Section 3.4 of the previous audit report.	
		(e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.	C	Where issues were raised in the previous audit report, recommendations to improve the environmental performance were documented in the audit report.	
		<i>Note: this audit team must be led by a suitably qualified auditor and include experts in the fields of subsidence, water and noise management (other than for the 2010 audit which is not required to include a subsidence expert in the audit team).</i>	Noted	The first audit did not require specific technical specialists given that the mine was still under construction. The audit team for the 2013 audit has included technical specialists in the fields of noise, subsidence, groundwater and surface water.	
	8	Within 6 weeks of the completing 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.	C	Evidence was sighted that the audit report and a copy of the Action Plan prepared by the mine to address the audit findings was submitted to DP&I.	
	9	The Proponent shall maintain a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General, in general accordance with the <i>Guideline for Establishing and Operating Community Consultative Committees for Mining Projects (Department of Planning, 2007)</i> , or its latest version.	C	The previous audit confirmed that the CCC had been established as part of the Stage 1 approval and evidence was sighted in the form of meeting minutes that the Committee meets on a regular basis.	
		<i>Note: The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.</i>	Noted		
	10	The Proponent shall: (a) make copies of the following publicly available on its website:			
		• the documents referred to in Condition 2 of Schedule 2;	NC	Copies of the EA and the consolidated conditions of approval were noted to be available on the mine's website. However, it was noted that the documentation for MODs 1 and 2 were not available on the website.	
		• all current statutory approvals for the project;	NC	Whilst the Project Approval, EPL, Mining Lease and EPBC Approval are available on the website, it was noted that the Subsidence Management Plan approvals are not available on the website.	
		• all approved strategies, plans and programs required under the conditions of this approval;	C	Copies of approved management plans and programs are available on the website with the exception of the Biodiversity Offset Strategy which has not yet been approved.	
		• a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans or programs;	C	Monthly environmental monitoring data is provided on the website.	
		• a complaints register, updated on a monthly basis;	C	The complaints register is available on the website and has been updated with the last complaint being logged on 30/9/2013 (website checked 8/10/2013)	
		• minutes of CCC meetings;	C	Minutes of CCC meetings are available on the website from May 2008 to April 2013.	
		• the annual reviews of the project;	C	The last five annual reviews are available on the website - from 2008-2009 to 2012-2013.	
		• any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit;	C	A copy of the last independent audit report (2011) and Whitehaven's Action Plan in response is available on the website.	
		• any other matter required by the Director-General; and	NT	No other matters have been required.	
		(b) keep this information up-to-date; to the satisfaction of the Director-General.	O	With the exception of the Subsidence Management Plan approvals, the information on the website was observed to be up-to-date.	

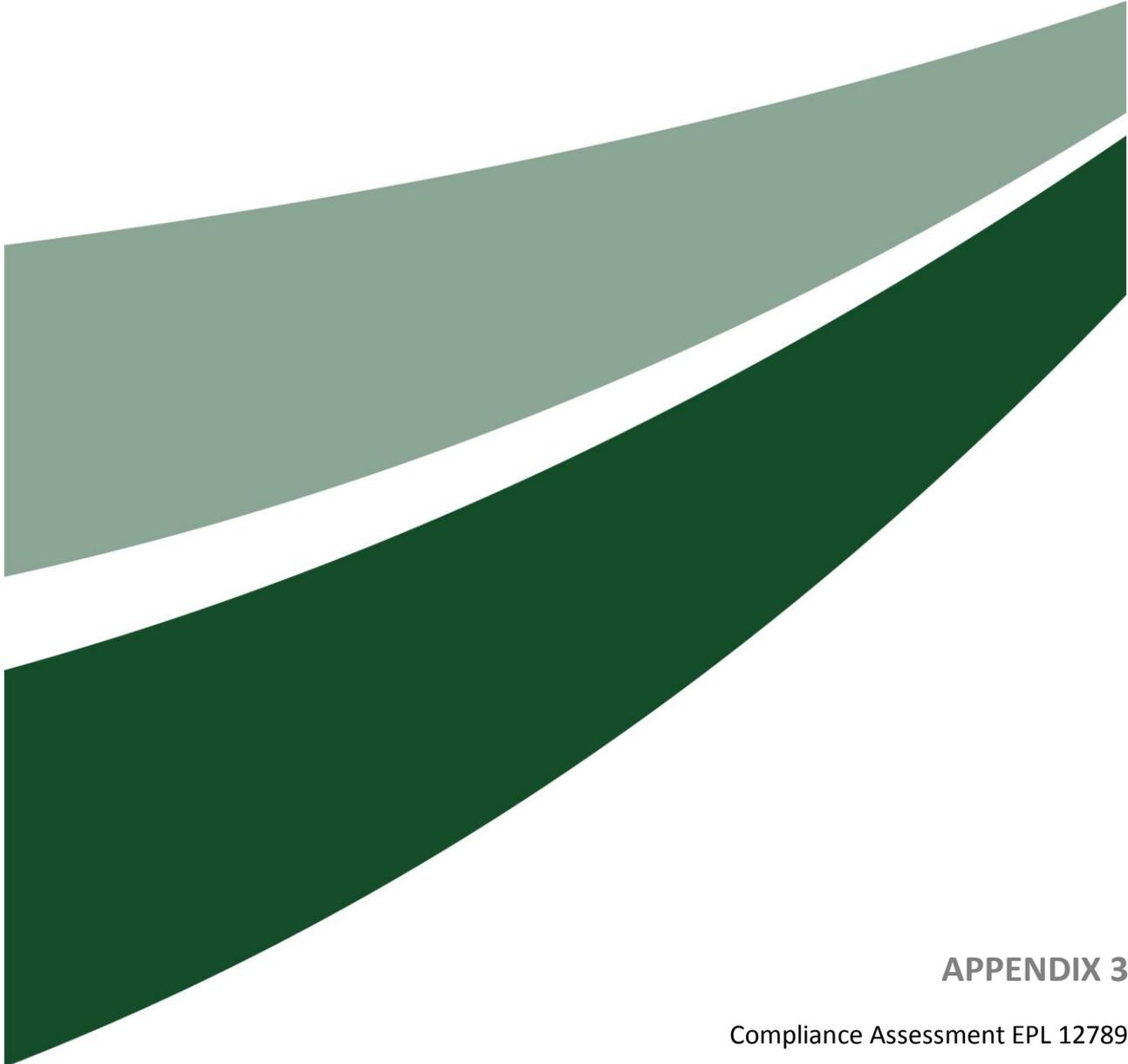
Project Approval No: 08_0144 - Stage 2 Operations

Approval dated 26 July 2010



Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
7	1	If the results of the monitoring required in schedule 4 identify that impacts generated by the project are greater than the relevant impact assessment criteria, except where a negotiated agreement has been entered into in relation to that impact, then the Proponent shall, within 2 weeks of obtaining the monitoring results, notify the Director-General, the affected landowners and tenants (including tenants of mine-owned properties) accordingly, and provide quarterly monitoring results to each of those parties until the results show that the project is complying with the criteria in schedule 4.	C	The report for noise monitoring conducted by Global Acoustics on 21/5/2013 was received by the mine on 29/5/2013 - evidence was sighted to demonstrate that DP&I, EPA and the landowner were notified that day with the written report on the incident submitted 5 June 2013. A followup report was sent 9/9/13 to EPA, DP&I and the land owner including the monitoring results which demonstrated that noise levels were within criteria for June to August quarter.	
	2	If the results of monitoring required in schedule 4 identify that impacts generated by the project are greater than the relevant air quality impact assessment criteria in schedule 4, then the Proponent shall send the relevant landowners and tenants (including tenants of mine-owned properties) a copy of the NSW Health fact sheet entitled "Mine Dust and You" (and associated updates) in conjunction with the notification required in condition 1.	NT	No exceedances of the air quality criteria have been identified during the period covered by the audit.	
	3	If a landowner considers the project to be exceeding the impact assessment criteria in schedule 4, 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, the Proponent shall within 2 months of the Director-General's decision: (a) consult with the landowner to determine his/her concerns; (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land, to: determine whether the project is complying with the relevant impact assessment criteria in schedule 4; and identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and (c) give the Director-General and landowner a copy of the independent review.	NT	No independent reviews have been required.	
		If the independent review determines that the project is complying with the relevant impact assessment criteria in schedule 4, then the Proponent may discontinue the independent review with the approval of the Director-General. If the independent review determines that the project is not complying with the relevant impact assessment criteria in schedule 4, and that the project is primarily responsible for this non-compliance, then the Proponent shall: (a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria and conduct further monitoring to determine whether these measures ensure compliance; or (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Director-General. If further monitoring under paragraph (a) determines that the project is complying with the relevant criteria, then the Proponent may discontinue the independent review with the approval of the Director-General. If the independent review determines that the project is not complying with the relevant land acquisition criteria in schedule 4, then the Proponent shall offer to acquire all or part of the landowner's land in accordance with the procedures in conditions 5-7 below, to the satisfaction of the Director-General.			
	4	If the independent review determines that the project is complying with the relevant impact assessment criteria in schedule 4, then the Proponent may discontinue the independent review with the approval of the Director-General. If the independent review determines that the project is not complying with the relevant impact assessment criteria in schedule 4, and that the project is primarily responsible for this non-compliance, then the Proponent shall: (a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria and conduct further monitoring to determine whether these measures ensure compliance; or (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Director-General. If further monitoring under paragraph (a) determines that the project is complying with the relevant criteria, then the Proponent may discontinue the independent review with the approval of the Director-General. If the independent review determines that the project is not complying with the relevant land acquisition criteria in schedule 4, then the Proponent shall offer to acquire all or part of the landowner's land in accordance with the procedures in conditions 5-7 below, to the satisfaction of the Director-General.	NT	No independent reviews have been required.	

Schedule	Condition No.	Requirement	Compliance Status C/NC/O/NT	Evidence/Findings	Comments
	5	<p>Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:</p> <p>(a) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project the subject of the project application, having regard to the:</p> <p>existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and</p> <p>presence of improvements on the property and/or any approved building or structure which has been physically commenced 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 'reasonable and feasible measures' under schedule 4 or condition 4(a) of this schedule;</p> <p>(b) the reasonable costs associated with:</p> <p>relocating within the Narrabri or Gunnedah local government areas, or to any other local government area determined by the Director-General;</p> <p>obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and</p> <p>(c) reasonable compensation for any disturbance caused by the land acquisition.</p> <p>However, if following this period, the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.</p> <p>Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:</p> <p>(a) consider submissions from both parties;</p> <p>(b) 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;</p> <p>(c) prepare a detailed report setting out the reasons for any determination; and</p> <p>(d) provide a copy of the report to both parties and the Director-General.</p> <p>Within 14 days of the receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.</p> <p>However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a) - (c) above and the independent valuer's report. Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.</p> <p>If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.</p>	NT	No written requests have been received.	
	6	<p>The Proponent shall pay all reasonable costs associated with the land acquisition process described in condition 5 above.</p> <p>If the Proponent and landowner agree that only part of the land shall be acquired, then the Proponent shall pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.</p>	NT	No requests for acquisition have been received.	



APPENDIX 3

Compliance Assessment EPL 12789

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments						
A1.1	This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.	Noted								
	Unless otherwise further restricted by the condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.	C	Scheduled activities were observed during the site inspection. Production statistics provided in AEMR show that production is well below the 8 million tonne limit with only 2,587,459 tonnes produced in the 12 months to 31 March 2013.							
	Scheduled Activity									
	Mining for Coal									
	Coal works									
	Fee Based Activity									
Mining for Coal >5,000,000 T produced										
Coal works >=5,000,000 T handled										
A2.1	<p>The licence applies to the following premises:</p> <table border="1" data-bbox="222 724 934 1071"> <thead> <tr> <th>Premises Details</th> </tr> </thead> <tbody> <tr> <td>NARRABRI COAL OPERATIONS</td> </tr> <tr> <td>10 KURRAJONG CREEK ROAD</td> </tr> <tr> <td>BAAN BAA</td> </tr> <tr> <td>NSW 2390</td> </tr> <tr> <td>LOCATION OF PREMISES IS SHOWN ON FIGURES TITLED "FIGURE 1.1 PROJECT SITE LOCATION" AND "FIGURE 2.1 (PREFERRED) INDICATIVE PROJECT SITE LAYOUT" SUBMITTED BY LICENSEE WITH LICENCE APPLICATION DATED 21-09-07. COPY ON FILE 25147A1/03</td> </tr> </tbody> </table>	Premises Details	NARRABRI COAL OPERATIONS	10 KURRAJONG CREEK ROAD	BAAN BAA	NSW 2390	LOCATION OF PREMISES IS SHOWN ON FIGURES TITLED "FIGURE 1.1 PROJECT SITE LOCATION" AND "FIGURE 2.1 (PREFERRED) INDICATIVE PROJECT SITE LAYOUT" SUBMITTED BY LICENSEE WITH LICENCE APPLICATION DATED 21-09-07. COPY ON FILE 25147A1/03	C	A review of cadastral records and aerial photography for the mine confirmed that operations are within the area defined as the premises.	
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A2.2	<p>The licence applies to the following premises: Lot 1 DP 816020; Lot 152 DP 816020; Lot 60 DP 757124; Part Lot 60 DP 757124; Part Lots 151 & 152 DP 816020; Part Lot 152 DP 816020; Part Lots 57, 58, 63, 64, 65, 81, 82, 83, 83 & 115 DP 757124; Lot 61 DP 757124; Part Lot 1 DP 811171; Lot 2 DP 811171; Part Lots 3, 8, 25, 67 & 68 DP 757104; Lot 7 DP 757104; Part Lot 152 DP 816020; Lot 1 DP 659899; Part Lot 3 DP 1005608; Lots 381 & 382 DP 1028753; Part Lot 1 DP 798487; Part Lots 57,58,60,63,64,65,81,82,83,84 & 115 DP 757124; Part Lots 3, 8, 10, 25, 67 & 68 DP 757104; Part Lots 151 & 152 DP 816020</p>	C	A review of cadastral records and aerial photography for the mine confirmed that operations are within the area defined as the premises.							
A3.1	<p>Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence. In this condition the reference to "the licence application" includes a reference to:</p> <p>(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environmental Operations (Savings and Transitional) Regulation 1998; and</p> <p>(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.</p>	C	Works and activities were generally observed to be being carried out in accordance with the proposal contained in the licence application.							

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments																																												
P1.1	<p>The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or setting of limits for the emission of pollutants to the air from the point.</p> <table border="1" data-bbox="222 346 934 619"> <thead> <tr> <th colspan="4" style="text-align: center;"><i>Air</i></th> </tr> <tr> <th>EPA identification no.</th> <th>Type of Monitoring Point</th> <th>Type of Discharge Point</th> <th>Location Description</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Ambient Air Quality Monitoring</td> <td></td> <td>Monitoring point located at "Bow Hills" and labelled ND3 as shown on map titled "Current Non- Project Related Monitoring Locations- Narrabri Mine" dated 23 November 2011 sent to EPA on 24 November 2011 (DOC11/56033).</td> </tr> <tr> <td>23</td> <td></td> <td>Gas Drainage Network</td> <td>Pre- drainage and Goaf gas drainage network associated with the underground mining operations.</td> </tr> </tbody> </table>	<i>Air</i>				EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description	3	Ambient Air Quality Monitoring		Monitoring point located at "Bow Hills" and labelled ND3 as shown on map titled "Current Non- Project Related Monitoring Locations- Narrabri Mine" dated 23 November 2011 sent to EPA on 24 November 2011 (DOC11/56033).	23		Gas Drainage Network	Pre- drainage and Goaf gas drainage network associated with the underground mining operations.	C	A review of monitoring data shows that monitoring is being undertaken at the specified points.																													
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P1.2	<p>The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or setting of limits for discharges of pollutants to water from the point.</p>	C	A review of monitoring data shows that monitoring is being undertaken at the specified points.																																													
P1.3	<p>The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.</p> <table border="1" data-bbox="222 861 934 1963"> <thead> <tr> <th>EPA identification no.</th> <th>Type of Monitoring Point</th> <th>Type of Discharge Point</th> <th>Location Description</th> </tr> </thead> <tbody> <tr> <td>11</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Discharge point on northern side of mine boundary labelled as "SD4" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>12</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Discharge point on eastern side of mine boundary labelled as "SD5" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>13</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Discharge point on south eastern side of mine boundary labelled as "SD2" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>14</td> <td>Ambient Water Quality Monitoring</td> <td></td> <td>Upstream of mine discharge point on Kurrjong Creek Tributary 1 labelled as "KC1US" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>15</td> <td>Ambient Water Quality Monitoring</td> <td></td> <td>Downstream of mine discharge point on Kurrjong Creek Tributary 1 labelled as "KC1DS" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>16</td> <td>Ambient Water Quality Monitoring</td> <td></td> <td>Upstream of mine discharge point on Kurrjong Creek Tributary 2 labelled as "KC2US" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>17</td> <td>Ambient Water Quality Monitoring</td> <td></td> <td>Downstream of mine discharge point on Kurrjong Creek Tributary 2 labelled as "KC2DS" on Figure titled "Wet Weather Discharge Monitoring Locations" provided with licence variation application dated 10 February 2009.</td> </tr> <tr> <td>18</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Wet weather discharge Discharge water quality monitoring</td> <td>Discharge point on western side of mine boundary labelled as "SD7" on figure titled "Figure 3- Discharge Location SD7" provided with licence variation application dated 2 September 2011 (DOC11/41455).</td> </tr> <tr> <td>19</td> <td>Ambient Water Quality Monitoring</td> <td></td> <td>Upstream location of Kurrjong Creek labelled as "KCUS" on figure titled "Figure 1: Surface Water Monitoring Locations" provided with licence variation application dated 2 September 2011 (DOC11/41455).</td> </tr> <tr> <td>20</td> <td>Ambient Water Quality Monitoring</td> <td></td> <td>Upstream location of Kurrjong Creek labelled as "KCDS" on figure titled "Figure 1: Surface Water Monitoring Locations" provided with licence variation application dated 2 September 2011 (DOC11/41455).</td> </tr> </tbody> </table>	EPA identification no.	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Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments						
	<p>21 Ambient Water Quality Monitoring Northern portion of mining area in Pine Creek labelled as "PCa" on figure titled "Current Environmental Monitoring Locations" provided by licence via email dated 20 October 2011 (DOC11/48204).</p> <p>22 Ambient Water Quality Monitoring Monitoring point in Pine Creek Tributary 1 labelled as "PC1" on figure titled "Figure 1: Surface Water Monitoring Locations" provided with licence variation application dated 2 September 2011 (DOC11/41455).</p>									
P1.4	<table border="1"> <thead> <tr> <th>EPA Identification number</th> <th>Type of Monitoring Point</th> <th>Description of Location</th> </tr> </thead> <tbody> <tr> <td>W1</td> <td>Weather analysis</td> <td>Weather station identified as "Meteorological station" on map titled "Figure B Environmental Monitoring" submitted with the Final Statement of Commitments, dated June 2007.</td> </tr> </tbody> </table>	EPA Identification number	Type of Monitoring Point	Description of Location	W1	Weather analysis	Weather station identified as "Meteorological station" on map titled "Figure B Environmental Monitoring" submitted with the Final Statement of Commitments, dated June 2007.	C	A weather station was observed to be located on site as shown on the map.	
EPA Identification number	Type of Monitoring Point	Description of Location								
W1	Weather analysis	Weather station identified as "Meteorological station" on map titled "Figure B Environmental Monitoring" submitted with the Final Statement of Commitments, dated June 2007.								
L1.1	Except as may be expressly provided in any other condition of this license, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	NC	<p>Five incidents have occurred at the Narrabri Mine since November 2011. These are:</p> <ul style="list-style-type: none"> • a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011; • a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012; • a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011; • a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and • a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012. <p>The SB3 discharge on November 25, 2011, and the VPW26 discharge on October 10, 2012, resulted in two Penalty Infringement Notices (PINs) being issued by EPA for contravening the POEO Act.</p> <p>It is understood that the November discharge from SB3 occurred during a period of heavy rain at a time when SB3 was collecting water from the Reject Emplacement Area, which was not receiving rejects at the time.</p> <p>Following the October discharge from VPW26, NCOPL commissioned a vegetation assessment of the impacted area and also revised the procedure for accessing well heads. Vegetation assessments of the impacted area have shown that no long-term impacts have occurred. No further action is considered to be required.</p>	NCOPL has implemented suitable actions to address the unlicensed discharges and minimise the potential for any future unplanned discharges.						
L2.1	For each monitoring/discharge point or utilisation area specified in the table(s) below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	C								
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	Noted								

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments																								
L2.3	To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\.	Noted																										
L2.4	<p>Water and/or Land Concentration Limits</p> <table border="1"> <caption>POINT 12,13,11,18</caption> <thead> <tr> <th>Pollutant</th> <th>Units of Measure</th> <th>50 percentile concentration limit</th> <th>90 percentile concentration limit</th> <th>3QDM concentration limit</th> <th>100 percentile concentration limit</th> </tr> </thead> <tbody> <tr> <td>Oil and Grease</td> <td>milligrams per litre</td> <td>-</td> <td>-</td> <td>-</td> <td>10</td> </tr> <tr> <td>pH</td> <td>pH</td> <td>-</td> <td>-</td> <td>-</td> <td>6.5-8.5</td> </tr> <tr> <td>Total suspended solids</td> <td>milligrams per litre</td> <td>-</td> <td>-</td> <td>-</td> <td>50</td> </tr> </tbody> </table>	Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3QDM concentration limit	100 percentile concentration limit	Oil and Grease	milligrams per litre	-	-	-	10	pH	pH	-	-	-	6.5-8.5	Total suspended solids	milligrams per litre	-	-	-	50	C	All discharges from wet weather licensed discharge points were compliant with the EPL.	Unplanned discharges from SB3 and VPW26 do not comply with the environmental monitoring criteria under L2.4. However as these discharges were not from the licenced wet weather discharge points the criteria do not apply.
Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3QDM concentration limit	100 percentile concentration limit																							
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pH	pH	-	-	-	6.5-8.5																							
Total suspended solids	milligrams per litre	-	-	-	50																							
L2.5	<p>The Total Suspended Solids concentration limits specified for Points 11, 12, 13 and 18 may be exceeded for water discharged provided that:</p> <p>(a) the discharge occurs solely as a result of rainfall measured at the premises that exceeds 38.4 millimetres over any consecutive 5 day period immediately prior to the discharge occurring; and</p> <p>(b) all practical measures have been implemented to dewater all sediment dams within 5 days of rainfall such that they have sufficient capacity to store run off from a 38.4 millimetre, 5 day rainfall event.</p> <p>Note: 38.4mm equates to the 5 day 90%ile rainfall depth for Gunnedah sourced from Table 6.3a Managing Urban Stormwater: Soils and Construction Volume 1: 4th edition, March 2004.</p>	C																										
L3.1	<p>Noise generated at the premises must not exceed the noise limits in the table below.</p> <table border="1"> <thead> <tr> <th>Locality and Location</th> <th>Day- LAeq (15 minute)</th> <th>Evening- LAeq (15 minute)</th> <th>Night- LAeq (15 minute)</th> <th>Night- LA1 (1 minute)</th> </tr> </thead> <tbody> <tr> <td>All privately-owned residences</td> <td>35</td> <td>35</td> <td>35</td> <td>45</td> </tr> </tbody> </table>	Locality and Location	Day- LAeq (15 minute)	Evening- LAeq (15 minute)	Night- LAeq (15 minute)	Night- LA1 (1 minute)	All privately-owned residences	35	35	35	45	C	Noise monitoring reports reviewed during the audit did not identify any noise exceedances attributable to the NCOPL operations.															
Locality and Location	Day- LAeq (15 minute)	Evening- LAeq (15 minute)	Night- LAeq (15 minute)	Night- LA1 (1 minute)																								
All privately-owned residences	35	35	35	45																								
L3.2	<p>Noise from the premises is to be measured at any residence not on the premises to determine compliance with this condition.</p> <p>Note: For the purpose of noise measures required for this condition, the LAeq noise limit must be measured or computed at any point within 30 metres of any residence not on the premises over a period of 15 minutes using "FAST" response on the sound meter.</p>	C																										

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
L3.2	For the purpose of the table above: a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays; b) Evening is defined as the period from 6pm to 10pm; c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.	C	Monitoring reports reviewed during the audit identified that monitoring is undertaken during the time periods specified in this condition.	
L3.3	To determine compliance: a) with the Leq(15 minute) noise limits in the Noise Limits table, the noise measurement equipment must be located: i) approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or ii) within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable iii) within approximately 50 metres of the boundary of a National Park or a Nature Reserve. b) with the LA1(1 minute) noise limits in the Noise Limits table, the noise measurement equipment must be located within 1 metre of a dwelling façade. c) with the noise limits in the Noise Limits table, the noise measurement equipment must be located: i) at the most affected point at a location where there is no dwelling at the location; or ii) at the most affected point within an area at a location prescribed by part (a) or part (b) of this condition.	O	Monitoring reports reviewed during the audit identified that monitoring is generally undertaken in accordance with this condition. However, it is understood that access is limited to at least one location and so the monitoring results are extrapolated from a representative location, and monitoring at Belah Park, due to a change in ownership, is now carried out at the residence at Merriman.	
L3.4	The noise limits set out in the Noise Limits table apply under all meteorological conditions except for the following: a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or c) Stability category G temperature inversion conditions. For the purposes of this condition: a) Data recorded by the meteorological station identified as EPA Identification Point(s) W1 must be used to determine meteorological conditions; and b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.	C	The noise reports reviewed included a discussion on the meteorological conditions and where the criteria do not apply. For example, on one occasion the noise levels due to NCOPL were recorded above the LA1, 1 minute criteria but this was associated with weather conditions excluded by the Project Approval and EPL.	
L3.5	For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.	C	The noise reports reviewed included a discussion on the use of modification factors.	
L4.1	The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	NT	No blasting has been carried out during the period covered by the audit.	
L4.2	The overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	NT	No blasting has been carried out during the period covered by the audit.	
L4.3	The airblast overpressure level from blasting operations listed in Conditions L7.1 and L7.2 (now L4.1 and L4.2) must not be exceeded at any point within 30 metres of any non-project related residential building or other noise sensitive location.	NT	No blasting has been carried out during the period covered by the audit.	

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
L4.4	Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	NT	No blasting has been carried out during the period covered by the audit.	

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments			
L4.5	Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	NT	No blasting has been carried out during the period covered by the audit.				
L4.6	The ground vibration peak particle velocity limits listed in Conditions L7.3 and L7.4 must not be exceeded at any point within 3.5 metres of any non-project related residential building or other noise sensitive location.	NT	No blasting has been carried out during the period covered by the audit.				
L4.7	Blasting operations at the premises may only take place between 10:00am-4:00pm Monday to Friday. (Where compelling safety reasons exist, the Authority may permit a blast to occur outside the abovementioned hours. Prior written (or facsimile) notification of any such blast must be made to the Authority).	NT	No blasting has been carried out during the period covered by the audit.				
L4.8	Blasting at the premises is limited to: a) A maximum of two (2) blasts per day; b) Five (5) blasts a week, averaged over a twelve month period; on each day on which blasting is permitted.	NT	No blasting has been carried out during the period covered by the audit.				
O1.1	Licensed activities must be carried out in a competent manner. This includes:	NC	<p>Five incidents have occurred at the Narrabri Mine since November 2011. These are:</p> <ul style="list-style-type: none"> • a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in November 2011; • a discharge from SB3, located at the Reject Emplacement Area (REA), during heavy rain in February 2012; • a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in November 2011; • a discharge from SB2, located at the coal processing and stockpile areas, during heavy rain in February 2012; and • a discharge of coal impacted water from Vertical Production Well (VPW) 26, used for pre-drainage of water and gas from the underground coal workings in February 2012. <p>These incidents resulted in four Penalty Infringement Notices (PINs) being issued by EPA for contravening condition O1.1:</p> <ul style="list-style-type: none"> • SB3 discharge on 25/11/2011 – ono PIN issued for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner); • SB2 discharge (coal impacted water) – two PINs (25/11/2011 & 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and • VPW26 discharge on 10/02/2012 – one PIN issued for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner). 	<p>NCOPL has implemented suitable actions to address the unlicensed discharges and minimise the potential for any future unplanned discharges.</p>			
	(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and				O	Whilst bunding and spill management was generally observed to be well implemented, there were areas around the workshop where pallets of new drums of oils and greases were not stored within bunded areas as the existing bunded container lacked sufficient capacity for the volumes of oils and greases required to be stored.	NCOPL staff advised that they were in the process of obtaining an additional bunded storage container to address this issue.
	(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.				O	Waste management systems were observed to have been generally well implemented in most areas. An area of concern, where wastes were observed to be stored haphazardly, was the longwall assembly pad. This area now appears to be used as a hard stand or storage area, however, it lacks appropriate housekeeping practices and contains a mixture of disused parts, wastes, and other materials.	
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity:	C					
	(a) must be maintained in a proper and efficient condition; and						
	(b) must be operated in a proper and efficient manner.	C	NCOPL has established a comprehensive training and competency assessment system which was observed to be well implemented for all staff. A skills matrix has been established and a Training and Competency Management Plan prepared for the current year (dated June 2013).				
O3.1	All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.	NC	Dust was observed to be visible from the site on the day of the audit. A review of the complaints register for the site shows that dust has been an ongoing issue for the operations.	As a result of the dust issues being experienced and the complaints received, EPA placed requirements for dust pollution reduction program in the EPL for the site. These are discussed in conditions U1.1, and U2.1 to U2.4.			

Environment Protection Licence No. 12789

Review Due Date: 20/2/2013



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
M1.1	The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.	C	Monitoring results are retained and recorded in a series of spreadsheets.	
M1.2	All records required to be kept by this licence must be:			
	(a) in a legible form, or in a form that can readily be reduced to a legible form;	C	Monitoring results are maintained as a series of spreadsheets	
	(b) kept for at least 4 years after the monitoring or event to which they relate took place; and	C	Monitoring results from 2008 through to September 2013 were available for review during the audit.	It was noted that full datasets of monitoring results for the site are included as Appendices to each AEMR.
	(c) produced in a legible form to any authorised officer of the EPA who asks for them.	NT	Narrabri staff advised that no authorised officers have asked for them.	

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments																																																
M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: (a) the date(s) on which the sample was taken; (b) the time(s) at which the sample was collected; (c) the point at which the sample was taken; and (d) the name of the person who collected the sample.	C	Field notes are recorded on field sheets for each sample.																																																	
M2.1	For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:	C	Monitoring data shows that the sampling method and frequency of sampling is generally being undertaken in accordance with the requirements of this condition.																																																	
M2.2	Air Monitoring Requirements POINT 3 <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Units of measure</th> <th>Frequency</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Particulates - Deposited Matter</td> <td>grams per square metre per month</td> <td>Once a month (min. of 4 weeks)</td> <td>AM-19</td> </tr> </tbody> </table>	Pollutant	Units of measure	Frequency	Sampling Method	Particulates - Deposited Matter	grams per square metre per month	Once a month (min. of 4 weeks)	AM-19	C																																										
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M2.3	Water and/or Land Monitoring Requirements: POINT 12,13,11,18 <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Units of measure</th> <th>Frequency</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Conductivity</td> <td>microsiemens per centimetre</td> <td>Special Frequency 1</td> <td>In situ</td> </tr> <tr> <td>Oil and Grease</td> <td>milligrams per litre</td> <td>Special Frequency 1</td> <td>Grab sample</td> </tr> <tr> <td>pH</td> <td>pH</td> <td>Special Frequency 1</td> <td>In situ</td> </tr> <tr> <td>Total organic carbon</td> <td>milligrams per litre</td> <td>Special Frequency 1</td> <td>Grab sample</td> </tr> <tr> <td>Total suspended solids</td> <td>milligrams per litre</td> <td>Special Frequency 1</td> <td>Grab sample</td> </tr> </tbody> </table> POINT 14,17,16,15,19,20,21,22 <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Units of measure</th> <th>Frequency</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Conductivity</td> <td>microsiemens per centimetre</td> <td>Special Frequency 2</td> <td>In situ</td> </tr> <tr> <td>Oil and Grease</td> <td>milligrams per litre</td> <td>Special Frequency 2</td> <td>Grab sample</td> </tr> <tr> <td>pH</td> <td>pH</td> <td>Special Frequency 2</td> <td>In situ</td> </tr> <tr> <td>Total organic carbon</td> <td>milligrams per litre</td> <td>Special Frequency 2</td> <td>Grab sample</td> </tr> <tr> <td>Total suspended solids</td> <td>milligrams per litre</td> <td>Special Frequency 2</td> <td>Grab sample</td> </tr> </tbody> </table>	Pollutant	Units of measure	Frequency	Sampling Method	Conductivity	microsiemens per centimetre	Special Frequency 1	In situ	Oil and Grease	milligrams per litre	Special Frequency 1	Grab sample	pH	pH	Special Frequency 1	In situ	Total organic carbon	milligrams per litre	Special Frequency 1	Grab sample	Total suspended solids	milligrams per litre	Special Frequency 1	Grab sample	Pollutant	Units of measure	Frequency	Sampling Method	Conductivity	microsiemens per centimetre	Special Frequency 2	In situ	Oil and Grease	milligrams per litre	Special Frequency 2	Grab sample	pH	pH	Special Frequency 2	In situ	Total organic carbon	milligrams per litre	Special Frequency 2	Grab sample	Total suspended solids	milligrams per litre	Special Frequency 2	Grab sample	C		
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M2.4	For the purposes of the table(s) above Special Frequency 1 means the collection of samples as soon as practicable after each discharge commences and in any case not more than 12 hours after each discharge commences.	Noted																																																		
M2.5	For the purposes of the table(s) above Special Frequency 2 means the collection of samples quarterly (in the event of flow during the quarter) at a time when there is flow and as soon as practicable after each wet weather discharge from points 11, 12, 13 or 18 commences and in any case not more than 12 hours after each discharge commences.	Noted																																																		

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments								
M2.6	Note: Groundwater monitoring has not been formally included in the licence. However, the licensee is required to undertake groundwater monitoring in accordance with the Department of Planning and Infrastructure approved "Stage 2 Water Management Plan" required under Schedule 4, condition 18 of the Project Approval (08_0144) for the Stage 2 project. The results of this monitoring are required to be reported in the Annual Environmental Management Report (AEMR).	Noted	Groundwater monitoring is undertaken as described in the water management plan and results are reported in the AEMR each year.									
M3.1	Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with: (a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or	C	A review of monitoring data and reports confirmed that air monitoring is being undertaken using approved methods.									
	(b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or	NT										
	(c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology in writing by the EPA for the purposes of that testing prior the testing taking place.	NT										
M3.2	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.	C	Water quality monitoring is being carried out using approved methods.									
	Note: The Protection of the Environment Operations (Clean Air) Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".	C	Air quality monitoring is being undertaken using approved methods.									
M3.3	Clause 18 (1), (1A) and (2) of the Protection of the Environment Operations (General) Regulation 2009 requires that monitoring of actual loads of assessable pollutants listed in L2.2 must be carried out in accordance with the testing method set out in the relevant load calculation protocol for the fee-based activity classification listed in condition A1.1.	NT	No assessable pollutants are specified in the licence.									
M3.4	Noise Monitoring: For each monitoring points specified below, the Licensee must monitor the noise parameter specified in Column 1. The Licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns.											
	POINTS: N1, N3, N5, N6, N7, and N8											
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Parameter	Units of measure	Frequency	Sampling Method									
Ambient Noise	LAeq (15 minute) LAmax LA1 LA10 LA90 LAmin	Quarterly frequency of monitoring as detailed in the most recently approved "Noise Management Plan" for the premises.	As detailed in the most recently approved "Noise Management Plan" for the premises.									
M3.5	M3.5 POINT: N10											
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M3.6	<p>For the purpose of this condition, the noise monitoring locations are described as:</p> <table border="1"> <thead> <tr> <th>EPA Identification No.</th> <th>Description of Location</th> </tr> </thead> <tbody> <tr> <td>N1</td> <td>Within 30m of the residence on property "Bow Hills"</td> </tr> <tr> <td>N3</td> <td>Within 30m of the residence on property "Naroo"</td> </tr> <tr> <td>N5</td> <td>Within 30m of the residence on property "Oakleigh"</td> </tr> <tr> <td>N6</td> <td>Within 30m of the residence on property "Newhaven"</td> </tr> <tr> <td>N7</td> <td>Within 30m of the residence on property "Belah Park"</td> </tr> <tr> <td>N8</td> <td>Within 30m of the residence on property "Haylin View"</td> </tr> <tr> <td>N10</td> <td>Portable monitor</td> </tr> </tbody> </table>	EPA Identification No.	Description of Location	N1	Within 30m of the residence on property "Bow Hills"	N3	Within 30m of the residence on property "Naroo"	N5	Within 30m of the residence on property "Oakleigh"	N6	Within 30m of the residence on property "Newhaven"	N7	Within 30m of the residence on property "Belah Park"	N8	Within 30m of the residence on property "Haylin View"	N10	Portable monitor	O	Monitoring data and noise reports reviewed identified that monitoring is generally being undertaken at the locations specified. It is understood that access is limited to at least one location and so the monitoring results are extrapolated from a representative location, and monitoring at Belah Park, due to a change in ownership, is now carried out at the residence at Merriman.																														
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M3.7	Note: Monitoring at N8 to commence when surface activities approach the eastern end of the southern longwall panels.	NT	Longwall mining has not yet progressed to this point.																																														
M3.8	Note: N10 is a portable monitor enabling the monitor to be relocated to areas of potential greatest impact. The licensee is responsible to ensure that it is located at the most suitable location.	Noted																																															
M4.1	<p>Requirement to Monitor Weather: For each monitoring point specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the parameter specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns:</p> <p>POINT W1</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Units of Measure</th> <th>Frequency</th> <th>Averaging Period</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Rainfall</td> <td>mm</td> <td>Continuous</td> <td>1 hour</td> <td>AM-4</td> </tr> <tr> <td>Wind speed @ 10 metres</td> <td>m/s</td> <td>Continuous</td> <td>15 minute</td> <td>AM-2 & AM-4</td> </tr> <tr> <td>Wind direction @ 10 metres</td> <td>°</td> <td>Continuous</td> <td>15 minute</td> <td>AM-2 & AM-4</td> </tr> <tr> <td>Temperature @ 2 metres</td> <td>°C</td> <td>Continuous</td> <td>15 minute</td> <td>AM-4</td> </tr> <tr> <td>Temperature @ 10 metres</td> <td>°C</td> <td>Continuous</td> <td>15 minute</td> <td>AM-4</td> </tr> <tr> <td>Sigma theta @ 10 metres</td> <td>°</td> <td>Continuous</td> <td>15 minute</td> <td>AM-2 & AM-4</td> </tr> <tr> <td>Solar radiation</td> <td>W/m²</td> <td>Continuous</td> <td>15 minute</td> <td>AM-4</td> </tr> <tr> <td>Additional requirements - siting - measurement</td> <td></td> <td></td> <td></td> <td>AM-1 & AM-4 AM-2 & AM-4</td> </tr> </tbody> </table>	Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method	Rainfall	mm	Continuous	1 hour	AM-4	Wind speed @ 10 metres	m/s	Continuous	15 minute	AM-2 & AM-4	Wind direction @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4	Temperature @ 2 metres	°C	Continuous	15 minute	AM-4	Temperature @ 10 metres	°C	Continuous	15 minute	AM-4	Sigma theta @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4	Solar radiation	W/m ²	Continuous	15 minute	AM-4	Additional requirements - siting - measurement				AM-1 & AM-4 AM-2 & AM-4	C	It is noted that the weather station satisfies the requirements of this condition. However, the suitability of the weather station to measure lapse rate, as lapse rate is to be reported, should be reviewed.	
Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method																																													
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Solar radiation	W/m ²	Continuous	15 minute	AM-4																																													
Additional requirements - siting - measurement				AM-1 & AM-4 AM-2 & AM-4																																													
M5.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.	C	Complaints records were observed to be retained electronically on the NCOPL server.																																														
M5.2	The record must include details of the following:																																																
	(a) the date and time of the complaint;	C																																															
	(b) the method by which the complaint was made;	C																																															
	(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;	C																																															
	(d) the nature of the complaint;	C																																															
	(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and	C																																															
	(f) if no action was taken by the licensee, the reasons why no action was taken.	C																																															
			A review of the complaints records confirmed that the details required by this condition are being maintained by NCOPL. It was also noted that a summary of the complaints, excluding the personal details of the complainant were also observed to be available for review of the Whitehaven website.																																														

Environment Protection Licence No. 12789

Review Due Date: 20/2/2013



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
M5.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	C	Records were noted to be available from the commencement of operations in 2008.	
M5.4	The record must be produced to any authorised officer of the EPA who asks to see them.	NT	NCOPL advised that no authorised officer has asked to see them.	
M6.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.	C	A telephone complaints line has been established.	
M6.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.	C	The complaints telephone number is advertised on the Narrabri Mine page of the Whitehaven website. It is also advertised twice yearly in the local newspaper.	
M6.3	Conditions M5.1 and M5.2 do not apply until 3 months after: (a) the date of the issue of this licence or	C		
	(b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.	NT		
M7.1	To assess compliance with the noise limits presented in the Noise Limits table, attended noise monitoring must be undertaken in accordance with the condition titled Determining Compliance, outlined above, and:			
	a) at each one of the locations listed in the Noise Limits table;	O	Monitoring data and noise reports reviewed identified that monitoring is generally being undertaken at the locations specified. It is understood that access is limited to at least one location and so the monitoring results are extrapolated from a representative location, and monitoring at Belah Park, due to a change in ownership, is now carried out at the residence at Merriman.	
	b) occur quarterly in a reporting period;	C	Monitoring is currently conducted on a quarterly basis.	
	c) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:	C	Noise reports reviewed during the audit confirmed that monitoring is being undertaken as required by this condition.	
	i) 1.5 hours during the day;		For example, noise monitoring conducted 22, 23 and 24 September 2013.	
ii) 30 minutes during the evening; and				
iii) 1 hour during the night.				
d) occur for three consecutive operating days.				
R1.1	The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:			
	(a) a Statement of Compliance; and	C	Annual Returns for 2011/2012 and 2012/2013 were reviewed during the audit.	
	(b) a Monitoring and Complaints Summary.	C		
	At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	C	Annual Returns were observed to have been completed on the forms provided.	
R1.2	An Annual Return must be prepared in respect of each reporting period, except as provided below.	C		
R1.3	Where this licence is transferred from the licensee to a new licensee:			
	(a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and	C	A name change to Narrabri Coal Operations Pty Ltd necessitated a licence transfer in May 2012. It was noted that an Annual Return had been completed for the period 20/2/2012 to 30/5/2012 for the old name, and a second Annual Return had been completed for the period 31/5/2012 to 19/2/2013 following the approval of the licence transfer.	
	(b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.	C		
R1.4	Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:	NT	The licence has not been revoked or surrendered.	
	(a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or			
	(b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.			
R1.5	The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').	C	Evidence was sighted to indicate that Annual Returns were sent within the required timeframes.	

Environment Protection Licence No. 12789

Review Due Date: 20/2/2013



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.	C	Copies of previous Annual Returns were noted to be available on the NCOPL server.	
R1.7	Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: (a) the licence holder; or (b) by a person approved in writing by the EPA to sign on behalf of the licence holder.	C	Annual Returns were noted to be signed by a Director and the Company Secretary.	
R1.8	A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.	NT		
	Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.	Noted		
	Note: An application to transfer a licence must be made in the approved form for this purpose.	Noted		
R2	Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.	C		
R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.	C	Evidence was sighted that Narrabri now notifies and documents the reporting of incidents via the Environment Line.	The auditor noted that there had been a significant improvement in the reporting of incidents since the last audit.
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.	C	Evidence was sighted that incidents are generally notified to relevant agencies within the timeframes specified. For example, incident involving discharge from SB3 - occurred at 10am on 25/11/11, reported to EPA via pollution line at 12.47pm on 25/11/11, with letter report submitted 30/11/11. An update report was also issued on 8/12/11 which included water quality results. Similarly, the report for noise monitoring conducted by Global Acoustics on 21/5/2013 was received by the mine on 29/5/2013 - evidence was sighted to demonstrate that DP&I, EPA and the landowner were notified that day with the written report on the incident submitted 5 June 2013. A followup report was sent 9/9/13 to EPA, DP&I and the land owner including the monitoring results which demonstrated that noise levels were within criteria for September.	
R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: (a) where this licence applies to premises, an event has occurred at the premises; or (b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.	NT	NCOPL advised that no written reports have been requested by EPA.	
R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.	NT		
R3.3	The request may require a report which includes any or all of the following information: (a) the cause, time and duration of the event; (b) the type, volume and concentration of every pollutant discharged as a result of the event;	NT		

Environment Protection Licence No. 12789

Review Due Date: 20/2/2013



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
	(c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;			

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments										
	(d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; (e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; (f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and (g) any other relevant matters.													
R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.	NT												
R4.1	A noise compliance assessment report must be submitted to the EPA within thirty (30) days of the completion of the quarterly noise monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include: a) an assessment of compliance with noise limits detailed in the limit conditions of this licence; and b) an outline of any management actions taken within the monitoring period to address any exceedances of the limits detailed in the limit conditions of this licence.	C	Evidence was sighted to indicate that noise compliance assessment reports are submitted on a quarterly basis as required. For example, reports submitted 17 January 2013, 6 July 2012, 15 October 2012 and 4 March 2013. One report submitted 23 May 2012 was submitted outside of the 30 day period but generally reports were noted to be submitted within the timeframe.											
		C												
		C												
G1.1	A copy of this licence must be kept at the premises to which the licence applies.	C	Licence was observed to be available at the premises.											
G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.	NT	Narrabri advised that no authorised officer has asked to see it.											
G1.3	The licence must be available for inspection by any employee or agent of the licensee working at the premises.	C	Licence was made available to the auditors.											
U1.1	The licensee must investigate the following options for dust mitigation and report on their effectiveness by the due date in the Table below: <table border="1" data-bbox="210 1144 926 1451"> <thead> <tr> <th>Dust Mitigation Measure</th> <th>Due Date</th> </tr> </thead> <tbody> <tr> <td>Install shrouding around Radiator Fan and Blade on Dozers on Stockpiles.</td> <td>31 December 2013</td> </tr> <tr> <td>Install Water Sprays on Dozer Trafficking Areas around ROM and Product Stockpiles.</td> <td>31 December 2013</td> </tr> <tr> <td>Trial of variable Coal flow options to minimise thermal coal exposure to wind.</td> <td>28 February 2013</td> </tr> <tr> <td>Review of chute shape and cover, and application of spray ring at discharge point.</td> <td>28 February 2013</td> </tr> </tbody> </table>	Dust Mitigation Measure	Due Date	Install shrouding around Radiator Fan and Blade on Dozers on Stockpiles.	31 December 2013	Install Water Sprays on Dozer Trafficking Areas around ROM and Product Stockpiles.	31 December 2013	Trial of variable Coal flow options to minimise thermal coal exposure to wind.	28 February 2013	Review of chute shape and cover, and application of spray ring at discharge point.	28 February 2013	NT	The due dates for the implementation of these measures are beyond the period covered by the audit. However, evidence was sighted that NCOPL are working towards achieving the dust mitigation measures by the due dates. For example, water sprays were observed to have been installed on dozer trafficking areas around the ROM stockpile. NCOPL also advised that they are currently in discussion with Komatsu in relation to the fitting of shrouds on the radiator fan and blade.	
Dust Mitigation Measure	Due Date													
Install shrouding around Radiator Fan and Blade on Dozers on Stockpiles.	31 December 2013													
Install Water Sprays on Dozer Trafficking Areas around ROM and Product Stockpiles.	31 December 2013													
Trial of variable Coal flow options to minimise thermal coal exposure to wind.	28 February 2013													
Review of chute shape and cover, and application of spray ring at discharge point.	28 February 2013													
U2.1	The licensee must develop and implement an Air Quality Control Protocol (AQCP) to reduce coal dust emissions from coal stockpiles during adverse weather conditions. The AQCP must include reactive/predictive tools that can be used to determine appropriate site operational management procedures applicable to coal stockpiles, designed to minimise dust emissions during adverse weather conditions.	NT	The AQCP is due to be submitted by 29 November 2013 which is beyond the audit period. However, evidence was sighted that NCOPL are in the process of developing the AQCP. For example, a Trigger Action Response Plan (TARP) has been prepared which identifies the triggers and actions for each level of dust nuisance. Dust was observed by the auditor from the stockpile operations on the day of the audit and an inspection of the CHPP control room at the time indicated that the TARP was implemented (for example, feed off conveyor belts and sprays activated.)											

Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
U2.2	<p>The AQCP must include a monitoring program that provides detail on the following:</p> <ul style="list-style-type: none"> • The parameters to be monitored • The methods to be used to monitor each parameter • The location and frequency at which each parameter will be monitored • A means of documenting and maintaining monitoring data • Justification for each parameter selected and the development of key performance indicators to demonstrate the level of control efficiency achieved in respect of the best management practice measures documented in the Katestone (June 2011) report. <p>As a guide the EPA expects that the monitoring program would include the following parameters:</p> <ul style="list-style-type: none"> • Wind speed and direction. • Temperature • Evaporation rates • Solar radiation • Ambient air quality monitoring of TSP and PM10 • ROM and product coal moisture levels • Water spray cycling time • Water spray operation, including modified spray cycles to manage winds from different directions. • Water spray application rates • Stockpile shape, height and orientation • Visual cues 	NT	The AQCP is due to be submitted by 29 November 2013 which is beyond the audit period.	
	Note: Other parameters may be nominated and the licensee should select those parameters which adequately support its nominated key performance indicators.			
U2.3	<p>The AQCP must determine appropriate response mechanisms to minimise dust emissions based on monitoring data such as:</p> <ul style="list-style-type: none"> • cessation or modification of mobile plant operating on coal stockpiles; • trigger levels for activation of fixed and/or mobile water spray systems; • trigger levels for increased frequency of wetting cycles and/or increased water application rates; • trigger levels for application of chemical dust suppressants where feasible and practical. 	NT	The AQCP is due to be submitted by 29 November 2013 which is beyond the audit period.	
U2.4	The AQCP must be submitted by the licensee to the Environment Protection Authority, Regional Manager Armidale by 29 November 2013.	NT	The AQCP is due to be submitted by 29 November 2013 which is beyond the audit period.	
	Note: The EPA intends to require the licensee to implement the Monitoring Program.	Noted		
E1.1	Prior to the commissioning of the Brine Storage Ponds (approved per Stage 2 Development Consent 08_0144), the licensee must provide the EPA Armidale office with an "as constructed" report, produced by an experienced and qualified engineer. The report must include detailed design plans for the ponds and illustrate the use of low permeability layers to manage mine waters generated by the project. The report also must include a detailed Quality Assurance/Quality Control program that was used throughout the construction of the ponds..	C	The previous audit identified that the "As Constructed" report had not been submitted to EPA as required. Evidence was sighted to indicate that this has now been done.	
E2.1	Noise impacts where wind speed exceeds 3 metres per second at 10 metres above the ground must be addressed by:	C		
	a) documenting noise complaints received to identify any higher level of impacts or wind patterns;	C		
	where levels of noise complaints indicated a higher level of impact then actions to quantify and ameliorate any enhanced impacts where wind speed exceeds 3 metres per second at 10 metres above the ground should be developed and implemented.	C		



APPENDIX 4

Compliance Assessment ML 1609

Mining Lease No: 1609

Lease granted 18 January 2008 - due to expire January 2029

Conditions 2-8 and 17-23 are identified as conditions relating to environmental management.



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
2	The proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the development.	NC	<p>Five incidents have occurred at the Narrabri Mine since November 2011. These are:</p> <ul style="list-style-type: none"> • two discharges from SB3, located at the REA, during heavy rain in Nov 2011 and Feb 2012; • two discharges from SB2, located at the coal processing and stockpile areas, during heavy rain in Nov 2011 and Feb 2012; • a discharge of coal impacted water from VPW 26, used for pre-drainage of water and gas from the underground coal workings in Feb 2012. <p>These incidents resulted in the following Penalty Infringement Notices (PINs) being issued by EPA:</p> <ul style="list-style-type: none"> • SB3 discharge on 25/11/2011 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (pump taken from dam and placed in box cut) (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner); • SB2 discharge (coal impacted water) – two PINS (25/11/2011 & 1/02/2012) as contravened condition O1.1 of licence (not undertaking activities in a competent manner), i.e. dams undersized; and • VPW26 discharge on 10/02/2012 – two PINS, one for pollution of waters (contravene POEO Act) and one for not maintaining equipment (contravened condition O1.1 of licence, i.e. not undertaking activities in a competent manner). <p>No PINS were issued for February 2012 discharge from SB3.</p>	
3	(a) Mining operations must not be carried out otherwise than in accordance with a Mining Operations Plan (MOP) which has been approved by the Director-General of the Department of Primary Industries.	O	Current MOP : Mining Operations Plan for the Stage 2 Longwall Project of the Narrabri Mine for the period ending 31 December 2017.	Goaf gas drainage plants were proposed to be located at 200 metre spacings as described in Section 3.3.5 of the MOP. During the mining of LW01, it was necessary to increase the number of gas drainage plants which were now observed to be spaced at 50 metre intervals. It is understood that NCOPL is investigating alternate spacings, however, if 50 metre spacings will be required for future longwall panels, this is unlikely to be considered as generally in accordance with the approved MOP.
	(b) The MOP must:			
	identify areas that will be disturbed by mining operations;	C	Addressed in Section 3 of the MOP	
	detail the staging of specific mining operations;	C	Addressed in Section 3 of the MOP	
	identify how the mine will be managed to allow mine closure;	C	Final rehabilitation and mine closure is discussed in Section 5 of the MOP.	
	identify how mining operations will be carried out on site in order to prevent and or minimise harm to the environment;	C	Environmental management controls are described in Section 7 of the MOP.	
	reflect the conditions of approval under: the <i>Environmental Planning and Assessment Act 1979</i> the <i>Protection of the Environment Operations Act 1997</i> and any other approvals relevant to the development including the conditions of this lease; and	C	The approvals, licences, permits etc that apply to the site and its operations are documented in Section 1.3 of the MOP.	

Mining Lease No: 1609

Lease granted 18 January 2008 - due to expire January 2029

Conditions 2-8 and 17-23 are identified as conditions relating to environmental management.



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
	have regard to any relevant guidelines adopted by the Director-General.	C	The MOP refers to the Guidelines to the Mining, Rehabilitation and Environmental Management Process" prepared by the DPI-MR (the "Guidelines" - Ref:EDG03)	
	(c) The titleholder may apply to the Director-General to amend an approved MOP at any time.	C	The most recent version of the MOP is dated November 2012.	
	(d) It is not a breach of this condition if: i) the operations constituting the breach were necessary to comply with a lawful order or direction given under the Mining Act 1992 , the Environmental Planning and Assessment Act 1979 , Protection of the Environment Operations Act 1997 or the Occupational Health and Safety Act 2000 , and	NT	No breaches identified to date.	
	ii) the Director-General had been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out.	NT		
	(e) A MOP ceases to have affect 7 years after date of approval or other such period as identified by the Director-General. An approved amendment to the MOP under condition 5 does not constitute an approval for the purpose of this paragraph unless otherwise identified by the Director-General.	NT	MOP is still current.	
4	The lease holder must lodge Environmental Management Reports (EMR) with the Director-General annually or at dates otherwise directed by the Director-General.	C	AEMRs for the 2011-2012 and 2012-2013 reporting periods were reviewed during the audit.	
5	The EMR must: report against compliance with the MOP;	C	Addressed in various sections of the AEMR.	
	report on progress in respect of rehabilitation completion criteria;	C	The rehabilitation status of the site and a description of works undertaken is included in Section 5 of the 2012-2013 AEMR.	
	report on the extent of compliance with regulatory requirements; and	C	Appendix 3 of each of the 2011-2012 and 2012-2013 AEMRs includes a compliance review against each of the conditions of the Project Approval, EPL and Mining Lease for the site.	
	have regard to any relevant guidelines adopted by the Director-General.	C	Section 1.1.1 of the 2012-2013 AEMR references the Guidelines to the Mining, Rehabilitation and Environmental Management Process , Version 3, dated January 2006 which were the guidelines in effect at the time the AEMRs were produced.	
6	Additional environmental reports may be required on specific surface disturbing operations or environmental incidents from time to time as directed in writing by the Director-General and must be lodged as instructed.	NT	No additional reports had been requested at the time of the audit.	
7	Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	C	Narrabri has commenced rehabilitation of areas no longer required for active mining operations. For example, the construction areas around the vent shaft site have been reshaped and topsoiled. It was also noted that areas above LW1, that has experienced subsidence, had been ripped and re-sown.	
8	(a) The lease holder shall prepare a Subsidence Management Plan prior to commencing any underground mining operations which will potentially lead to subsidence of the land surface.	C	An Extraction Plan was prepared for LW1 - 5 by AECOM in November 2011. This Plan was subsequently approved by DRE subject to a range of conditions on 13/4/2012.	
	(b) Underground mining operations which will potentially lead to subsidence include secondary extraction panels such as longwalls or miniwalls, associated first workings (gateroads, installation roads and associated main headings, etc) and pillar extractions, and are otherwise defined by the Applications for Subsidence Management Approvals guidelines (EDG17) .	Noted		

Mining Lease No: 1609

Lease granted 18 January 2008 - due to expire January 2029

Conditions 2-8 and 17-23 are identified as conditions relating to environmental management.



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
	(c) The lease holder must not commence or undertake underground mining operations that will potentially lead to subsidence other than in accordance with a Subsidence Management Plan approved by the Director-General, an approval under the <i>Coal Mine Health and Safety Act 2002</i> , or the document <i>New Subsidence Management Plan Approval Process - Transitional Provisions</i> (EDP09).	O	It was observed that a number of large trees appeared to have died off along Greylands Road and Pine Creek Tributary 1 following the mining of longwall panel LW01. NCOPL are currently investigating this issue to ascertain if it was related to subsidence - if so, this would not be considered to be minimising the disturbance of vegetation above the mining area, as these impacts were not predicted to occur.	

Mining Lease No: 1609

Lease granted 18 January 2008 - due to expire January 2029

Conditions 2-8 and 17-23 are identified as conditions relating to environmental management.



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
	(d) Subsidence Management Plans as approved shall form part of the Mining Operations required under Condition 2 and will be subject to the Annual Environmental Management Report process as set out under Condition 3. The SMP is also subject to the requirements for subsidence monitoring and reporting set out in the document <i>New Approval Process for Management of Coal Mining Subsidence - Policy</i> .	O	The issue of trees dying over LW01 was not initially raised as an issue with DRE. Condition 16 of the Subsidence Management Plan Approval for Longwalls 101-105 requires the Leaseholder to report within 24 hours of any exceedance of predicted impacts on groundwater resources or the natural environment that may have been caused (either partly or wholly) by subsidence. It was noted, however, that the issue was reported in the 2013 AEMR which was submitted to the Department.	
15	(a) Ground Vibration The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Climate Change and Environment.	NT	Blasting has not been undertaken during the period covered by then audit.	
	(b) Blast Overpressure The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Climate Change and Environment.	NT	Blasting has not been undertaken during the period covered by then audit.	
17	(1) At least twenty eight days prior to commencement of drilling operations the lease holder must notify the relevant Department of Climate Change and Environment regional hydrogeologist of the intention to drill exploratory drill holes together with information on the location of the proposed holes.	C	Exploration Drilling Notification - Narrabri North (dated 10/3/2011) sighted	
	(2) If the lease holder drills exploratory drill holes he must satisfy the Director-General that:-	C	Geology and Exploration - Cementing Record sighted. For example records for hole NC555C.	
	(a) all cored holes are accurately surveyed and permanently marked in accordance with Departmental guidelines so that their location can be easily established;			
	(b) all holes cored or otherwise are sealed to prevent the collapse of the surrounding surface;			
	(c) all drill holes are permanently sealed with cement plugs to prevent surface discharge of groundwaters;			
	(d) if any drill hole meets natural or noxious gases it is plugged or sealed to prevent their escape;			
	(e) if any drill hole meets an artesian or sub-artesian flow it is effectively sealed to prevent contamination of aquifers.			
(f) once any drill hole ceases to be used the hole must be sealed in accordance with Departmental guidelines. Alternatively, the hole must be sealed as instructed by the Director-General.				
(g) once any drill hole ceases to be used the land and its immediate vicinity is left in a clean, tidy and stable condition.				

Mining Lease No: 1609

Lease granted 18 January 2008 - due to expire January 2029

Conditions 2-8 and 17-23 are identified as conditions relating to environmental management.



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
18	Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.	NC	As outlined in condition 2, five incidents occurred at Narrabri Mine since November 2011. Of these incidents, two unlicensed offsite water discharges from the mine site resulted in two PINs being issued by the EPA for pollution of waters during the period covered by the audit.	It was noted by the audit team that actions have been implemented to address the issues that resulted in the discharges and minimise the potential for any further unplanned discharges.
19	Operations must not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility on the lease area without the prior written approval of the Director-General and subject to any conditions he may stipulate.	C		
20	(a) Activities on the lease must not interfere with or damage fences without the prior written approval of the owner thereof or the Minister and subject to any conditions the Minister may stipulate.	C	It was noted by the audit team that actions have been implemented to address the issues that resulted in the discharges and minimise the potential for any further unplanned discharges. No further actions are considered to be required, however ongoing monitoring of the water management system should be undertaken to minimise the potential	
	(b) Gates within the lease area must be closed or left open in accordance with the requirements of the landholder.	C	Narrabri owns the land upon which mining operations are currently being undertaken.	
21	(a) Operations must not affect any road unless in accordance with an accepted Mining Operations Plan or with the prior written approval of the Director-General and subject to any conditions he may stipulate.	C	Mining operations are currently affecting Greylands Road. This was included in the approved MOP and evidence was sighted that Narrabri are continuing to liaise with NSC in relation to the closing and purchase of the road affected by mining operations.	
	(b) The lease holder must pay to the designated authority in control of the road (generally the local council or the Roads and Traffic Authority) the cost incurred in fixing any damage to roads caused by operations carried out under the lease, less any amount paid or payable from the Mines Subsidence Compensation Fund.	NT	The mine currently does any maintenance required on Greylands Road.	
22	Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks must be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations. The design and construction of access tracks must be in accordance with specifications fixed by the Department of Climate Change and Environment.	O		
23	(a) The lease holder must not fell trees, strip bark or cut timber on the lease without the consent of the landholder who is entitled to the use of the timber, or if such a landholder refuses consent or attaches unreasonable conditions to the consent, without the approval of a warden.	C	Narrabri owns the land on which clearing operations have been undertaken.	
	(b) The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease area except such as directly obstructs or prevents the carrying on of operations. Any clearing not authorised under the Mining Act 1992 must comply with the provisions of the Native Vegetation Act 2003.	O	It was observed that a number of large trees appeared to have died off along Greylands Road and Pine Creek Tributary 1 following the mining of longwall panel LW01. NCOPL are currently investigating this issue.	

Mining Lease No: 1609

Lease granted 18 January 2008 - due to expire January 2029

Conditions 2-8 and 17-23 are identified as conditions relating to environmental management.



Condition No.	Requirement	Compliance Y/N/NT	Evidence	Comments
	(c) The lease holder must obtain all necessary approvals or licences before using timber from any Crown land within the lease area.	NT	Narrabri staff advised that no timber had been removed from Crown land during the period covered by the audit.	



APPENDIX 5

Photographic Plates



PLATE 1
Workshop at the surface facilities



PLATE 2
Hardstand and laydown area



PLATE 3
Box cut and portals



PLATE 4
Ventilation Fan site



PLATE 5
Product coal stockpile and rail loadout bin



PLATE 6
Coal handling and preparation plant



PLATE 7
Reverse osmosis and water conditioning plant



PLATE 8
Ponded water in subsidence area above longwall panel LW01



PLATE 9
Cracking associated with subsidence above LW01



PLATE 10
Cracking across Greylands Road within the subsidence area of LW01
(note: road was closed to public access)



PLATE 11
Large trees dying within the LW01 subsidence area along Greylands Road



PLATE 12
Apparent tree death along Pine Creek Tributary 1 within the LW01 subsidence area



PLATE 13
Dust generation from product coal stockpile



PLATE 14
Dust generation from dozer operating on ROM stockpile site



PLATE 15
Goaf gas drainage plant



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